On behalf of my colleagues in Information Systems (IS), it is my pleasure to share with you the 2016–17 Year in Review. As you may recall, in 2015 we launched an institution-wide technology strategic planning initiative. The year-long planning effort, driven by deep engagement and collaboration with the campus community, culminated in the creation of a Wake Forest University (WFU) Strategic Technology Plan in summer of 2016. As we transitioned into the 2016-2017 academic year, our focus shifted towards the multi-year implementation of the technology plan.

Some of the key highlights of the implementation journey this year include:

- Launched the implementation of Workday to replace a variety of difficult-to-use and expensive-to-maintain standalone legacy systems including: Banner (Finance and Human Resources), WIN, NOVAtime, Works, Deacon Depot, OpenHire, and RedCarpet. Workday is a great opportunity to improve WFU’s institutional operational effectiveness to achieve the kind of academic excellence that Wake Forest is well known for.

- Launched an academic technology support strategy to create a system of seamless support for faculty and students. Hired an inaugural Director of Academic Technology whose responsibilities include building stronger partnerships with faculty, departments, schools, The Teaching and Learning Collaborative, The Office of Online Education, ZSR Library and the Instructional Technology Group.

- Worked collaboratively with departments, faculty, Campus Facilities, the Dean’s office and the Provost’s office to reimagine, update and modernize classroom spaces to provide support for innovations in teaching and learning.

- Deployed state-of-the-art technology throughout the 115,000 square feet of classroom space, teaching and research labs, study, conference and auditorium spaces throughout Wake Downtown.

- Launched a cybersecurity strategy to improve education and awareness, upgrade security architecture and tools, strengthen governance and enhance campus-wide adoption of standards and policies.

- Managed the transition from the student laptop program launched in the mid-1990s to WakeWare, a new Wake Forest laptop program, designed to meet the institutional commitment to technology in teaching and learning, while giving our students autonomy and choice.

We trust that as you look through the content of this report you will click on the interactive links and visit the IS website (is.wfu.edu) for a broader look at the many ways IS is partnering and collaborating with the WFU community to drive digital transformation and innovation.

We welcome your comments and continued conversation about technology at Wake Forest.

Best, Mur Muchane
Associate Vice President for Information Technology & CIO, Wake Forest University

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Wake Downtown consists of 115,000 square feet of space on five floors. Features include five classrooms with movable furniture to facilitate small groups, ten teaching labs, seven research labs and support space, four conference rooms, an auditorium, a boardroom with a downtown view, a meditation room and 35 faculty and administrative staff offices, all equipped with state-of-the-art technology.
With the support and engagement of the campus community, we launched an institution-wide strategic planning process for technology. Our planning goals were to assess campus technologies capabilities, engage and collaborate with the campus to identify opportunities for improvement, and to position the University for a future in which digital content and technology play an integral role in support of teaching, learning and research.

The evaluation process had four areas of focus:

- Teaching and Research Excellence
- Operational Excellence and Student Success
- Infrastructure and Support for Innovation
- Organizational Capabilities
Enrich academic technologies and support services to supplement and enhance the University's distinctive highly personal faculty and student interactions and to enhance critical components of the University's research infrastructure and facilitate the growth of faculty and student research and scholarship.

As part of the IT Strategic Plan, we launched an academic technology support strategy to set into motion a system of seamless support for faculty and students. This initiative supports the Vision 2020: Charting a Course for Academic Computing at Wake Forest that articulated that "Wake Forest remain an exemplar for a new kind of premier learning experience, valued not only for the close personal relationships between our students and their instructors, but also for the innovative learning environment afforded by our effective use of academic technology in our teaching, learning, scholarly, and creative pursuits." Highlights include:

- With nearly 450 learning spaces between the Reynolda campus and Wake Downtown, the recently formed Learning Spaces Committee is charged with balancing the need to bring on new classrooms, supporting building additions and renovations, and upfitting existing classrooms. During the past year, over 75 spaces saw technology replacements, upgrades, or were added to our systems. At Wake Downtown, the team successfully brought twenty new classrooms online while reducing the projected spend by nearly 45%. Twenty additional new campus spaces, including Angelou Hall and Reynolds Gym Phase 1, were outfitted with state-of-the-art technology.

