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# YEAR IN REVIEW 2019

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INFORMATION TECHNOLOGY  
AND COMPUTING SERVICES



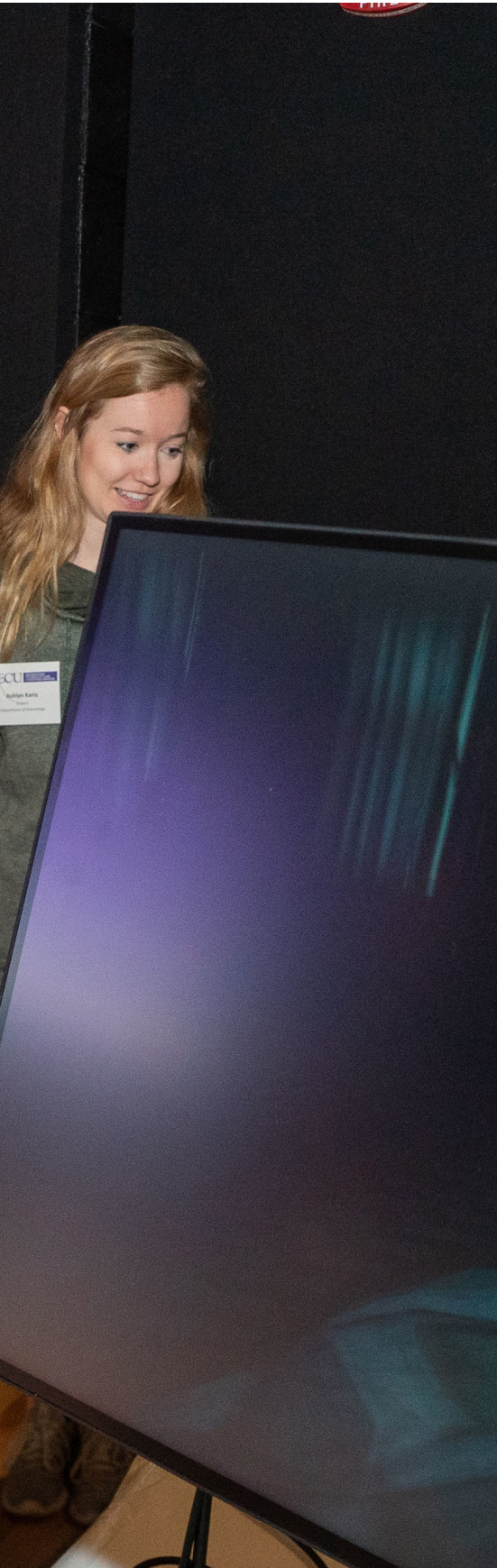




2 Photo Front Cover  
Grow Local:

Photo Inside Front Cover  
Grow Local: Students experiencing VR





# YEAR IN REVIEW 2019

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INFORMATION TECHNOLOGY & COMPUTING SERVICES

## MESSAGE TO THE ECU COMMUNITY

*Don Sweet, CIO*



Dear ECU Community:

I want to take this opportunity to thank you for your support and collaboration during the 2018-2019 fiscal year. Information Technology and Computing Services (ITCS) has implemented significant enhancements in support of the university's mission and strategic goals. Those initiatives, along with measurements of the effectiveness of our existing services, are articulated in the following pages.

*Mission: "To assure ECU's leadership in IT, we strive to improve teaching, research, learning and productivity for faculty, students and staff through the effective use of information technology."*

This year, we completed 113 projects across the board including continued support of XXXXXX .....



Highlights include:

- Reviewing our current Learning Management System (LMS); evaluating three other systems; and, with support from IT governance committees and ECU students, faculty, and staff, recommending the migration to an updated system in the cloud that will provide valuable features and resources for courses
- Moving faculty and staff email to the cloud, and adding a Multi-Factor Authentication (MFA) layer of additional protection
- Designing the IT network infrastructure to support the Main Campus Student Center (the largest building project in ECU's history); renovation to Dowdy-Ficklen Stadium and the Ward Building; and Health Sciences Campus' Life Sciences and Biotechnology Building

*Vision: "We aspire to build an organization with committed and skilled people accountable to and serving faculty, staff and students; simple processes making it easy to work with us, do our jobs and deliver results; and innovative technology that is the right technology for the right reasons."*

- Collaborating with the ECU Travel Task Force to develop requirements for and plan the implementation of a new university Travel Request System that will launch in fall 2019
- Strengthening the university's Cyber Security Incident Response Plan to better identify, contain, remediate, and recover from cyber security incidents
- Implementing an advanced data management and analytics environment that will allow the university to generate more robust reports on institutional data
- Collaborating with Institutional Planning, Assessment and Research (IPAR) and Office of the Registrar to enhance campus computer labs - modernizing furniture and redesigning spaces - and better accommodate students who bring their own devices to campus

Finally, I want to thank the talented, hard-working professionals who are ITCS.....



DON SWEET  
Chief Information Officer

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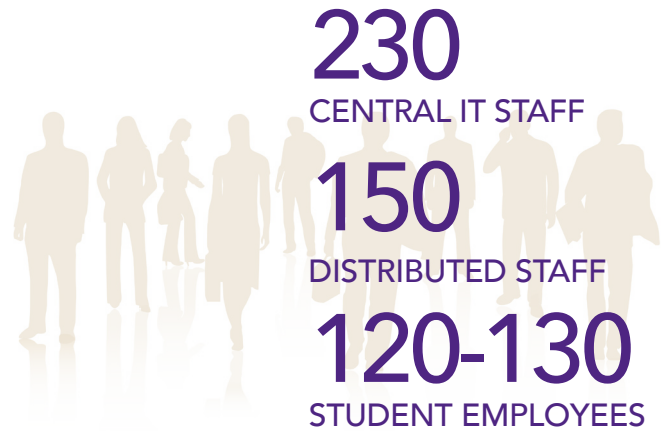
## ABOUT US

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Information Technology and Computing Services (ITCS) at ECU is comprised of six subdivisions and 230 positions. We share the same mission as East Carolina University (ECU), and we strive to help ECU succeed at its mission by providing technology, solutions, and services to the ECU campus *that Maximize Student Success, Serve the Public, and Lead Regional Transformation.*

We have a very skilled staff with certifications in many technology areas. Our staff attend a broad variety of additional training and conferences year round: Blackboard World, Classroom Summit (meeting of AV Classroom personnel across the UNC system), Ellucian Live, EDUCAUSE Security Professionals, NC Computer Instruction Association Conference, RedHat, PMI, Triagile Developer, UNC Financial Systems, UNC CAUSE , TeamDynamix, PCI, OWASP, Higher Ed Web, Higher Ed Data Warehousing, InfoComm, Internet2, Microsoft Ignite, Gartner, Cold Fusion, and Cisco Live.

This year, ITCS staff led presentations at the ECU-hosted North Carolina Computer Instruction (NCCIA) 2019 Conference, an event that brings together instructors from around the region who teach in the computing field, or use computers extensively for teaching. David Dunn (Network Analysis) and Kris Augustus (Enterprise Applications) presented "Are you ready for a DoS or Bot Attack?" David and Kris demonstrated how ECU uses an application security module and proactive bot defense protection solution to protect the university network. They also discussed lessons learned and tips and tricks on implementing DoS Protection with Proactive Bot Defense. Scotty Stroup (Enterprise Analytics) presented "Visualizing Data", discussing ways to use Microsoft's Power BI analytics tool to produce interactive dashboards and reports. Power BI simplifies data preparation, exploration and visualization resulting in both internal and external information viewable from your browser or mobile device. Billy Long (Voice Services) presented "4 Team Collaboration Tools", demonstrating Cisco Webex, Webex Teams, Webex Board and Webex Share. Billy discussed ways these collaboration tools



offer benefits to business and education, and provided use case scenarios showing how these tools can enhance collaboration experience.

ITCS staff participated in a variety of internal professional development and team-building sessions including True Colors personality assessment training, a presentation focused on the ECU hiring process and ways to demonstrate employee competitiveness, and an interactive session focused on communicating for results.

This year, ITCS staff coordinated special focused professional development opportunities for IT staff and the ECU community:

- Microsoft Teams for Education Program Manager within Canada and the U.S., Manny Sandhu, led discussions on ways Microsoft Teams can enhance campus experiences, empower faculty, create optimum student engagement and elevate institutional performance.
- Senior Research Director with Gartner Research, Glenda Morgan, spoke with faculty and staff about Online Learning in Higher Education and the Learning Management System Landscape, Problems and Prospects in Analytics in Higher Education, and Top Ten Strategic Technologies and Business Trends in Higher Education.
- An "Adobe Day" experience offered faculty and staff an opportunity to learn about Adobe multimedia software applications and engage in a campus dialog about methods for fostering digital literacy in our graduates. Dr. Todd Taylor from UNC Chapel Hill led a "Digital Literacy Across the Curriculum" presentation, and several ECU instructors shared information on topics such as Digital Literacy and Communication; Duehl-Digital Literacy and STEM; Engaging Students Beyond the Classroom; Digital Literacy





Photo left

Glenda Morgan, Senior Research Director with Gartner Research

Photo right

Members of the ECU Honors College participate in a discussion with Glenda Morgan, Senior Research Director with Gartner Research, at the Main Student Center.



at the Institutional Scale: Models for Supporting an Army of Creative Students!; and Opportunities and Challenges for Digital Literacy at ECU. An Adobe Spark workshop closed out the event.

In March, ITCS partnered with ECU's Vice Provost for Academic Success, Dr. Christopher Locklear, the Greenville-Pitt County Chamber of Commerce, and Pitt County Development Commission to host an exciting new initiative, Grow Local, where Pitt County businesses open their doors to host local middle and high school students, providing them an experience to introduce, involve, inspire and invest in students and young adult lives. Students were introduced to a wide range of topics, such as data network infrastructure; collaboration technologies; web and application security; data recovery and restoration; security analytics; virtual and augmented reality; data visualization; database administration; programming; server and workstation hardware; virtualization; data security; and project management.

