

WILLIAM
& MARY

INFORMATION
TECHNOLOGY

2014

A MESSAGE FROM THE CIO

COURTNEY CARPENTER

Dear Colleagues,

The department of Information Technology at the College of William & Mary is dedicated to comprehensive, quality support of technology and information systems for the campus community. More than that, though, we are dedicated to fostering a partnership with our colleagues and friends on campus.

William & Mary is a distinctive university, and one of those distinctions is our IT department. We do not simply serve the community; we are a part of the community. In support of the faculty, staff, and students, W&M IT has adopted the university's ideal of excellence. As we work with our academic colleagues to actualize their imaginations with innovations in technology and teaching, we grow and advance with them.

In Information Technology, we envision a university where technology is seamlessly integrated with academic, research, and workplace environments to support and amplify the efforts of faculty, staff, and students. In this annual report, you will see examples of projects we undertook in the past year to support the academic and research goals, as well as the daily productivity of the College of William & Mary. You will also see IT's vision for the future in the upcoming projects and initiatives that we are currently working to realize.

We are energized and enticed by the creativity and passion of our partners on campus as we support this timeless institution and the leaders who are forged within its halls.

Sincerely,
Courtney Carpenter



W&M gets first computer. Prof. Raymond W. Southworth (Math) is the Director of the Computer Center



First prime computer, used for academic interactive computing from terminals in labs around campus

W&M purchases 40 PCs for first PAC lab on campus

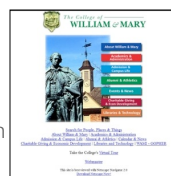
New telecom system allows data to be sent over the wires of the phone system

Internet is made available to faculty and staff

Residence halls are wired for Internet access

Cable TV is available in residence halls

First W&M webpage is created, including a space for IT



Official birth year of W&M IT. Four departments are merged (Educational Media Services, Telecom, Computer Center and the Help Desk) to create the department now known as Information Technology

Formation of the Technology Support Center

1967 1981 1988 1989 1994 1996 1996 1996 1997 1998

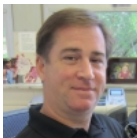
OFFICE OF THE CIO



Courtney Carpenter
Chief Information Officer
Associate Provost for Information Technology



Bernadette Kenney
Deputy Chief Information Officer



Peter Kellogg
Director of Information Security and Project Management



Rachel Pace
Director of Enterprise Information Systems



Gene Roche (Retired July 2014)
Director of Academic Information Services
(Position currently vacant)



Robert (Chris) Ward
Director of Systems and Support

IT STEERING COMMITTEE

Courtney Carpenter, CIO and Chair
Michael Halleran, Provost and Co-Chair

Ginger Ambler, Vice President for Student Affairs
Henry Broaddus, Associate Provost for Enrollment/Vice President of Strategic Initiatives

Carrie Cooper, Dean of University Libraries

Terry Driscoll, Director of Athletics

John Griffin, Dean of Undergraduate Studies

Keith Griffioen, Professor of Physics

Laura Heymann, Vice Dean & Class of 2014 Professor of Law

Mark Hofer, Associate Dean and Spears Term Distinguished Associate Professor, School of Education

Sam Jones, Vice President for Finance

Matthew Lambert, Vice President for University Advancement

Dennis Manos, Vice Provost for Research & Graduate Professional Studies

Anna Martin, Vice President for Administration

Salvatore Saporito, Associate Professor of Sociology (Spring 2014)

Denise Wade, Associate Professor of Dance, Director William & Mary Dance (Fall 2014)

Tom Ward, Professor, School of Education

John Wells, Dean and Director of VIMS

Ex Officio Members:

Kent Erdahl, Director of Internal Audit

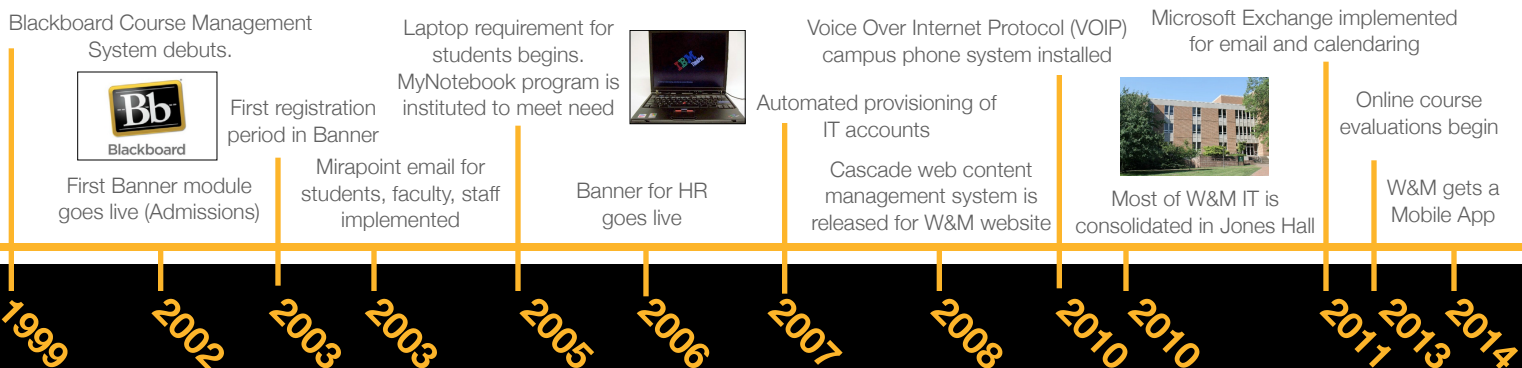
Peter Kellogg, Director of Information Security and Project Management

Bernadette Kenney, Deputy Chief Information Officer for Information Technology

Rachel Pace, Director of Enterprise Information Systems

Robert (Chris) Ward, Director of Systems and Support

Director of Academic Information Services (Position currently vacant)



STUDENT SERVICES

Printed pages for every admission application:
22 (Then)  1 (Now)

ADMISSIONS APPLICATIONS GO DIGITAL

The Class of 2018 made history. They were the first in more than 300 years to have digital applications. With a record number of undergraduate applications coming in during the admission cycle, the timing was just right for introducing this new service.

W&M Admission officers previously printed hard copy applications, consuming almost 100,000 pages of paper annually. Now, all applications are automatically loaded into Banner, allowing readers to view the applications online. With the need to pass paper files back and forth eliminated, admission staff can easily consult on applications. As student files now exist digitally, their information can be transferred and shared between departments both during the admission process and once the student is enrolled. Each application file used to contain 22 pieces of paper—that number has been reduced to one.

A collaborative effort between W&M IT and the Undergraduate Admission staff proved to be the key to success. Extensive technology-related preparation for the implementation was needed. Preparations included training with vendor consultants on how to use document imaging; building a test environment with servers, databases, and an application layer to load in test data and facilitate training; and rearranging nightly jobs and processes to accommodate new data coming in electronically, including applicant test scores.

The document imaging project will include many offices over time, but the implementation team focused on the Undergraduate Admission Office first. The Registrar's Office is next on the docket.



Paper application files like these will now be stored and read digitally.

What does Registration look like to Banner?

Registration is a stressful time for everyone involved - especially to the IT system that supports it, Banner.

Registration “windows” are assigned to each social class of students at W&M. Banner has to be able to handle the impact when these windows open. That entails about 1,200 computers connecting to Banner at once.

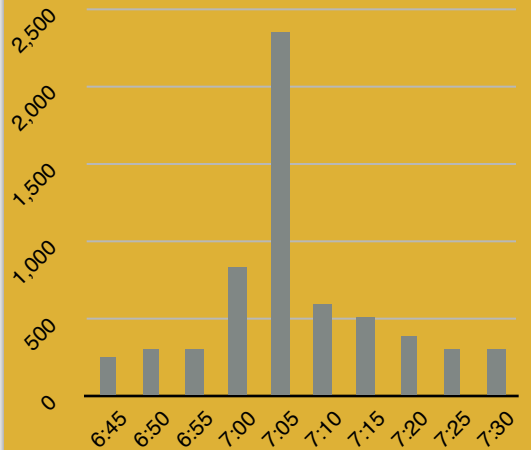
Various computers will have 2 or 3 connections to different instances of Banner, so the workload on Banner is actually much higher - hitting close to 2,500 connections in the example below.

Connections to Banner

Freshman Registration

Nov. 6, 2014

Window opened at 7:00 am



DEGREEWORKS: Evaluations Made Simple

DegreeWorks is degree audit software that provides students and advisors with tools that allow them to perform various tasks, from crafting multiyear student plans to calculating tentative GPAs. It replaces the current software used in Banner.