- Following a national search, Ms. Hannah Inzko joined Information Systems as the Director of Academic Technology. Hannah will work in collaboration with the Teaching and Learning Collaborative, the Office of Online Education, the ZSR Library and the Instructional Technology Group to lead and develop the University’s academic technology goals.
“Wake Downtown presents a wonderful occasion to rethink how science is taught and how learning is best achieved.”

– President Nathan O. Hatch
The Distributed Environment for Academic Computing, DEAC for short, is the University's High Performance Computing (HPC) cluster that is available for all faculty and students to use. Currently faculty members, students, and researchers across ten departments use DEAC, offloading their tasks to the cluster and running hundreds of problem instances in parallel. In addition to handling workloads, DEAC directly supports teaching and learning and student development.

In collaboration with the Computer Science department, an Independent Studies Course was offered to analyze and model the performance of different cluster hardware components, publishing graduate student results within an IEEE proceeding, and also submitting them to an IEEE International Symposium.

Within the Business Analytics Graduate Program, students are using the cluster to analyze real world data, provided by the program partners, to determine customer trends and patterns. DEAC support staff have also provided interactive lectures to undergraduate and graduate courses, introducing students to the concepts of High Performance Computing.

The DEAC cluster has also been making headlines nationally this past year, with a recently published Case study, a high-profile presentation at Educause, and an invitation to present at Cisco Live this summer.
Since transitioning to a ‘bring your own device’ campus last year, WakeWare, also known as the ‘official technical outfitter of the Forest,’ is the one stop shop for student laptops. WakeWare gives students the choice between Apple-based and Windows-based laptops, each configured to handle the software required during the student’s time at Wake Forest. Students are able to download academic software through our software distribution website, software @ WFU (software.wfu.edu), at no additional charge.

WakeWare provides educational pricing on Apple and Dell laptops, extended warranties, accidental damage protection and loaner laptops, if needed. The Service Desk reports that WakeWare laptops have experienced few known issues. For those students who choose not to purchase a WakeWare laptop, the program provides minimum requirements to ensure every student arrives on campus with a laptop configured to run all software needed as a student at Wake Forest.
Wake Forest University CIO, Mur Muchane, collaborated with campus colleagues to conduct a thorough assessment of the University’s technology infrastructure. Based on that assessment, Workday was selected to replace Banner as the financial, human capital management, budget and planning system. Workday promotes operational excellence by unifying Finance, Human Resources, budget and planning into a seamless system that makes it more efficient to complete everyday processes.

With an easy, user-friendly interface, Workday is designed to meet the unique needs of higher education institutions.

With a rollout date of July 2018, Workday@Wake offers:

- one convenient interface
- cloud-based, mobile-optimized technology
- embedded analytics
- lower, long-term costs
- fewer forms and paperwork
- adaptability to any device or platform
- automated and streamlined departmental processes
- comprehensive views of organizational data
- flexibility to update personal information in real time

http://workday.wfu.edu
“This will be a key year for Wake, as we collectively work toward implementation of this solution that will significantly enhance the service level provided to the Wake Forest community and replace a range of expensive-to-maintain and difficult-to-use standalone systems.”

– President Nathan O. Hatch
In addition to Workday, IS implemented **DegreeWorks**, a real-time degree audit system, that allows students and advisors to see how each course fits into the student’s degree program and displays progress toward degree completion. Additionally, a mobile strategy using **ModoLabs** (a rapid deployment tool for mobile applications) is underway, allowing students to connect to Banner and Sakai, view grades, holds etc., all with their mobile devices.
Information Systems recently added Adobe Creative Cloud to the list of software available for download at software @ WFU. All Wake Forest University faculty, staff and students now have access to this collection of software for presentation and graphic design, video editing, web development, photography, and more.

Our campus community can also access Lynda.com, the leading online creative and professional skills provider, which offers over 4,000 self-paced courses, ranging from Adobe Creative Cloud, WordPress, Microsoft Office, SPSS and many others.

These services provide our campus community with the ability to develop or enhance skills to ensure their success professionally and personally, on multiple devices. Departments are using the Adobe Creative Cloud programs to create presentations, email flyers, newsletters and annual reports.

With the number of active users increasing every day since the recent availability of Adobe Creative Cloud and Lynda.com, Information Systems is confident that these tools are enhancing the skillset of the campus community, ensuring they have access to the most current tools and knowledge.