We continue to work with faculty in the Department of Management Information Systems to coordinate site visits for students in ECU's Telecommunications and Networked Systems courses to provide instruction on routing, switching, and power needs; in-depth tours of the data centers; and hands-on experiences with various types of copper and fiber optic cabling.

ECU Career Services hosted its Spring Career Fair at the Greenville Convention Center. ITCS hosted a table at this event to greet students to discuss full-time jobs, internships and co-op opportunities.

We also hosted a table at the Pirates Aboard event to meet and greet potential new students and their parents, and provide key information about the technology resources, services, and tools available to the ECU community. More than 2,800 students attended Pirates Aboard this year.





Photo top left & right

Grow Local: Students interact with technologies from various career paths.

Photo middle left

Grow Local: Doug Barnum (MTS) demonstrates AR/VR



Photo bottom left

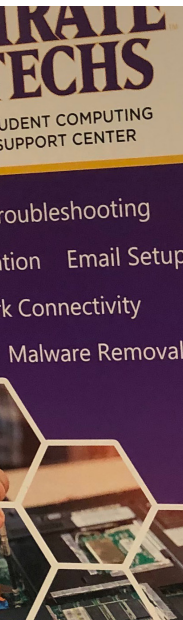
Spring Career Fair: Wanda Sandeford welcoming students at the ITCS table.

Photo bottom center

Pirates Aboard: Sandy greeting students at Pirate Techs

Photo bottom right

Pirates Aboard: Belinda Perkinson and Jennifer Raby posing with Peedee









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## IT GOVERNANCE

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*“Effective processes to evaluate and track projects are essential for building a trusted partnership between IT and client departments.”*

*- The Right Projects Done on Time: Seven Steps to Successful IT Governance, Jeffrey Toaddy, EDUCAUSE Review, April 2019*

Throughout the year, ITCS collaborates with various information technology committees to ensure the technology infrastructure, physical facilities, and support services are adequate and fulfill the needs of the university’s educational programs and mission. The Information Resources Coordinating Council (IRCC) is the primary IT Governance committee at ECU and has representatives from all areas of campus. Additional committees that assist with priority setting, IT planning, risk assessment and planning, policy setting, and customer-centered decision-making processes include: Web Oversight Committee, Enterprise Data Management Steering Committee (EDMSC), and Distance Education and Learning Technology (DELT) Committee, and Clinical Information Steering Committee (CIS) to name a few. **Diagram 1.**

### IRCC

The IRCC reviewed and provided input on the following topics and presentations:

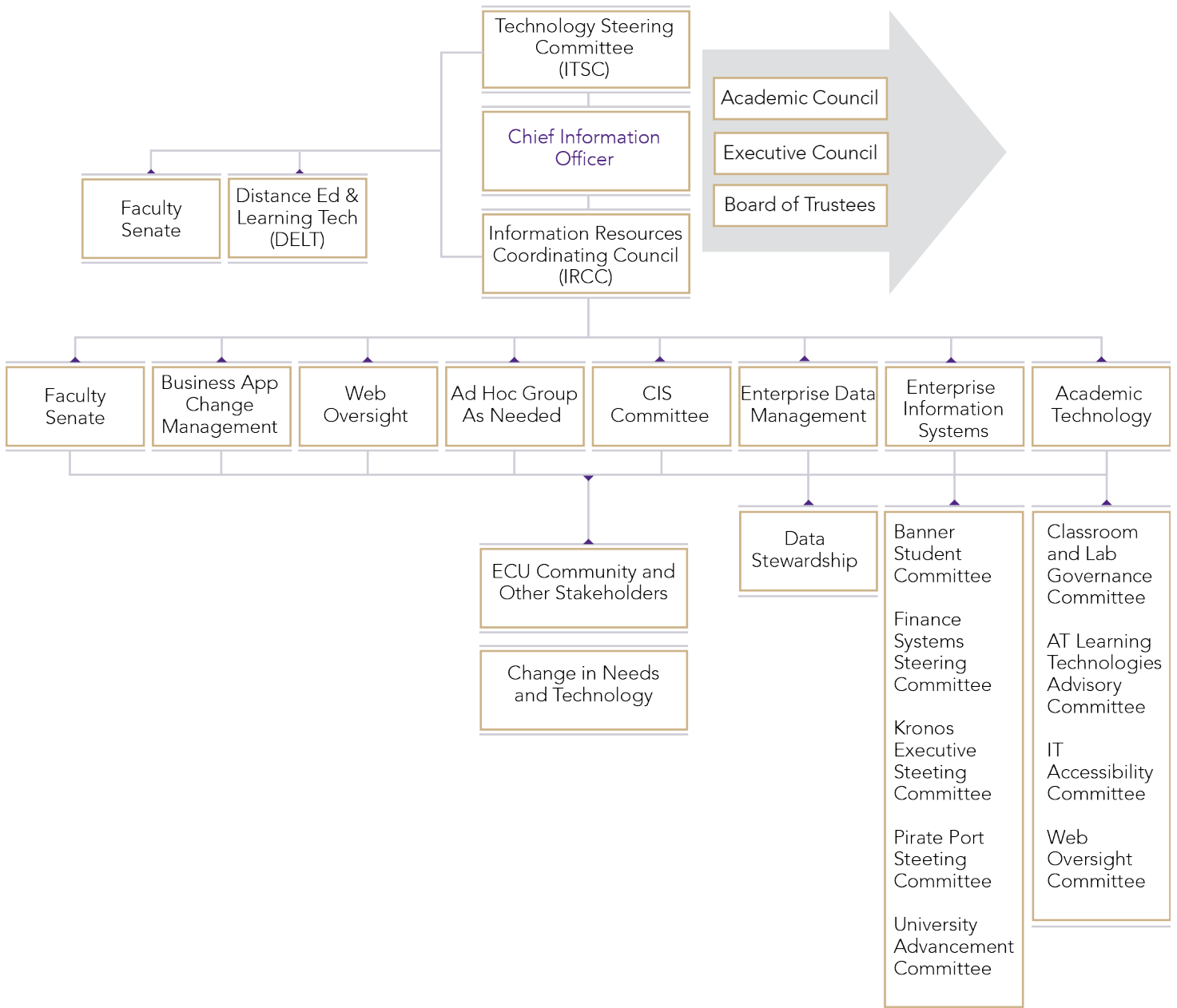
- Launching Multi-Factor Authentication (MFA) for faculty and staff during phase 2 of this campus-wide project
- Rolling out an updated version of Pirate Port that is now ADA compliant and offers responsive design to maximize mobile awareness
- The support resources and learning tools made possible by the ECU Education and Technology Fee
- The interim Software and Data Collection Services Acquisition Regulation
- Upgrading to Banner 9 for the Banner Finance and Banner Student applications
- Moving ECU faculty and staff email to the Microsoft Office 365 Cloud
- Technology projects in the College of Nursing, College of Health and Human Performance, College of Business, School of Dental Medicine, College of Engineering and Technology, and Division of Student Affairs
- Activities undertaken by the Cybersecurity Operations Center, a team formed to detect, analyze and facilitate the university’s response to cybersecurity threats



IT GOVERNANCE AT EAST CAROLINA UNIVERSITY

Diagram 1

This diagram details the decision-making authority and hierarchy of IT Governance at ECU. For example, changes in needs and technologies many times originate from stakeholders. The decisions on how to adapt to those needs and changes is either resolved in the day-to-day IT operational process or through the IT governance structure. Decisions of varying scope and impact can be made by the IRCC, IRCC sub-committees, or the Technology Steering Committee (meets as needed). Distributed IT, campus reps, deans and directors, and the Faculty Senate have representatives on the IRCC. At times decisions are presented to other executive committees such as the Academic and Executive council and/or the Board of Trustees.



- Additions to the ECU distributed antenna system to help boost cell phone coverage and emergency alerts around campus
- Database management initiatives
- Additions to email protections including an “external sender” banner, disabling student email redirects and auto forwards, a mobile device pin requirement for students, and safe link (also known as URL rewrites) to protect against malicious links in the body of an email
- The implementation of Azure Information Protection (AIP) and Mobile Application Management (MAM) data protection tools
- ECU’s Learning Management System (LMS) replacement, including evaluations for Blackboard, Canvas, and Desire2Learn; public forum sessions, and meetings with campus deans

## WEB OVERSIGHT COMMITTEE

The Web Oversight Committee governs the WordPress project at ECU and makes decisions regarding the homepage and other web standards. This year, the committee reviewed and provided input on the following topics and presentations:

- The redesign of second level ECU webpages
- Updated Terms of Use for GDPR ([www.ecu.edu/terms](http://www.ecu.edu/terms))
- Redirects of websites migrated from CommonSpot to WordPress will expire two years from the date of migration completion or February 2019, whichever is later

## ENTERPRISE DATA MANAGEMENT STEERING COMMITTEE (EDMSC)

ITCS continues to work closely with the Enterprise Data Management Steering Committee (EDMSC) and the Data Stewardship Committee (DSC) to expand and strengthen the university’s Data Governance program. Recent activities/ accomplishments include:

- A data governance website was established for communicating information regarding the Data Governance program.
- Data stewards and their respective data domains were clarified, and hierarchies of responsibility were established.
- The interim Data Governance PRR (Policies, Regulations, and Rules) was updated and the process of transitioning it to full regulatory status is underway.
- Documentation was developed covering data confidentiality, data standards, and the classification of sensitive data.
- The ITCS Enterprise Data Management Support Services (EDMSS) team has assumed responsibility for facilitating

the activities of the Identity Theft Protection Committee (ITPC), which is currently being transitioned under the Data Stewardship Committee for oversight purposes.

- The EDMSS team and DSC both worked with ITCS on their efforts to reconfigure the Technology Security Assessment process, as a prerequisite to shifting oversight of the ITPC to the DSC.
- EDMSS collaborated with other teams working on the Banner 9 project to define and seek DSC approval of validation tables (Gender Neutral Personal Pronouns and Gender Identity).
- EDMSS and the DSC are working closely with ITCS to configure and implement Microsoft’s Azure Information Protection solution, which will help to ensure the secure exchange of documents containing sensitive institutional data. This is part of an ongoing effort to address audit-related items which require the implementation of procedures, guidance, and training materials for information labeling to cover information/data in physical and electronic formats. Labeling will be based on the data classification scheme that has been developed by the DSC.