DegreeWorks integrates with the online course catalog, enabling it to provide students with dynamic course advice based on their previous, current and planned course credit, rather than simply displaying which GERs they have and have not completed. DegreeWorks interacts with students, showing them which specific requirements are outstanding and indicating the classes that can potentially fulfill them.

The system is used by our current undergraduate freshmen and new transfer students, as well as all law students and students from other selected graduate programs. The current degree evaluation program will be phased out progressively as the current undergraduate classes graduate. The old program will leave campus once and for all with the graduating class of 2017.

DegreeWorks has the potential to change the way students think about their coursework. Gone are the days of complex and unintuitive degree evaluation. As Cory Springer, Senior Assistant Registrar, points out, the bottom line for this project is ease. “DegreeWorks is easy to navigate and it delivers the information in a more understandable way,” she states. “If it did nothing else but those two things, it would have been a win for us.” Actually, it will do much more than that.



ACADEMIC SUPPORT

HELPING FACULTY ENGAGE STUDENTS USING TECHNOLOGY

The Second Annual W&M Teaching & Technology Expo was held on Friday, March 28, 2014 at Miller Hall. The event was an open-house showcase focused on helping faculty explore technology as a tool to engage students in the classroom.

The Expo was once again a huge success, with Brinkley Commons packed from start to finish. Faculty and technical staff were ready to share their knowledge of both familiar and new technology and teaching strategies. The event was open to all W&M faculty and staff, and was well attended.

This year's Teaching & Technology Expo was co-sponsored by W&M's E-learning Community, the Provost's E-learning Committee, the Mason School of Business, W&M Information Technology, and Swem Library. W&M Information Technology was involved in all aspects of the Expo, most specifically in organizing the event, providing technical expertise, coordinating with faculty, and providing financial support. Additionally, IT staff members made up eight of the 10 members of the event planning committee.

The Expo included more than 25 table displays with exhibits on media management, blogs and wikis, screen capture, social media, design thinking, and more. Participants were not just able to learn about new technology, but also try it for themselves. Demos included several videoconferencing tools, a virtual classroom in AvayaLive, and new electronic resources from Swem Library. A 3D printing demonstration was also a popular display.

The event is only in its second year, but has already sparked the interest of a large number of W&M faculty and staff. Gene Roche, then Director of Academic Information Services, said "I think it's pretty incredible that we can bring this many people together who are experimenting with E-learning at William & Mary. All of these tables are filled with people who have actually tried it and made it happen in their classrooms. If we had tried to hold this event three years ago, we wouldn't have been able to fill up half of the room, and it really shows us how important E-learning is becoming. I think it's a great activity and just the beginning of things to come."



Jake Smith demonstrates media management tools at the 2014 Teaching & Technology Expo.



Kit creator, John Drummond, demonstrates the capabilities of the E-learning kits on the overhead monitor.

E-LEARNING KITS: Bringing Technology to Teaching

The E-learning community at William & Mary engaged in its inaugural meeting in December of 2011. Nearly three years later, the community maintains its own blog, and has banded together to bring modern technologies to the historical campus. One such technology is the E-learning kit, developed in the summer of 2014 by Academic Engineering Manager John Drummond.

The kit allows professors to develop presentations with more advanced recording and visual aid techniques. Camtasia integrates with Microsoft PowerPoint and affords professors the ability to record and annotate lessons. Currently, their primary use is to support the online classes offered in the summer sessions.