Prior to our upcoming Fall 2017 campus-wide rollout and promotion, our campus community is already actively using Adobe Creative Cloud.

- 50% staff
- 16% students
- 2% faculty

With over 1,100 active users and more than 22,000 videos viewed, Lynda.com, is proving to be a valuable resource for our campus community.

**Top ten videos:**

- JavaScript Essential Training (2011)
- Excel 2016 Essential Training
- Photoshop CC Essential Training (2015)
- Introduction to Graphic Design SQL Essential Training
- Public Speaking Fundamentals Test Prep: GRE SketchUp 2017 Essential Training

“Lynda.com provides me with easy to access resources for the multitude of software I use on a daily basis. I especially enjoy when I’m able to combine this e-learning with in-classroom education through the Professional Development Center. Access to these tutorials is an essential component to my career growth at Wake Forest.”

– Elizabeth Dam-Regier, Manager, Human Resources Project Office
Infrastructure and Support for Innovation

Support faculty, students and staff to innovate, discover and collaborate with secure, reliable and robust technology infrastructure.

The IT Strategic Plan identified the need to increase and improve our support services provided by the Service Desk and through self-service. Our solution was multifaceted but can be summarized in 1) an expansion of the types of questions and issues the Service Desk can resolve, 2) a redesign of the Service Desk, both in the physical layout as well as in the support staff structure, and 3) a new and improved IS website (is.wfu.edu).

A review of support services enabled Information Systems to move many of the issues that were escalated to other IS teams back to the Service Desk through empowerment and training of the Service Desk staff.

The new Service Desk area included an onsite tech shop that provides the ability to repair computers onsite, decreasing the amount of time customers have to wait. The redesign also allows for a more collaborative work environment, ensuring that staff are visible and readily available to serve walk-in customers. For customers preferring to call for assistance, the Service Desk currently has a 98%+ calls-answered rate. And Live Chat provides immediate support for our entire campus community, wherever they may be.

The new IS website (is.wfu.edu), WordPress accessible and mobile-ready, has proven to meet the needs of our campus community in a friendly and easy-to-use format. With a responsive search bar, the comprehensive, self-help content allows users to get assistance quickly and easily.

“Technology plays a key part in providing accessible education for all.”

– Michael Shuman, Director, Learning Assistance Center
A major upgrade to the University wireless network provides outdoor access to the University network in Hearn and Manchester plazas. During the May 2017 graduation ceremony, nearly 3000 concurrent wireless devices were on the **outdoor wireless network**.
With rising cybersecurity threats against personal and institutional information, Information Systems focused on several initiatives aimed at safeguarding data and mitigating disruption and data loss.

Google 2-Step Verification, often called 2-Factor authentication, helps protect a user’s privacy and data against hackers by adding another layer of protection to vital accounts. Information Systems staff hosted several “tent events” during which the campus community could come to a common area for assistance with installation and understanding of this security feature.

Code42 CrashPlan, a personal backup solution, was deployed to faculty and staff. CrashPlan is an automated, continuous, backup solution that protects data from hardware failures, malware and viruses, and can be used to restore individual files and folders. Data is stored in two locations and is encrypted twice. There is no storage limit, ensuring that faculty and staff can backup all their critical data.

In addition to the tent events, Information Systems created web pages, developed training videos and hosted one-on-one training sessions for each of these tools to ensure the campus community is thoroughly educated on the importance of cybersecurity and how they can most effectively protect themselves from an attack on their data and privacy.

“78% of people claim to be aware of the risks of unknown links in emails. And yet they click anyway.”

IT Organization Capabilities and Governance

Enhance the capabilities of IT staff, improve processes for managing and financing technology solutions, and sustain transparent collaborative IT governance.

An integrated set of Advisory Committees, Initiative Teams and Communities of Interest were established to guide the implementation of strategy, recommend priorities and provide input to improve the effectiveness of technology across our campus community now and into the future.

Advisory Committees:
- Provost and Executive Vice President
- IT Executive Committee (ITEC)
- Committee on Information Technology
- IT Partners’ Council
- IT Security Advisory Committee (ITSAC)

Advisory Groups:
- Initiative Teams
- Communities of Interest
“To ensure that this story—the story of a place transformed from tobacco to technology—doesn’t become a footnote in history but remains our city’s lasting legacy, we must keep up the momentum.”

– Eric Tomlinson, President, Wake Forest Innovation Quarter