## DISTANCE EDUCATION AND LEARNING TECHNOLOGY COMMITTEE (DELTC)

This year, the Distance Education and Learning Technology Committee accomplishments include:

- Provided feedback on Academic Technologies distance education modules
- Discussed the Faculty 180 and the distance education professional development requirements
- Worked on Best Practices Statement of Online Academic Integrity for the Provost
- Reviewed the distance education Peer Review Instrument
- Consolidated DELTC documents and videoconferencing in Microsoft Teams

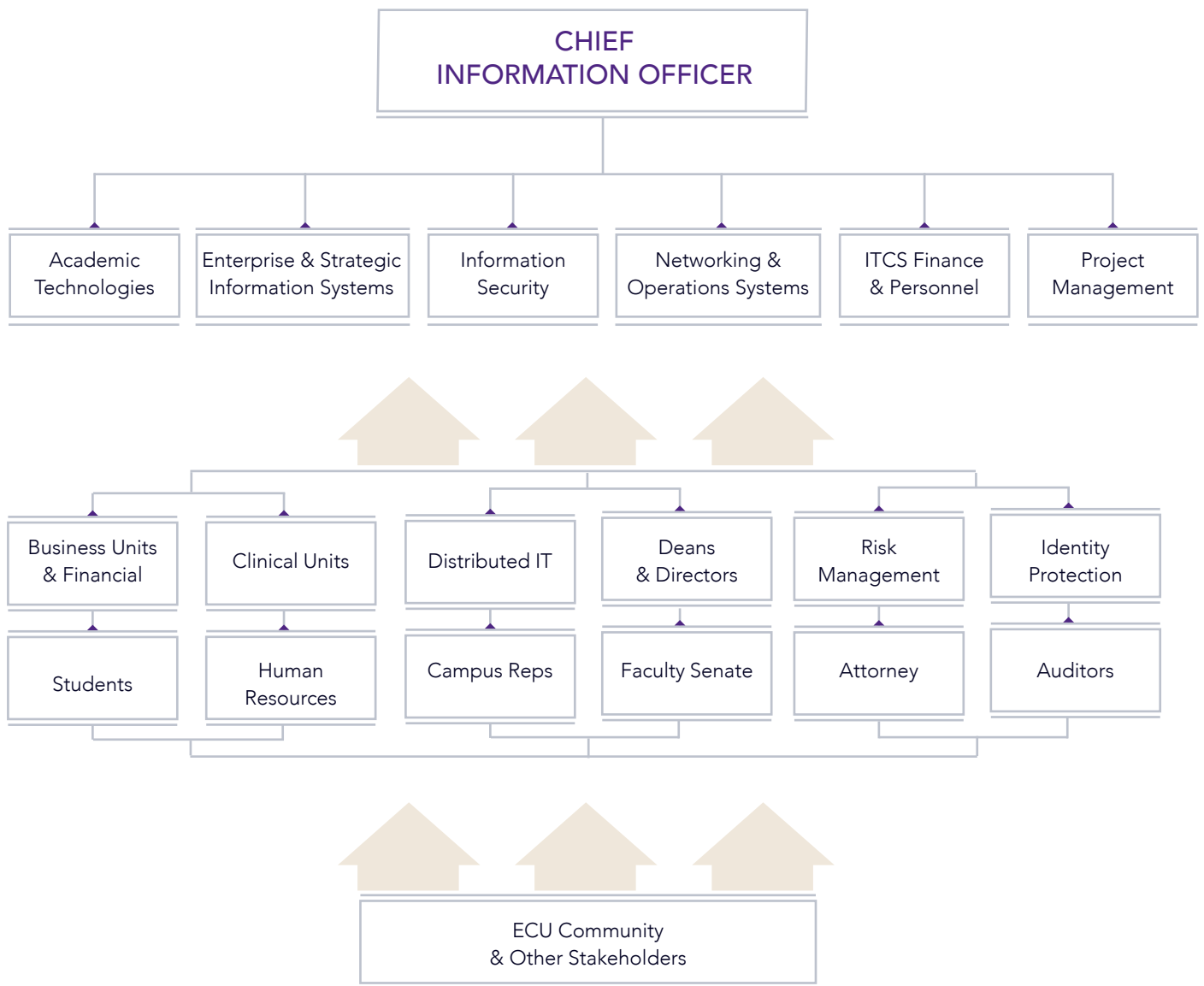
The Clinical Information Steering Committee (CIS) oversees the adoption and use of healthcare-related information technologies. The CIS committee, together with ITCS, provides a uniform process for Brody School of Medicine, School of Dental Medicine, College of Nursing, and other departments to receive guidance in the selection, development, and implementation of hardware, software systems, databases and third-party IT services that support clinical research and operations. Additionally, the CIS Committee strives to ensure both patient and university data remain protected. This past year, CIS activities included reviewing and approving 19+ systems such as Orchard Harvest, Glooko Uploader, Asembia 1, LabDaq, Skype for Business, and DropBox.



COMMUNICATION FLOW INTO THE ITCS ORGANIZATION

Diagram 2

This diagram demonstrates how feedback occurs from the ECU community and stakeholders into the ITCS main functional areas. For example, IT Security has many customers; however, they primarily interface with the representatives from the attorney, risk management and auditor's office. Any issues that cannot be handled operationally flow to the CIO, IRCC and/or the Technology Steering Committee. These issues involve policy, new decisions, strategic investments and technology changes. Conversely, feedback from the faculty senate and other representatives can flow from ITCS or directly to any of the IT Committees.



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## PROJECTS

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### IN THE SPOTLIGHT



*We wanted to improve the overall user experience for the university community and enable greater reporting for our technicians within various teams.*

Dr. Hector M. Molina, Director, Central Project Office, participated in the development of two publications this year — Project Management for the Masses: Five Key Building Blocks to Create an Enterprise-Wide Discipline and Why Project Management Maturity Matters

### CPO HIGHLIGHTED PROJECTS

The Central Project Office (CPO) continues to transform the way projects and initiatives are delivered at ECU. Working collaboratively with cross-campus departments, we aim to provide project guidance, support, coordination, monitoring, and reporting. A few highlights of enterprise-wide projects managed by the CPO include:

The ECU Travel Task Force purchased and implemented Chrome River as ECU's new Travel Request System. The original ECU Travel System, developed using Adobe Flash, was developed by Information Technology and Computing Services (ITCS) in June of 2011. Browser support of Adobe Flash is being phased out; therefore, a new system was needed.

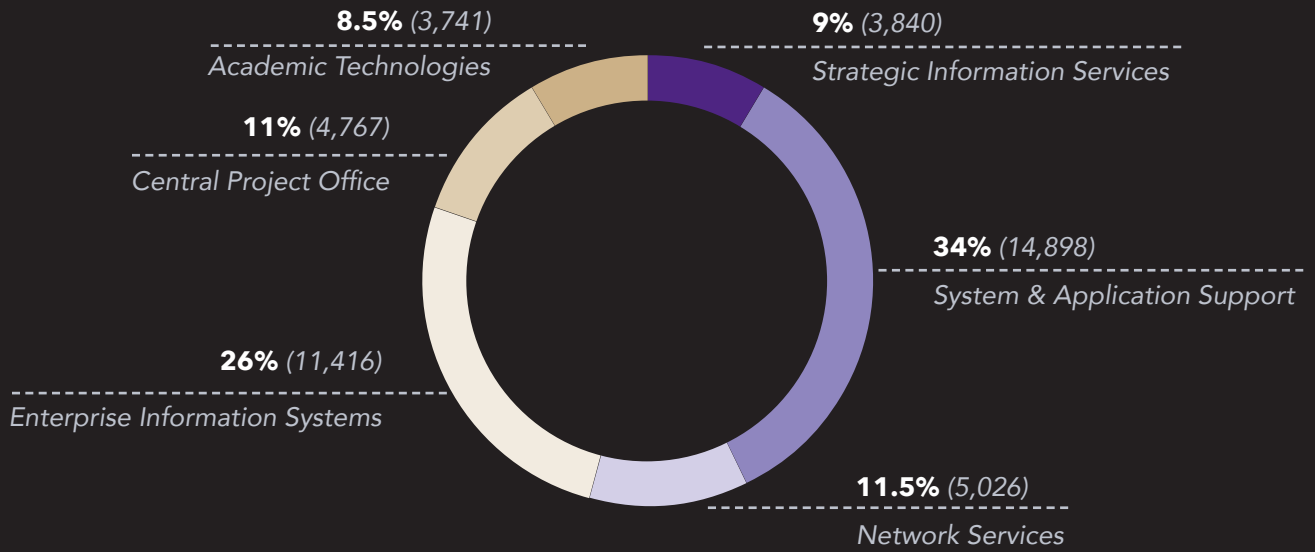
Phase 2 of the Faculty180 implementation began. This past year, we focused on data integration and drafted a Standard Operating Procedure manual for ongoing faculty use. This project also involved examining and setting up workflows for the annual evaluation of faculty, faculty reappointment, and promotion and tenure. Workflows were built, tested, and rolled out to departments and colleges early spring semester 2019.

To remove barriers to research participation, we implemented a new payment solution that simplifies the payment process and aids in rapid reimbursement. This solution reduces faculty responsibility of manually requisitioning cash, securing cash, and maintaining records for tax reporting purposes. Coaches in university athletics are using the new solution to reduce the burdens placed upon administration.