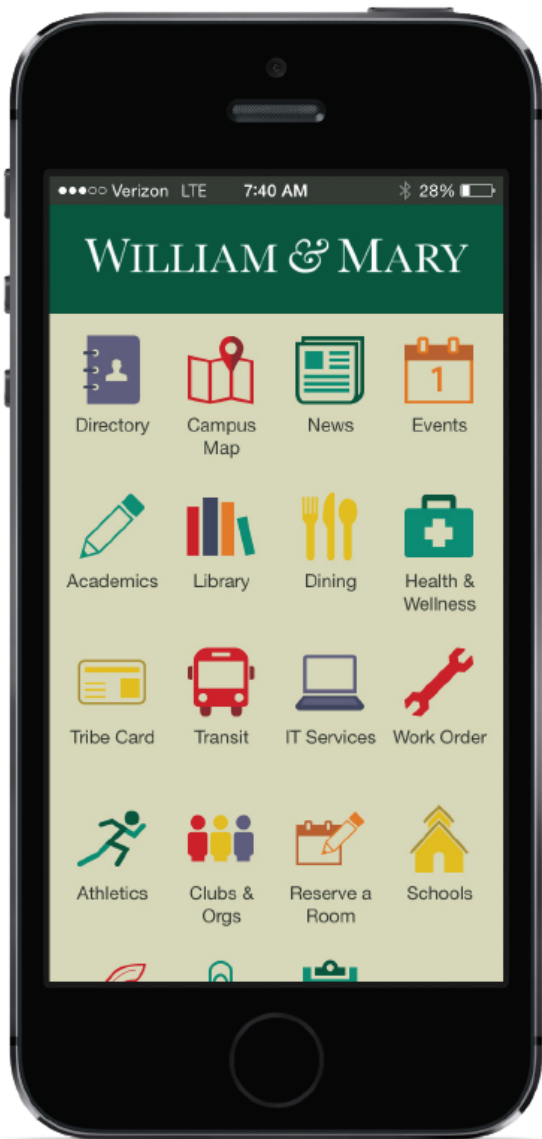
Drummond and his team configure the kits, maintain them and lend them out. He is optimistic for the future of the E-learning kits. As of now there are five available kits, but with growing interest, there may be a dozen within the early part of 2015.

GOING MOBILE

WILLIAM & MARY MOBILE APP

William & Mary officially launched a new mobile application in the summer of 2014 for both iOS and Android devices called William & Mary Mobile. The app is part of an ongoing effort by Information Technology and Creative Services to create a positive mobile experience for the W&M community. The app, developed in conjunction with a variety of campus partners, offers easy access to campus resources for current students, faculty and staff, alumni, friends and family.

Currently, the app allows users to do such things as submit work orders, manage their Tribe Card, search the campus directory, find places on campus, reserve a room, view dining locations and menus, and find transit schedules and routes. Soon students will also be able to access their course schedules and grades through the app.



Download W&M's app in the App Store or Google Play by scanning the QR code or searching for "William & Mary Mobile". You can also view it in your device's mobile browser at m.wm.edu.



The goals in pursuing a mobile app were to establish a broader presence for William & Mary in the mobile app market, to provide students with mobile-friendly access to their Banner and Blackboard course information, and to simplify access to campus services and resources frequented by our mobile users. The University partnered with Modo Labs to fulfill these goals.

"I've always thought we needed a bigger mobile presence," remarked William & Mary CIO, Courtney Carpenter, "and an app just seemed logical."

Although students are undoubtedly the primary target in the app's design, faculty & staff, alumni, and visitors of W&M also benefit from its utility. The app features modules dedicated to these groups, as well as a feed from William & Mary's social media streams and photo galleries. The mobile app also offers a campus map, mobile audio tour and Admission module for prospective applicants.

GO TRIBE! New Athletic Ticketing System

W&M IT and Tribe Athletics launched a new integrated ticketing management system during the 2014 fall season. It improves ticket accessibility for students, alumni and Tribe supporters. It also coordinates with the Tribe Club to provide more opportunities to engage with Athletics.

With a shopping cart approach, the new system enables Tribe supporters to purchase tickets or renew season tickets online. Ticket sales are monitored through a database, allowing real time updating of will call tickets. Students now swipe their Tribe Card for access to sporting events, which aids with planning for upcoming campus events. Venue pricing options, season ticket renewals, and block seating for large groups are now also accessible online.

"We wanted to personalize opportunities for the Tribe community to support William & Mary Athletics," says Corinne Picataggi, the project's technical manager. "The new system will provide the technical support needed to accommodate the Tribe Community as they cheer on our student-athletes."



Project Manager Corinne Picataggi supports Tribe Athletics both professionally and personally.

LEVERAGING OUR INFRASTRUCTURE

FILE SHARING & STORAGE



Box is William & Mary's new file sharing, file storage and collaboration platform for faculty and staff. With 100 GB of space, it provides a simple, secure way to store and share files online.

Box consolidates content in a single location, easily accessible from multiple device types (laptops, tablets and smartphones). Files and folders are shared with links, or by collaborations within folders. With multiple layers of security, sensitive data can be shared securely using the proper Box settings.

Box is replacing W&M's previous secure file sharing system called Wmfiles (aka Xythos), which has been used since 2008. Wmfiles will be retired on January 31, 2015.



Students also got a significant bump in storage capacity when Google announced it was providing all Google Apps for Education accounts unlimited data storage via Google Drive - that includes WMAApps, the W&M student email system.

