

Division of Information Technology

Annual Report

July 2021 – June 2022



06/30/2022

July 2021 through June 2022

KEY METRICS

Internet Connection Uptime

- 99.99%
 - 08/17 – One hour degraded service; bandwidth management appliance was incorrectly limiting Internet traffic, causing slow response times.

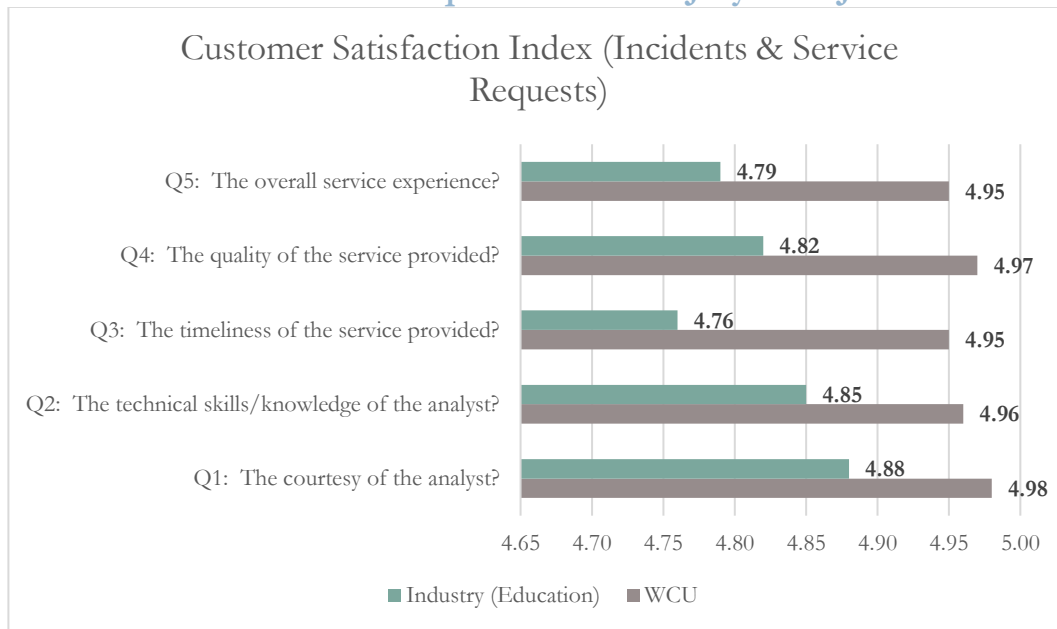
Core Network Uptime

- 99.73%
 - 09/06 – Twelve hour campus network impact; core migration change did not go as expected, and resulting troubleshooting and recovery extended the outage beyond the scheduled maintenance window.
 - Various short power outages or single equipment failures, including numerous scheduled outages for the migration of services to the new campus fiber infrastructure and the new core network.