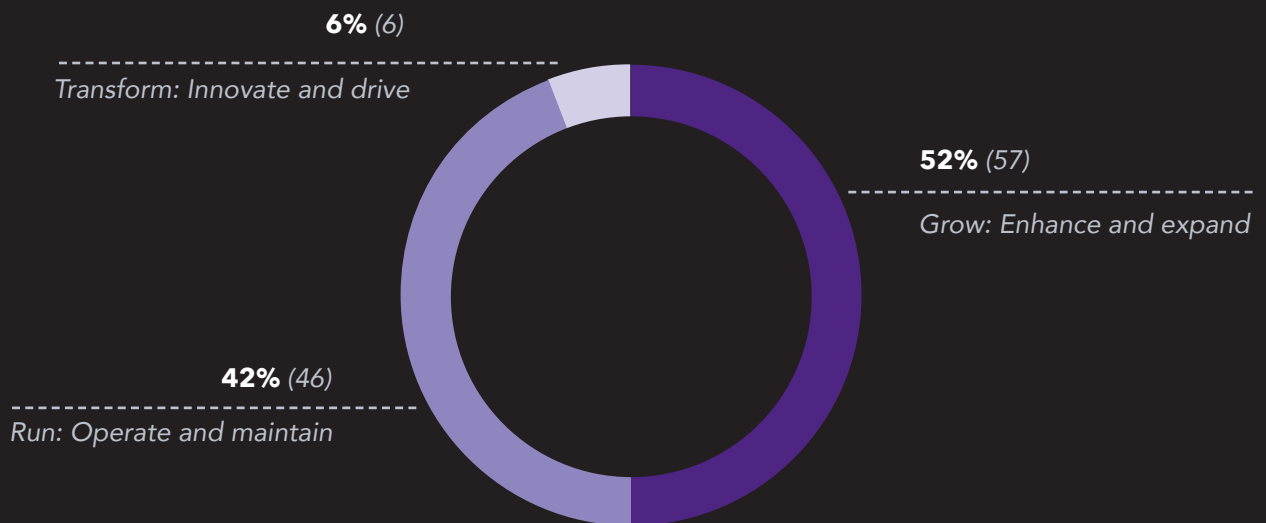
## PROJECT HOURS BY BUSINESS UNIT

Fig. 1



## PROJECTS COMPLETED BY IT CATEGORIZATION

Fig. 2



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## ASSESSMENT

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## CLASSROOM TECHNOLOGY

Each year we solicit feedback from instructors regarding classroom technology. Feedback is collected via an Office of the Registrar survey and multiple other sources. This year, 86 surveys were received, and 42 issues reported. Some issues were technology driven while others were associated with room design and facilities (i.e., too hot, too cold). Facilities issues were reported to Facilities Services and technology issues were reported to Classroom Technology manager, Tony Cooke. The rooms were checked, and the issues were resolved. We also received requests to configure presenter mode for PowerPoint as the default in the rooms and to add more lecture capture rooms..

### 2019 INFORMATION TECHNOLOGY SERVICES GRADUATING SENIOR SURVEY

Table 1

Student Services	Average Rating
	Senior
Hours of operation of university computer labs	4.0
Availability of equipment and software in university computer labs to meet my needs	4.1
Availability of ECU-provided WiFi (eduroam, ECU WiFi) on campus	3.5
Availability of cellular phone voice and data service on campus	3.5
Ease of connecting mobile and other smart devices (e.g., Apple Watch, Fitbit, etc.) to the ECU network	3.3
Online course management system(s) used in my classes (e.g., Blackboard)	4.0
Effectiveness of information technology in improving my learning experience	4.0
Overall information technology services provided by the central IT department	4.0

Table 1. ECU Information Technology Services Student Survey – Average Rating.

## BEHIND THE SCENES

### ECU'S BIG DIG

What happens when a major fiber optic cable connecting ECU's east campus to the Internet and other data services intersects with a trench over 30 ft wide and 20ft deep? This was the problem faced by ECU ITCS when it became apparent the City of Greenville's new Town Creek Culvert would be running under one of ECU's main fiber links. ITCS engineers worked with the City of Greenville and its contractors to brainstorm ideas. Routing the fiber cable around or over the culvert wasn't viable given cost and risk. Ultimately ITCS settled on a plan to reduce ECU's dependency on this fiber link, ensure there was robust secondary connection in place, and work with the City's contractor to design a support structure to protect the fiber cable during construction.

### EXTERNAL

Network Systems and Support Services provides the information technology (IT) infrastructure needed to support the academic, administrative, and research functions of ECU at the most fundamental level. Although their work is often behind the scenes, the team works tirelessly to ensure that students, faculty, and staff have a stable, reliable, and modernized system to connect with people across campus and around the world. This year, Network Systems and Support Services designed networks in several new buildings and as part of renovation projects to support an ever-growing, connected university:

- **Main Campus Student Center** — the largest building project in ECU's history — that is 210,000 square-feet and is accompanied by a 700-space parking deck. The student

center also includes state of the art audio visual systems, parking and building management systems, and dedicated gaming center. Over 1,900 data ports and 98 wireless access points were installed to provide wired and wireless connectivity of up to 1 Gigabits per second throughout the building.

- **Dowdy-Ficklen Stadium and the Ward Building**, a \$60 million renovation endeavor. This renovation adds 1,000 premium seats in a four-story structure that will house a new club level, suites and loge boxes, along with a new press box and game-day operations center. Certain areas of the parking area will also be outfitted with connections for those tailgaters who desire electric power and broadcast cable TV service. The Ward Building renovation includes modernized and expanded football locker room and team meeting areas, athletics training headquarters, and the equipment room. Over 600 data ports and 91 wireless access points were installed to provide wired and wireless connectivity of up to 1 Gigabits per second through the building.
- **Life Sciences and Biotechnology Building**, which will be 150,000 square feet. The network in this building, which recently broke ground, is unique in that it is the first on campus to be designed with 10 Gigabit PC connections in mind. ECU's current standard is 1 Gigabit. Also, as part of the building project, the fiber duct bank that houses and protects ECU's fiber optic network will be extended to this location and beyond to connect the warehouse district on 10th Street to ECU's core data network.
- **ECU Distance Education Proctoring Center**, which is newly-located off campus. This location is connected to campus and the Internet via a dark fiber connection capable of 10 Gigabits per second. Given its primary use, the building also required over 60 surveillance cameras.





Photo top left, bottom left & top right

The Big Dig

- **Department of Human Resources Training Center**, a new location that includes wireless access, phone systems, and state-of-the-art audio-visual systems.
- **Greene Residence Hall**, newly renovated. Greene was the first ten story high-rise residence built on Main Campus in 1969. The resident hall supports 380 residents.

*While we tend to think of the IT infrastructure as always growing, ITCS takes steps to recover IT infrastructure when it's no longer needed. This year, through continuous monitoring of network traffic, we determined several locations at ECU Physicians were no longer active. After conferring with ECU Physicians leadership, ITCS recovered IT infrastructure worth over \$30,000, saving on both maintenance and future capital costs to replace. We also worked with Campus Living to identify the minimum number of wired data ports needed for a given dorm. As part of the Greene Residence Hall renovation, the number of wired data ports will be reduced from 720 to 336, for a 53% reduction and an estimated cost savings of \$200,000.*

## DATA CENTER

Behind the scenes, we upgraded our 7k switches to the next generation 9k switches in both the Cotanche and Brody Data Centers. These newer switches can support speeds up to 100 Gigabits, or 10x the capacity of the older switches, which have been in service since 2010. The current configuration allows for up to 14 Terabits of data per second, per switch, where the former was limited 1 Terabits.

This past year, we completed Phase 2 of the primary data center renovation project. This phase included reconstruction of two rooms in the primary data center. These rooms were initially for tape backup storage and to serve as a print room; however, since these functions were discontinued, we renovated the rooms to prepare for future expansion of enterprise computing infrastructure. Plans are in place for a multi-year project to upgrade the physical plant, including electrical, cooling, and fire suppression, as well as providing redundant power via multiple UPS systems.

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# ENHANCING ACADEMIC TECHNOLOGIES

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## LEARNING MANAGEMENT SYSTEM REVIEW

ECU's current Learning Management System (LMS), Blackboard Learn, supports over 18,000 course sections annually and is a critical tool in the teaching and learning environment. ECU has undertaken a review of our current and future LMS needs to determine next steps as our LMS hardware requires replacing in the next two years. The timing of this hardware replacement, combined with significant changes in the LMS market, makes this an opportune time to evaluate LMS options to determine which system will best meet ECU's needs.

The Academic Technologies Advisory Committee (ATAC) helped guide this process. The committee includes faculty from each of the colleges and several faculty from the Distance Education and Learning Technologies (DELT) Committee, including the current committee chair. **Table 2.**

The ATAC engaged in several activities this academic year to understand the LMS landscape and market in higher education, reviewed feature sets available in LMS tools, and solicited feedback. The committee has determined that Canvas is the tool of choice that will provide significant improvements over our current Blackboard Learn system. These improvements and advantages include:

- ease of use and intuitive interface,
- accessibility features,
- the ability to manage a large number of sections,
- a rich tool set to provide student feedback, including a full-featured video tool with auto transcribing close captioning, and
- improved course analytics and reporting.

In addition, Canvas has been adopted by eight other institutions across the UNC system and the NC Department of Public Instruction for online K-12 learning. This creates a foundation of knowledge across the system and one less learning hurdle for students. Also considered an advantage by the committee were the positive peer reviews on Canvas support and LMS migration.

Based on the Academic Technologies Advisory Committee's review and deliberations, the recommendation is that ECU adopt Canvas starting in the fall 2019. The committee recommends the development of a timeline that will overlap with our current Blackboard system and not extend archive access past spring 2022. Throughout the evaluation process, faculty reinforced the idea that they are lifelong learners, and many faculty expressed excitement about the opportunity to explore new tools and develop new skills.

Throughout the evaluation process, faculty reinforced the idea that they are lifelong learners, and many faculty expressed excitement about the opportunity to explore new tools and develop new skills.



## Committee Activities

Committee activities in the Fall of 2018 included:

- the kickoff of ATAC,
- providing a summary of the evaluation process to the IRCC and the Academic Deans and Directors,
- creating the review criteria for an LMS,
- reviewing the market landscape,
- consulting with Gartner Research, a consulting firm, on the state of LMS vendors in higher education,
- reviewing ECU's use of Blackboard, and
- hosting demonstrations by three LMS vendors (Blackboard, Canvas, D2L Brightspace) to the ATAC, and
- hosting of two public forums.