VIRTUAL MACHINES

The equipment that runs W&M's systems and applications has traditionally required a lot of space. In that space there needs to be ventilation, proper temperature control, and electrical power in order for the equipment to function. Virtual machines allow us to dramatically reduce the space needed to store equipment - around 1/200 of the original space requirements - which also greatly reduces cooling costs and power usage.

One-by-one W&M systems have been virtualized over the past several years. As of the end of 2014, there are now a total of 287 virtual machines. Esri, a GIS mapping system, is the most notable system converted to a virtual environment within the past year. As most existing systems have now been virtualized, the focus in 2015 will be to virtualize anything new that comes to campus.

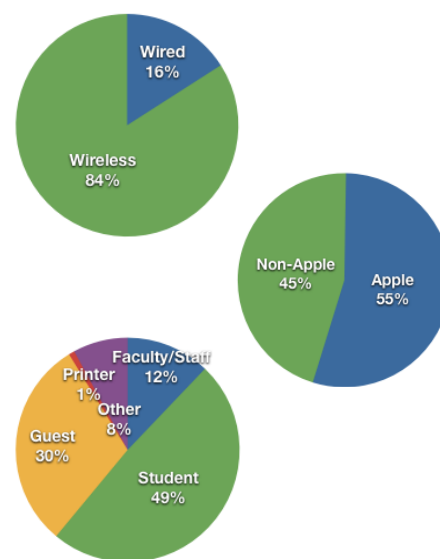
PROCESS IMPROVEMENT

Unix/Linux Engineering has re-engineered and re-tooled the processes used for creating, managing, and upgrading their technology infrastructure. These processes are modeled after those used by fast moving companies such as Google, Flickr, Etsy, and Netflix. Central to these changes is a specially designed programming language that enables automated testing of configurations that maintain systems throughout their life cycles. These changes help mitigate the chance of catastrophic failure while providing a more stable and agile computing environment for the College.

NETWORK CONNECTIONS

Total number of devices connecting to the W&M network in one year (Nov. 15, 2013 - Nov. 14, 2014)

83,593



William & Mary is now a member of Internet2, an Internet service designed specifically for universities. Its community of more than 350 member institutions makes up a collaborative environment for research and educational purposes. Internet2 will allow information shared between universities to move at a faster speed than on the regular commodity Internet, improving performance for many of the College's efforts.

GLOBAL REACH

W&M LAPTOP DONATIONS (2012 - 2014)

Williamsburg, VA
Head Start Program
1 Laptop (2013)



Waverly, VA
Skills Development Program
10 Laptops (2013)



Ecuador
School
2 Laptops (2013)



Ghana
Schools and Community
Development Programs
28 Laptops (2012)
28 Laptops (2013)
6 Laptops (2014)



After four years, Dell laptops on W&M's leasing program are decommissioned. Those computers are no longer fit for the university's purposes, but can still be put to good use elsewhere.

In 2012 W&M IT was approached by a student group who wanted to send these decommissioned computers to a school in Ho, Ghana. Once the process was in place to make this type of donation (thanks to the efforts of Chris Ward, Director of Systems and Support) W&M IT has been able to support other student groups with similar missions.

To date, 75 computers have been sent to three different continents.

SUNAPSIS: Managing our International Population

W&M IT is helping the department of International Students, Scholars, & Programs at the Reves Center for International Studies implement a software program called Sunapsis.

International students and faculty are required to complete and maintain information with the department. Sunapsis includes a web portal that will allow students and faculty to submit information online.

The software will also automate the required information transfer between the College and federal reporting agencies, as well as give the office more opportunities for reporting and sharing information with Banner.

VIRTUAL DESKTOPS

Virtual Desktop Infrastructure (VDI) allows faculty and staff to login to a virtual W&M desktop from anywhere. It's similar to logging in to a lab computer or classroom podium computer. Network drives, Microsoft Office software, standard computer applications, and various browsers are all available through VDI.

VDI offers a secure environment to access W&M services from around the world. It is commonly used to access Banner Admin from off campus and when traveling. It is PC- and Mac-friendly and its app for tablet computers and smartphones (for both Android and iOS devices) makes accessing W&M resources easy while on-the-go.

Expanding on VDI's capabilities, a virtual computer lab with 50 student "seats" was used successfully in the Business School in the Fall 2014 semester for a foundational business skills class. This may lead to virtual labs that can be used by students and faculty located around the world.