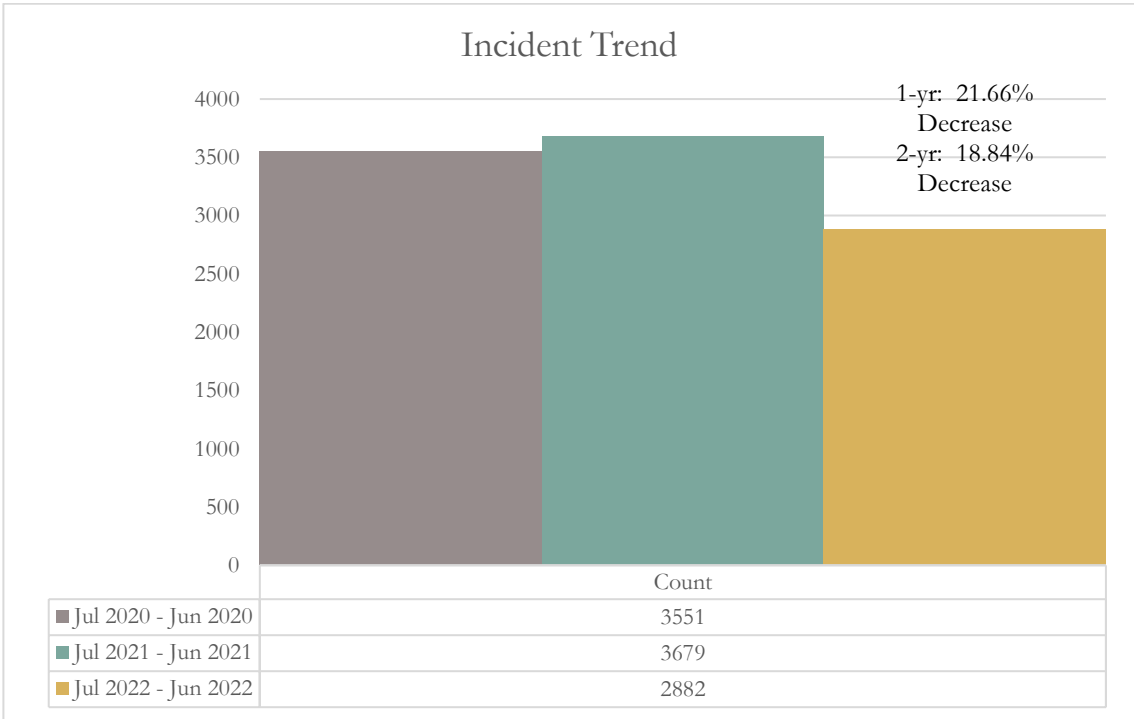
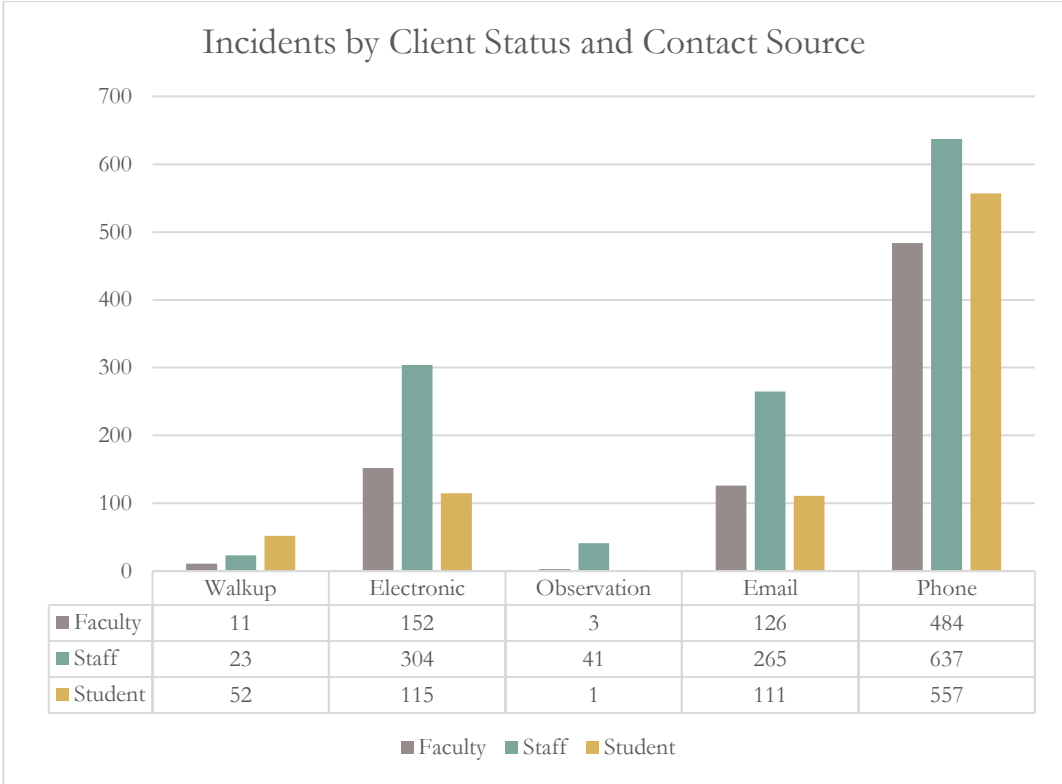
Learning Tools Uptime

- 99.99% - Canvas
- 99.98% - Panopto
- 99.99% - Poll Everywhere
- 99.98% - Qualtrics