As a result of the work in the fall, the ATAC invited all three vendors to campus in the spring of 2019 for two days of campus demonstrations and meetings. In the spring of 2019, the committee actively participated in three two-day vendor demonstrations.

The campus community was sent information about the LMS evaluation, provided access to view sample courses imported into each tool, provided videos for each platform that correspond to frequently-used tools at ECU, and provided an opportunity to submit feedback. Two public forums were held during which the university community had the opportunity to discuss the tools and provide input.

The committee also engaged in conversations about migrations with two references from each vendor. We consulted one final time with the Gartner research consultant to determine if any new changes had occurred in the LMS market. Lastly, the committee members actively solicited and shared feedback with their colleges and provided the information at committee meetings. Shared feedback with their colleges and provided the information at committee meetings.

## ACADEMIC TECHNOLOGIES ADVISORY COMMITTEE MEMBERSHIP

Table 2

Academic Library Services	College of Fine Arts and Communications
Academic Technologies, ITCS	College of Health and Human Performance
Brody School of Medicine	College of Nursing
College of Allied Health and Sciences	DELT Committee Chair
College of Arts and Sciences	Health Sciences Library
College of Business	Learning Platforms Manager, ITCS
College of Business Representing Distributed IT	School of Dental Medicine
College of Education	Office of Faculty Excellence
College of Engineering and Technology	SGA Representative

## IT ACCESSIBILITY

*“Policies concerning the procurement and acquisition of technology provide an opportunity for colleges and universities to increase the accessibility of the tools and services that students and faculty use, both for academic and administrative purposes.”*

### *ELI 7 Things You Should Know About ... Technology Procurement for Accessibility, October 2018*

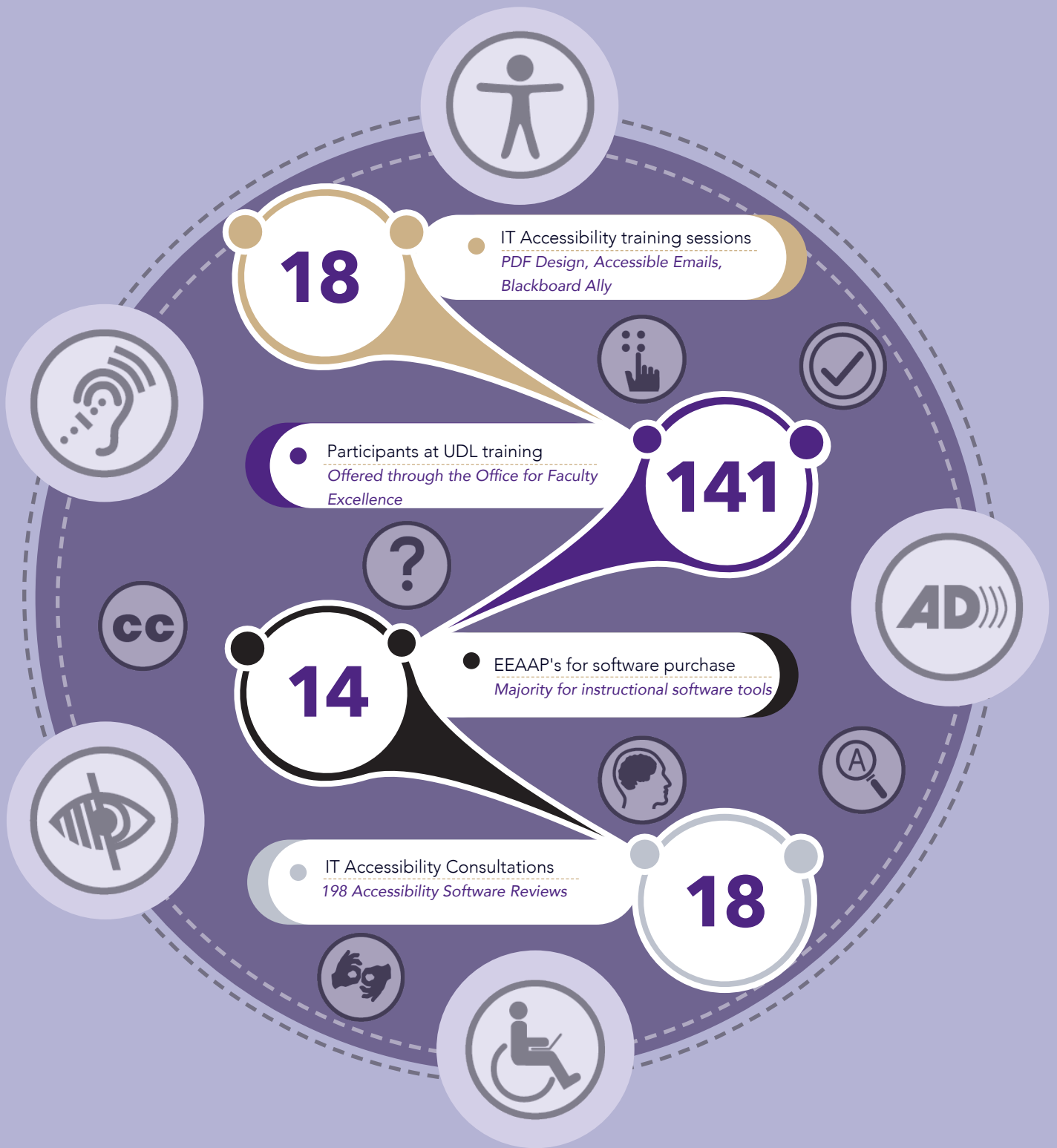
This is the IT Accessibility Committee's third year and cumulatively, we have made great progress. We are diligent in creating a formalized structure that continues to move us forward with annual goals, funding commitments, and a commitment to rectify situations that are brought to our attention.

This year, we made progress on and/or accomplished the following:

1. Convened the campus wide IT Accessibility Committee twice in FY19. The campus-wide committee provided valuable input and review of our initiatives.
2. We offered 18 IT Accessibility training sessions on PDF Design, Accessible Emails, Instructional Content, and Blackboard Ally.
3. We had 141 participants at our new Universal Design for Learning (UDL) training with new content including a UDL Blackboard Course, providing meaningful and timely feedback, and a UDL Syllabus. The training was offered through the Office for Faculty Excellence.
4. We worked with departments to establish 14 Equally Effective Alternative Action Plans (EEAAP's) for software purchases. These departments have received recommendations on how to provide accommodations if they occur. The majority of these EEAAP's were for instructional software tools. We did create a Work Productivity exception that reduced the number of EEAAP's.
5. We audited the purchasing process to determine if our processes were clear and purchasers were making the correct choices regarding exceptions. Out of the 166 purchases audited, we had 78 VPAT waivers and 88 exceptions. One exception did not have documentation, 22 exceptions listed the wrong exception and all VPATS were documented. The purchasers were followed up with and provided instructions on the process.
6. We targeted existing campus applications to thoroughly evaluate the accessibility of the tools including: Kronos, Touchnet, Cornerstone, Recruiter, Pirate Port, Blackboard, WebEx, WordPress, Lynda, Web Email, McGraw Hill, Connect, Mindtap, Omeka, Qualtrics, iWebfolio, Mediasite, and Yammer. Feedback was provided to application owners regarding the outcome of the assessments.
7. We communicated to campus on the following IT Accessibility Topics:
  - Ally, Your Accessibility Ally
  - Listen to Your Homework
  - Read & Write Literacy Software Makes the Web, Documents and Files More Accessible
  - New Pirate Port Portal, with built-in accessibility features
  - Siteimprove reporting
8. We provided 18 IT Accessibility Consultations and 198 Accessibility Software Reviews.
9. We continue migrating CommonSpot users to WordPress which includes a new website design that is ADA Compliant and has a responsive design. Approximately 150 sites will be completed by the end of the fiscal year. The new WordPress CMS scores a 97.5% for WCAG 2.0 AA Compliance. The industry standard is 71.4% for education. After users add their content to the themes, our average score is 90%. All new WordPress users are sent a monthly report indicating their misspellings, broken links, and ADA issues. We offer best practices for ADA at [wordpress.ecu.edu](http://wordpress.ecu.edu). Approximately 447 users have attended WordPress Training where accessibility expectations are reviewed.
10. We implemented Blackboard Ally, a tool that provides content to students in multiple formats such as audio, HTML, and electronic braille. The tool offers suggestions to correct ADA issues and provide an overall score to the document, course, and the overall Blackboard environment. This year, there were 21,780 alternative formats used and 16,481 downloads. Formats downloaded included audio, pdf, html, ePub, and Braille.
11. All [ecu.edu](http://ecu.edu) web pages contain a report a barrier link that when filled out emails a diverse team that responds to issues and ensures the appropriate resource is notified.
12. We completed the quarterly reviews, as defined by the university Web Regulation. A sample of web pages are reviewed quarterly to ensure they meet ADA, security, and design requirements. Information about the reviews is sent to site owners and contributors.
13. Per one of the ITCS unit objectives, we will support a diverse community and ADA compliance efforts, we will support and provide \$75,000 in financial resources for IT accessibility to campus. This year, we spent approximately \$62,000 on software tools supporting IT accessibility.

In FY20, we will continue our annual operational activities including but not limited to communicating to campus about IT Accessibility, Universal Design, providing training, reviewing technology for accessibility, and migrating from CommonSpot to WordPress. Additionally, we will make available two new video (Microsoft Stream and Canvas ARC) tools that will have auto captioning and transcribing with transcript editing.





## CLASSROOMS AND LABS

ITCS supports 240 classrooms and 102 class labs. This past year, presentation systems were replaced in 32 generally-scheduled classrooms, bringing them up to the current digital standard equipment, including a wireless laptop/bring your own device (BYOD) capability. Classroom construction standards were updated to meet current digital standards. In addition, a 5-year classroom technology plan was developed.

ITCS completed several creative classroom/lab projects in buildings across campus, including the College of Business computer lab in Bate Building, the dance studio in Messick, and student athlete development tutor rooms. We provided consultation support on these ongoing projects: new Main Campus Student Center; the Research, Economic Development and Engagement (REDE) building renovation project in Uptown Greenville; and the Life Science and Biotechnology Building.