BUSINESS OF THE COLLEGE

PROCURING TECHNOLOGY

W&M's technological environment is complex, to say the least. In order to make more effective purchasing decisions, W&M IT now reviews any purchase with a technology component to ensure functionality, ability to integrate with existing systems, security, and pricing.

The new purchasing process gives W&M IT an opportunity to identify any potential issues before a lot of time and/or money is invested into any particular product or service. Plus, we provide our support and expertise throughout the procurement process.

Working closely with the Office of Procurement, IT began implementing this process at the very end of 2013 and it has been solidified throughout the 2014 calendar year.

HUMAN RESOURCES REVITALIZATION

W&M IT facilitated discussions between Human Resources and consultants from Ellucian (Banner) in an effort to improve efficiency through analysis of system utilization and current business processes. Banner for HR was implemented in 2006 and many processes and system usage decisions made then had not been reevaluated since. Consultants worked with W&M staff to identify functionality within Banner that would help streamline processes, concentrating primarily on data classification and sharing for payroll purposes.

After several discussion periods and spending time with the functional users, Ellucian consultants provided recommendations which included: revamping the garnishments and levy process to track maximum deductions, reviewing the overpayment process, establishing goal amounts for flexible medical and dependent care to correct issues of over and under withholding, and reclassifying priorities and calculation rules for deductions.

IT continues to help in this process by providing data and reports for analysis, facilitating the testing, moving data between test and production systems, and offering institutional knowledge on why decisions were made during implementation.

IT OPTIMIZATION

In the spring and summer of 2014, the Censeo Consulting Group took an in-depth look at IT services throughout the W&M campus. The study consisted of one-on-one interviews with staff, a survey to assess the current IT resource allocation, and a review of IT infrastructure and expenditures.

W&M IT was given very positive reviews for its services to the W&M community. However, to better align IT with the business objectives of the College, Censeo recommended various initiatives grouped into three categories: organization, cloud and governance.

The recommendations are currently under consideration by the W&M administration, IT Steering Committee and the Board of Visitors. Implementation of the recommendations will begin in early 2015, starting with consolidation of Advancement Computing Services (ACS) into Central IT.

CUSTOMER RELATIONSHIP MANAGEMENT

W&M IT is currently leading the evaluation process for the selection and purchase of a university-wide Customer Relationship Management (CRM) system. In general terms, a CRM is a system for managing an organization's interactions with customers. It often involves using technology for streamlining communications, automating services, and synchronizing records across the organization. It is critical to developing excellence in marketing, customer service, and decision support.

W&M's goal for the new CRM system will be to identify those with a connection to the university (e.g., relatives of alumni) and those that have expressed an initial interest. The system will record and manage interactions with these constituents to improve recruitment of prospective students. Once enrolled, it will also improve students' university experience, help students gain employment post-graduation, and provide exemplary levels of communication with alumni.

Selection of a CRM vendor(s) is slated for spring 2015 with implementation beginning soon after that.

SERVICE & SUPPORT

CLASSROOM SUPPORT

In addition to maintaining the goal of 100% availability of classroom presentation systems, Classroom Support more than doubled the number of supported in-classroom video conferencing events. Fall Semester also saw a significant increase in the number of faculty using the latest Wacom pen-interactive/touch displays, with the requisite increase in the number of classrooms equipped with the technology.

Notable among non-classroom accomplishments were the completion of the Blow 311 Emergency Operations Center and the upgrade of the Jones 211 presentation system. Classroom Support Manager Myron Hall, after 43 years with William and Mary, decided to take her well-deserved retirement.

ACADEMIC SUPPORT

2014 was a busy year for Academic Information Services (AIS). Besides the normal routines of computer replacements and technical & project support for faculty, AIS staff were involved in a number of university-wide initiatives, including collaboration with faculty colleagues on the technological aspects of the nascent COLL curriculum.

Working closely with the School of Arts & Sciences, AIS launched William & Mary's first fully online classes last summer (with several more on the way for summer 2015). To support these online efforts, we hired W&M's first full-time Instructional Designer.