Sonic Foundry performed a 3-day on-site review of Mediasite, focusing on security roles, learning management system integration, user profile provisioning, MyMediasite modes, and archiving expired content. Ten Mediasite recorders were replaced in generally-scheduled classrooms due to end of life and discontinuance of support.

The Classroom and Lab Governance group was established to meet and discuss classroom and computer lab needs. The group consists of members from ITCS, Institutional Planning, Assessment and Research (IPAR), and Office of the Registrar, and meets throughout the year to discuss technology needs across campus and the use of space. This past year, funding was available to replace outdated furniture in computer labs. The group evaluated requests from ECU's colleges regarding their needs. Through these requests, we identified five computer labs that needed significant furniture updates.

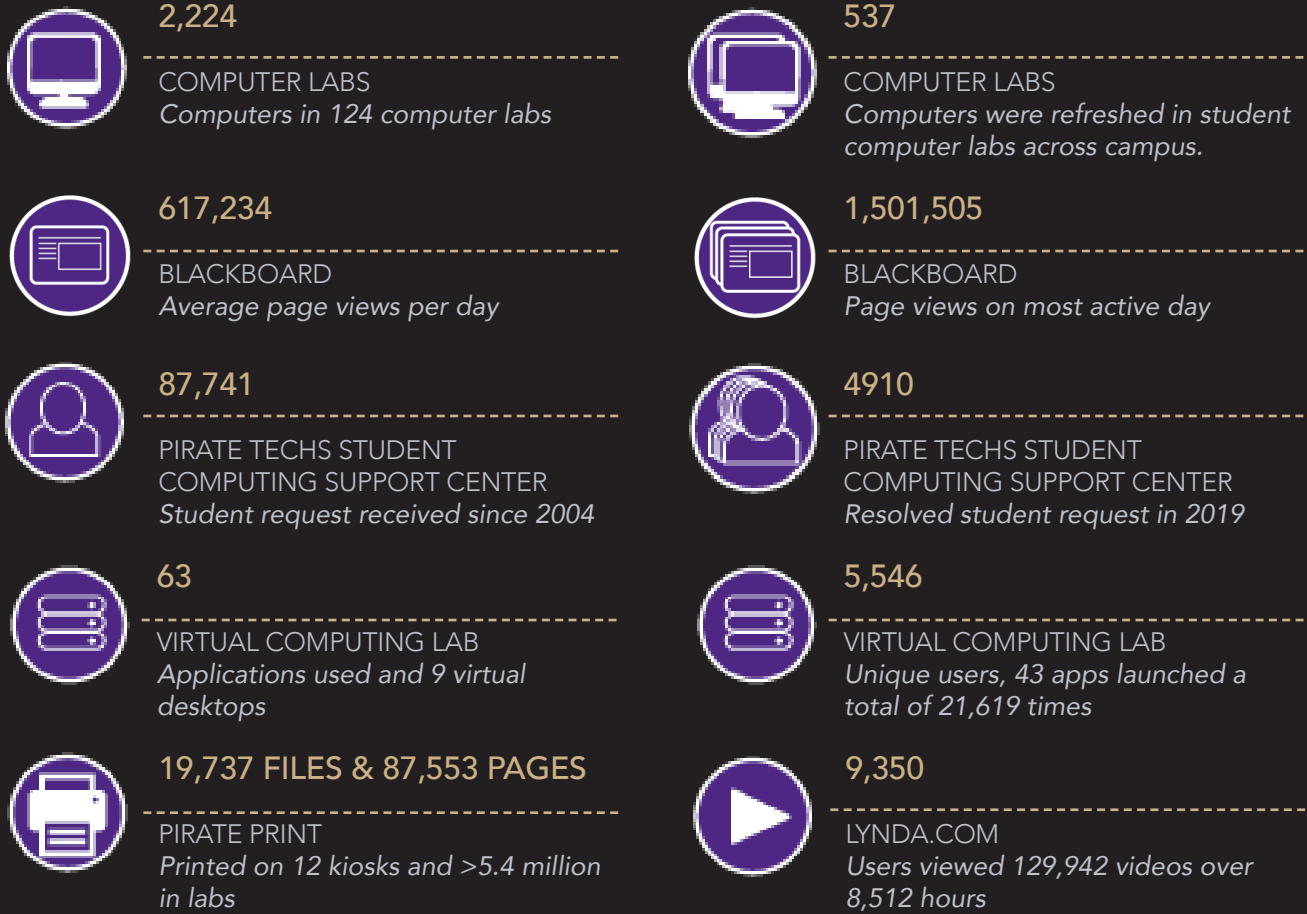
In addition to adding furniture and space for students bringing their own devices to campus, Academic Technologies increased the number of printers for students to print from their own devices — eleven dedicated print stations are available, in addition to 50 computer lab printers.

This year, Joyner Library added a kiosk that holds 30 laptop computers for students to check out while in the library. The kiosk was heavily used and very successful — laptops were checked out more than 18,500 times!

Additional changes include Austin 104's conversion from a general-purpose lab to a Math teaching lab; Mendenhall basement computer lab will be going offline, and Howell Science E210's transition from a computer lab to a regular classroom. The department requested a laptop cart to be used in place of the computer lab, allowing the cart to be used in multiple classrooms as needed.

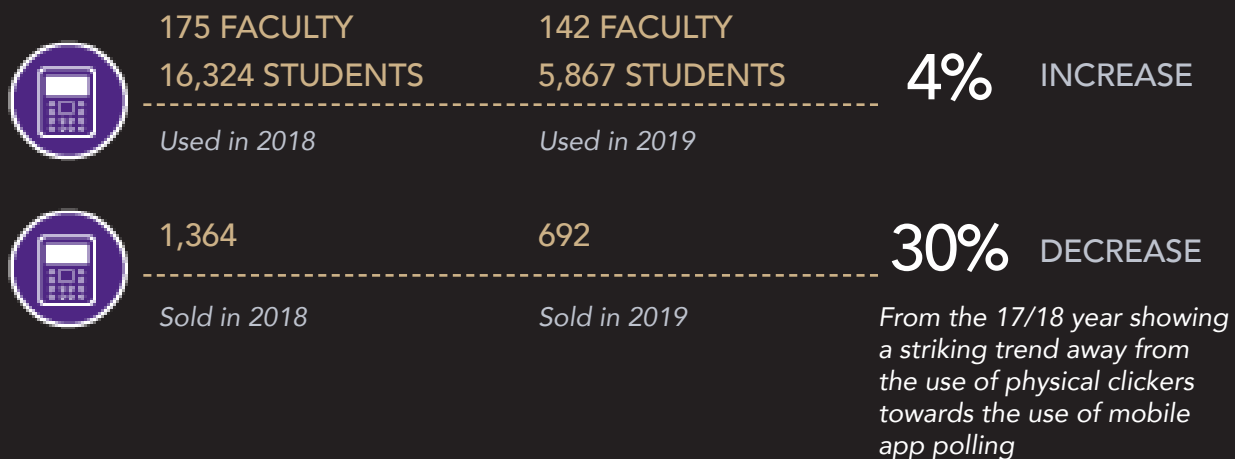
## BY THE NUMBERS

Fig. 4



## TURNING "CLICKERS"

Fig. 5





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## EFFICIENCY AND EFFECTIVENESS IN OPERATIONAL DELIVERY OF SERVICES

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Our Web Services team built a back-end Web tool for ECU's Creative Services department to highlight accomplishments such as national rankings and recognitions on the ECU homepage. Clickable icons displayed on a colorful banner link to a Tableau page with graphical elements that show awards from U.S. News & World Report, National Council on Teacher Quality, Princeton Review, among others.

The university's migration from CommonSpot to WordPress is approximately 50% completed. Sixty percent of content (pages) and forty-five percent of websites have been moved. Our goal is to complete the migration by summer 2020.

This past year, we implemented [scholars.ecu.edu](https://scholars.ecu.edu), an opensource tool that will provide visibility to faculty grants, research, and publications. This tool provides opportunities for the public to locate faculty experts and encourages collaboration.

ECU's faculty and staff email environment moved to the Microsoft Office 365 cloud computing service to produce a significant savings in hardware and software costs. Other advantages include modernization (vendors will provide the latest updates and versions of Outlook), the ability to grow or scale down as needed, and added security.

We installed Microsoft Teams on university-owned faculty and staff computers. Teams is a collaboration platform that allows for persistent chat, easy file-sharing among group members, and a variety of plug-ins that add to the effectiveness of group collaboration.

To allow technology support specialists to more quickly and efficiently assist our users with technical issues, we upgraded the campus computing asset management tool, KACE. In addition, we completed the transition to a new server infrastructure monitoring tool that allows support specialists to not only monitor system activity and hardware health, but also allows them to pinpoint bottlenecks in the service process. These capabilities allow support specialists to troubleshoot more effectively and identify issues before they become major issues impacting service availability for users.

At the request of the Brody School of Medicine (BSOM) Academic Technologies formed an IT Communications Group with IT staff in the BSOM to foster two-way information sharing from different areas to ensure staff and faculty are connected, receiving relevant communications, and know of the resources available regarding information technology at the university. Academic Technologies staff is also representing ITCS on the Organizational Leadership and Resources Committee as part of the site visit from the Liaison Committee on Medical Education (LCME), an accrediting body for educational programs at schools of medicine in the United States and Canada. In preparation

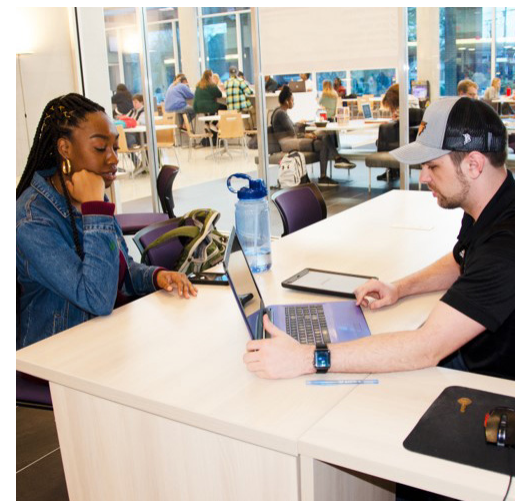


Photo top

Walk-in Help Desk staff printed 229 posters for Research and Creative Achievement Week.

Photo bottom

Pirate Techs opened a new location in the new Main Campus Student Union.



of the site visit, BSOM began an 18-month self-study of their medical education program. The Organizational Leadership and Resources Committee's charge is to examine the mission, planning, organization, leadership and administration of BSOM, as well as the educational resources and infrastructure.

In spring 2019, a Virtual Reality/Augmented Reality (VR/AR) at ECU Interest Group was created to learn about VR/AR on campus, share ideas, showcase projects, and collaborate. The VR/AR at ECU Interest Group is a collaboration between the Office for Faculty Excellence, ECU Libraries, ITCS, and College of Arts and Sciences.

Academic Technologies partnered with the Office for Faculty Excellence to deliver CourseFIT (Functional, Innovative, Teaching): Reshape Your Course. CourseFIT focused on equipping and supporting faculty members teaching online with technologies to help accomplish their educational goals. This year's participants teach high-demand courses that are not typically offered online to increase opportunities for students to take these courses. Faculty were introduced to a schedule of topics including: designing effective syllabi, providing student feedback, social presence in the online environment, establishing learning paths, Universal Design for Learning, tools in the newly selected ECU Learning Management System Canvas, and more. The three-day schedule included training on best practices using specific technology tools that will help participants meet their instructional goals. Following the three-day kickoff, faculty began working in pairs during the remainder of the summer to develop an online version of the course to be taught during the 2019-2020 academic year. Ongoing professional development and mentor support during the 2019-2020 academic year will enable faculty to begin applying knowledge from the

summer sessions to their ongoing instruction. This as-needed support will maximize the impact of the training and planning that occurred in the summer.

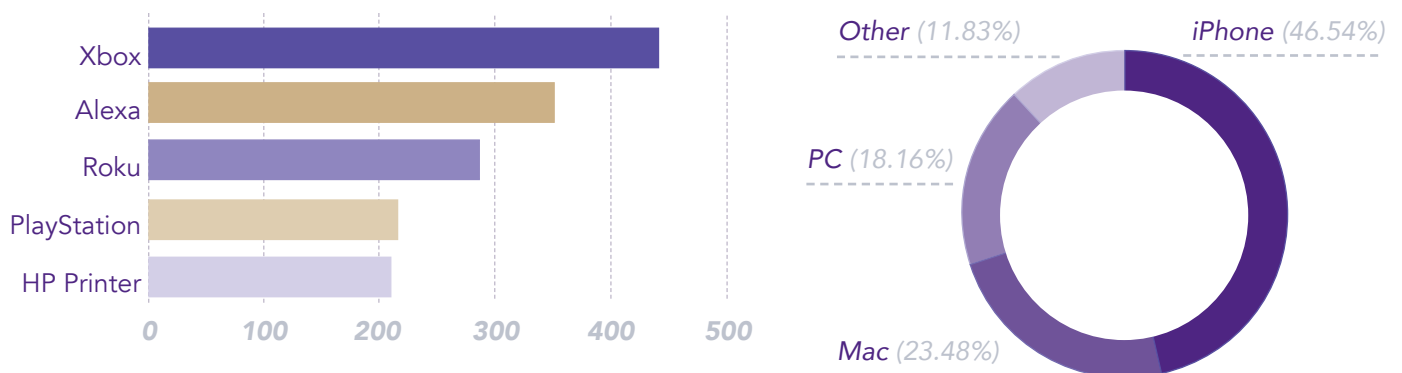
Within the newly-adopted Canvas learning management system, we implemented Canvas Studio, a video platform designed to engage students and instructors. Instructors can record, upload, and manage instructional video using Studio. Faculty and students can comment and provide feedback within a video timeline. Studio is integrated with the Canvas gradebook and students can submit video assignments. Instructors can add quiz questions into the video timeline. Studio provides analytics so instructors have insight into which videos students are watching, how long, and when they drop off. To improve our efficiency when installing software on computers in campus labs, we implemented Munki, which can install software packaged in the Apple package format and can be configured to install Apple Software Updates. Munki reduces technicians' installation time by automating initial installs or distributing updates. This new open-source tool provides consistency, ensuring that software is installed the same way on each computer, and reduces the need for hands-on, in-person visits to classroom Mac computers.

This year, Academic Technologies tested Remark software, a new exam-grading solution that will provide better reporting options and easier to read reports; allow for results to be exported to Excel; provide the option for extra credit questions; and give instructors the option to have multiple-answer options. Academic Technologies has used Remark on the Health Sciences Campus several years; transitioning to this software on Main Campus allows for greater consistency and efficiency. We will begin using the Remark software in fall 2019.

## THE INTERNET OF THINGS

Fig. 8

Internet of Things (IoT) is the network of physical devices, vehicles, home appliances, and other items embedded with electronics, software, sensors, actuators, and connectivity which enables these things to connect and exchange data, creating opportunities for more direct integration of the physical world into computer-based systems.



A. Devices on ECU's eduroam network

B. Device types



## BY THE NUMBERS

Fig. 7



464

VIDEO TELECONFERENCING EVENTS

Multimedia and Technology Services (MTS) team managed 464 video teleconferencing events.



114

UNIVERSITY EVENTS

MTS video services team captured and edited video of 114 university events.



2185

MYWEB

2,185 students and 713 faculty/staff have MyWeb space.



5,523

SOFTWARE DOWNLOAD CENTER

Software downloads processed



5%

OPSCAN

Decrease of sets of test scanned from 3,397 in 2018 to 3,224 in 2019.



3%

OPSCAN

Increase of individual sheet from 228,762 to 2018 to 229,361 in 2019.



7,948,435

ECU HOMEPAGE

Pageviews



5,148,758

ECU HOMEPAGE

Unique pageviews

## INBOUND/OUTBOUND EMAIL

Fig. 8



MESSAGES SENT **41+** MILLION

Staff/faculty/students/alumni



MESSAGES INCOMING **429+** MILLION

Staff/faculty/students/alumni



MESSAGES **340+** MILLION  
BLOCKED

As SPAM or Malicious

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# DEVELOPING CONTEMPORARY SYSTEMS

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## ADMINISTRATIVE APPLICATIONS

In December, ITCS completed the upgrade of Banner 9 Admin Pages (the INB replacement). The project spanned two years with more than 2,000 hours logged, and involved over 50 individuals. Banner 9 brings a fresh new look and feel as well as updated technology. This year, ITCS will focus on Banner 9 Self Service, which includes new SSB applications for students, faculty, and staff. SSB is accessible via mobile phone and includes Student Registration, Faculty Rosters and Attendance Tracking, Finance, and Employee Profile.

ITCS currently has two phases to complete for Kronos for Main Campus in July and October. We will be finishing the implementation in March 2020 with the Police Department. Kronos was the largest software implementation the university has undergone (in terms of users), and replaces the paper timesheet and manual process that we used previously.

This year, ITCS upgraded Pirate Port. In addition to a fresh new look, Pirate Port now works on mobile phones and tablets, allowing faculty, staff, and students to access their favorite applications on a mobile device.

Students have over a dozen items to complete from the time they are admitted to stepping foot on campus at the start of the semester. Previously, students were not able to quickly view what they had or hadn't completed. The Admitted Student Checklist is an application available in Pirate Port, accessible via a mobile phone, that lets them view the status of items completed and not completed. The checklist also has quick links to systems to complete their tasks. We also have an Administrator system where admissions and other campus offices can access checklists for admitted students, giving them the ability to provide a high level of support and customer service including events like orientation.

## ENTERPRISE ANALYTICS AND DATABASE ADMINISTRATION

This year, ODS was upgraded from version 8.5 to version 9.0, and the Oracle Warehouse Builder was replaced with Oracle Data Integrator.

Enterprise Data Management Support Services (EDMSS) has established a data quality process that monitors and captures issues occurring in conjunction with the Student Data Mart. This process validates input data and notifies knowledge workers when errors are detected. Regular reports are created that track the errors and their frequency. This has been integrated into a Power BI-based dashboard and the processes themselves have been developed and documented in order that they might be used in future efforts of a similar nature.

EDMSS has overseen the installation, configuration and administration of SAS's advanced data management and analytics environment, which is nearing completion. This deployment includes a suite of applications that will allow the university to manage data quality, determine data lineage, use visual analytics and much more. The Visual Analytics feature set is currently being piloted by Institutional Planning, Assessment and Research (IPAR), while the EDMSS team is working with the Registrar's Office to integrate student information into the SAS Business Data Network and Lineage modules. A primary goal for this effort involves being able to generate reports on both institutional data and its associated/descriptive metadata.

EDMSS has been working diligently with other teams within Strategic Information Services and ITCS to eliminate obsolete database objects within the various databases utilized by ECU faculty, staff and students. This process includes archiving of these objects in order that they may be used again if needed. At the same time, EDMSS is performing functional analysis on the current data architecture environment, gathering requirements and developing solutions for future business processes and systems design. These processes and the associated documentation will allow for better planning and ongoing support of these systems. Current examples include the Ellucian Ethos Integration and eTRACS (Electronic Research Administration & Compliance System) projects.

## BY THE NUMBERS

Fig. 7



6096

QUALTRICS SURVEYS 2019

238 faculty/staff and 513 student users created 6096 Qualtrics surveys with 317,130 responses.



11,984

QUALTRICS SURVEYS TOTAL TO DATE

1720 faculty/staff and 1565 student users created 11,984 Qualtrics surveys with 547,729 responses. (Total to date)



4755

ECUBIC

Current employees executed reports.