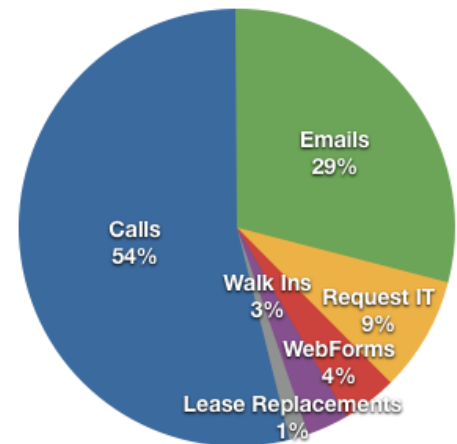
Our Technology Support Engineers put a lot of effort into the changing technology landscape at W&M as well, including switching the School of Ed computer lab from Macs to touchscreen PCs, assisting with the Box implementation, and helping faculty utilize a menagerie of academic technology all over campus.

TECHNOLOGY SUPPORT CENTER

W&M IT's Technology Support Center (TSC) is the first line of technical support at W&M. We fielded over 30,000 support requests in the past year.

Total number of TSC support requests in 2014

30,494



Are you satisfied with the resolution provided by IT?
96.8% of customers answered "Yes"

Overall Satisfaction Rating

4.93 of 5 Stars



CENSEO GIVES W&M IT HIGH MARKS FOR SERVICE TO CAMPUS

After a thorough review of IT services by Censeo Consulting Services one thing is clear: W&M IT consistently provides a very high level of technical support and service to the W&M community. Their culminating report included the following remarks:

"W&M IT provides key infrastructure services that are supportive of the University mission"

"Service delivery is a core strength of W&M IT, and high levels of end-user support and operational management have been critical to University mission performance"

"...performance appears high, with limited downtime/outages"

"Central IT has a well defined and well managed end-user support system, encompassing help desk, classroom and academic support"

2015 PROJECTS

A LOOK AT WHAT'S TO COME

ARGOS - BANNER REPORTING TOOL

Argos is a robust tool for viewing and reporting data from Banner. Argos has the capability of providing in-depth reports and connecting to multiple data sources simultaneously, enabling data-driven decision making. IT plans to implement this tool and offer training to the campus community during 2015.



IDENTITY MANAGEMENT

To manage the needs of W&M's ever-growing population, IT is considering commercial alternatives to our current home-grown identity management system. In 2015 IT will evaluate systems in an effort to find a suitable replacement.

BUSINESS INNOVATION

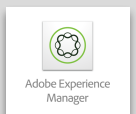
HR Revitalization, Finance Revitalization, and Procure-to-Pay are all business innovation projects for the university which rely heavily on IT services and systems. IT will navigate the technical aspects of these projects while providing support and expertise throughout the implementation processes.

COLLEGE CURRICULUM

W&M IT Academic Technologists are working with CLA Fellows, EPC, the Dean of A&S and faculty members to identify and implement technologies and protocols necessary for the new College Curriculum. Additionally, they will continue to develop and deploy workshops, tutorials, sample assignments, model courses, and general guidelines for faculty members as well as evaluate the feasibility of COLL 100 applications.

ADOBE EXPERIENCE MANAGER (AEM)

To aid with Advancement initiatives we are taking advantage of new technology and advancing web capabilities with the Adobe Experience Manager. The software utilizes Amazon's cloud-based infrastructure to provide a centralized content database, dynamic media placement and management, as well as the ability to organize tagged content.



MANAGED PRINTING

The IT Department is heading-up an initiative to improve the efficient use of William & Mary's network of digital, multifunctional devices and network printers. As part of this effort, all printing on campus will be evaluated to determine if the right size device is being used for the printing that is required.

ACCREDITATION

IT will facilitate the upcoming accreditation cycles in the School of Education, School of Business, and the university by aiding in the procurement and institutionalization of school-specific reporting software programs.

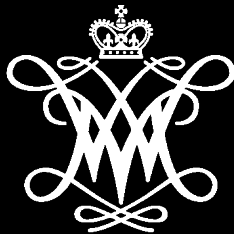
MABUG CONFERENCE

William & Mary will be the host of the Mid-Atlantic Banner Users' Group (MABUG) annual conference in November of 2015. The three-day conference will include over 300 participating universities spanning the mid-Atlantic, and will focus on maximizing the use of Banner. IT's own Maria Elena Pada will be the event's organizer.



ONLINE MBA

IT is supporting the Raymond A. Mason School of Business as it develops its Online MBA program. The Online MBA Program will begin accepting applications in January 2015. The first two courses are already under development, and two more courses will begin development in January. The first course, 'Renaissance Manager', will start on August 24, 2015.



WILLIAM & MARY

INFORMATION TECHNOLOGY