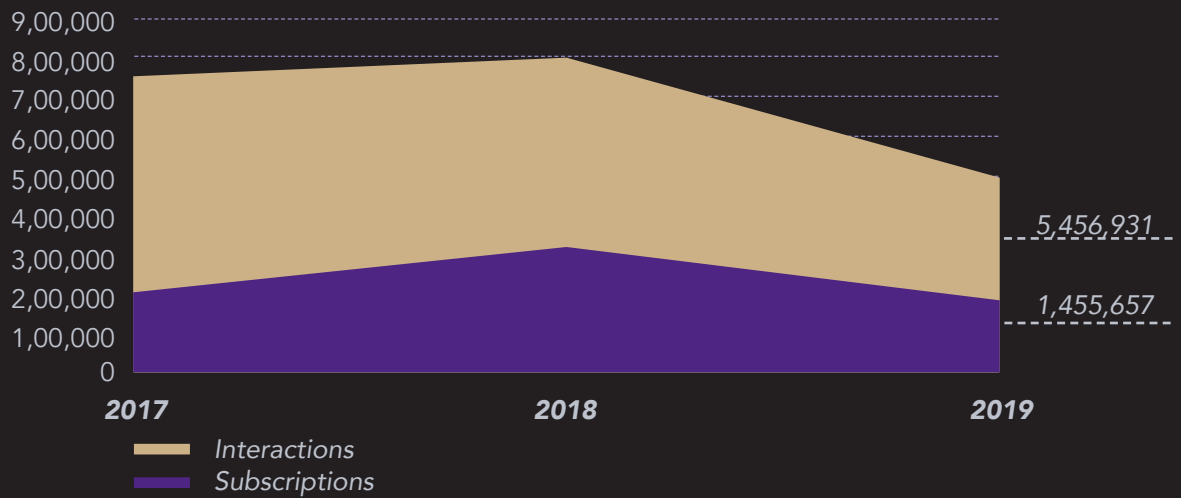
747

ECUBIC

Current employees received email subscription.

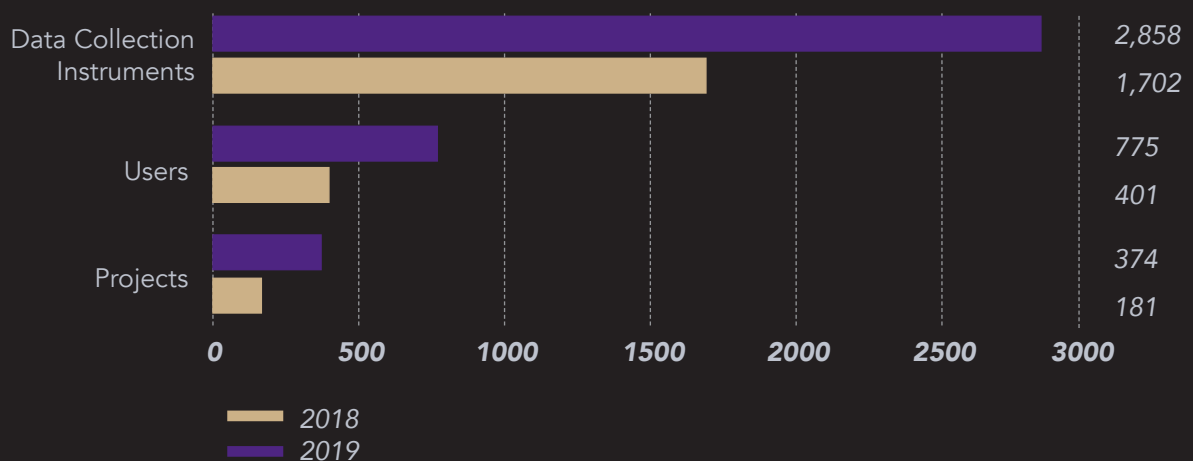
## ECUBIC

Fig.9



## REDCAP USAGE

Fig.10





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## SECURITY AND PRIVACY

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The University further developed its enterprise privacy program in relation to the GDPR (General Data Protection Regulation), the European Union privacy law that applies to the collection and processing of the personal information of individuals located in the European Economic Area (EEA). To provide stakeholders with greater transparency, specific data privacy practices have been published on the University's GDPR webpage. In addition, after testing and further review, various improvements have been made to the Data Subject Rights Request, the process that data subjects can use to request copies of or changes to their personal data at ECU. These changes include automated notifications and workflows for the designated coordinators, and service level agreements and tracking to allow the Data Protection Officer to monitor requests in real-time. These enhancements will streamline the processing of the data requests themselves and facilitate improved regulatory compliance.

As part of our commitment to raise campus awareness the Information Security Office coordinated a Cyber Security Speaker Series as part of our participation in National Cyber Security Awareness Month in October. These free one-hour sessions were open to all faculty, staff, and students, and included a lineup of professionals with information technology security expertise sharing topics on current cyber security threats we are facing as individuals at home and work, as well as those targeting our country's critical infrastructure. The speakers included Klint Walker, Department of Homeland Security Cyber Security Advisor; Lieutenant Colonel, April Wimmer, ECU's AFROTC Detachment 600; Dr. Tijjani Mohammed, ECU Department Chair for Technology Systems; Assistant Special Agent in Charge Kevin Roughton, NC State Bureau of Investigation Computer Crimes Unit; Supervisory Special Agent Jessica Nye & Analyst Stephen Thomas, Federal Bureau of Investigation Cyber

### IN THE SPOTLIGHT



*I wrote the article on ransomware not because I consider myself an expert on it, but it was just the opposite. Ransomware is a thorny issue so I wanted to spend time researching it, to help me with CISO duties and to better protect ECU, and then share what I learn.*

Dr. Mark D. Webster, Chief Information Security Officer (CISO) discussed the fast-growing malware threat, Ransomware, in an article published by Education Technology Insights.

<https://education-security.educationtechnologyinsights.com/cxinsights/defending-your-institution-against-ransomware-attacks-nid-646.html>

Squad; Lieutenant Steven Schmidt & Chief Warrant Officer William Clark, North Carolina National Guard Joint Cyber Defense Team; Cyber Unit Manager Tom McGrath, North Carolina Department of Public Safety, North Carolina Fusion Center; Richard Fraboni, ECU ITCS Network Architect. In conjunction with the speaker series, and following guidance from the National Cyber Security Alliance, we distributed weekly email newsletters highlighting cyber security topics and themes.

The Cyber Security Operations Center (CSOC) along with the Information Security Office updated the university's Cyber Security Incident Response Plan to better identify, contain, remediate, and recover from cyber security incidents. This new plan is one of many efforts the university is taking to improve its overall security health and posture. **Fig. 11.**

ITCS staff were enabled for Multi-Factor Authentication (MFA) and have completed the pilot. MFA is a security system that requires more than one method of

authentication from independent categories of credentials to verify the user's identity for login. The next phase of this project is to announce a voluntary opt-in to all campus users in the summer, with enforcement planned for the fall 2019 semester.

This past year, ITCS implemented laptop encryption on university-owned laptops to ensure that data on lost or stolen equipment will be protected. Encryption is currently deployed on over 2,500 university owned laptops. We also deployed the Cisco Umbrella client to campus workstations to provide an additional layer of protection against malicious websites for workstations that are not on the ECU Network.

In addition, we procured a solution to manage 'privileged account/service account' passwords, and began implementing product features in phases. The initial phase, currently in progress, involves creating 'password vaults' for technical staff to store privileged account information (i.e. userid/password) and eliminate disparate methods being used to store this privileged information.

ITCS maintains and operates a vulnerability management program to assist in auditing, identification and remediation of security vulnerabilities to protect university data and systems. This year, ITCS implemented a new vulnerability management system, Rapid7, to increase visibility, through the user-friendly application interface, and reporting for system and application administrators as a tool to prioritize and remediate vulnerabilities within a timeframe based on severity of the vulnerability. Rapid7 delivers a vulnerability management lifecycle solution which includes up-to-date dashboards and reporting of vulnerability status, remediation information, and when necessary, exception submission workflow and tracking illustrating when the security vulnerability was first seen on a system through remediation. This will be very beneficial for system and application administrators throughout the University, as they are responsible for assessment and timely application of vendor-supplied security patches, and other remediation for systems under their management and supervision.

## BY THE NUMBERS

Fig. 11



5,600+

ENCRYPTION

Encrypted messages sent external



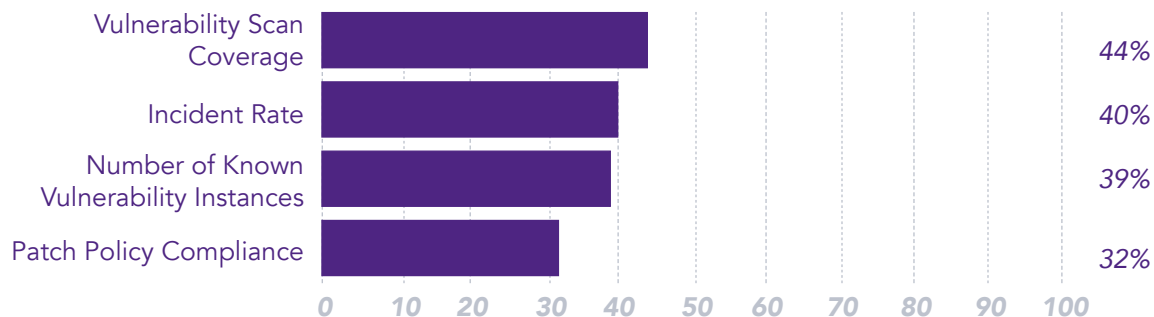
600+

ENCRYPTION

Encrypted messages sent external

## SECURITY METRICS PLACEHOLDER

Fig. 12



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## GLANCE AHEAD

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Photo right  
Don Sweet and Chris Locklear

## CORE VALUES

### KNOWLEDGE

We are life-long learners, utilizing emerging technologies and skills to effect positive change and capitalize on opportunities.

### RELATIONSHIPS

We embrace teamwork, open and honest communication, working across departmental boundaries with the strength of our diversity as we foster collaborative, supportive and empowering relationships.

### SERVICE

We provide excellence in customer service to meet and exceed the needs of our students, faculty, staff and larger community.

### ETHICS

We employ the highest ethical standards to guide our decisions and actions as we meet and then exceed our commitments.

### WELL BEING

We are committed to the personal and professional development and achievement of the individual in an environment where everyone is a valued member, treated with respect, encouraged to contribute and recognized and rewarded for his/her efforts.