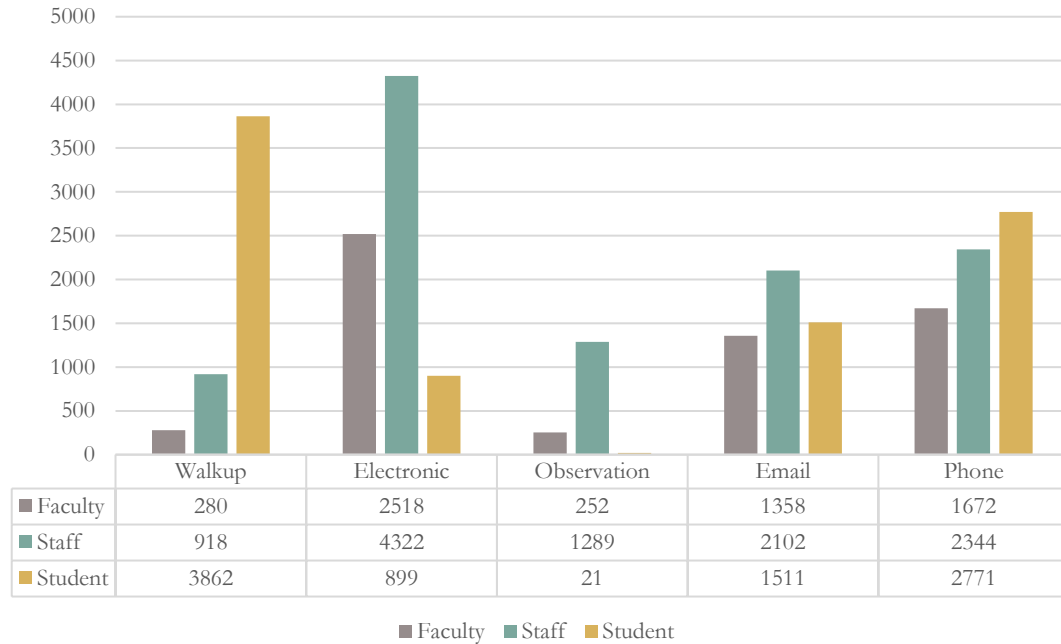
IT Incident and Service Request Metrics – July 2021-June 2022



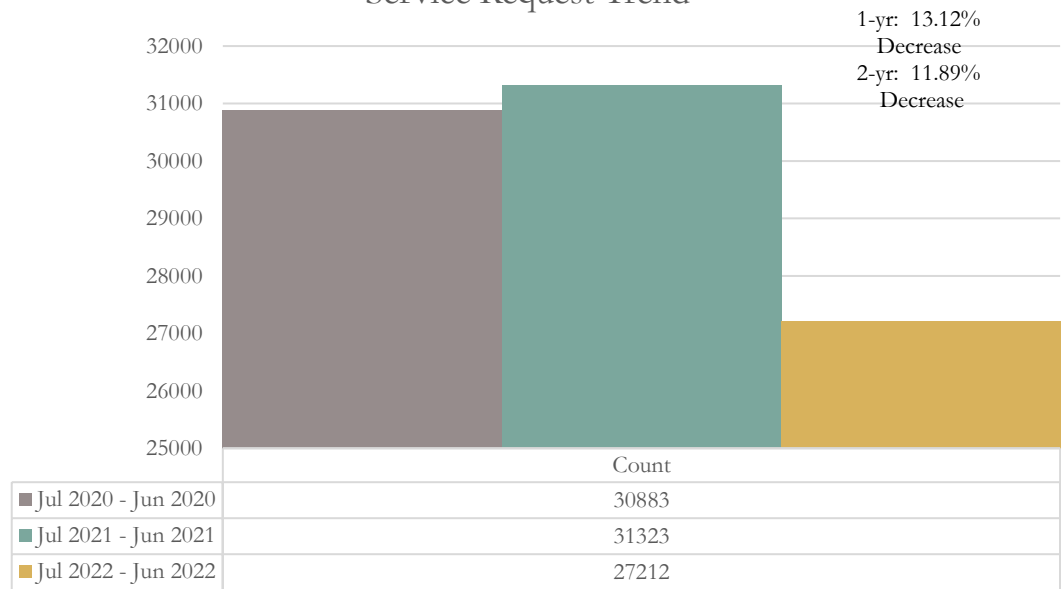
Scale of 1 to 5 (5 = best)



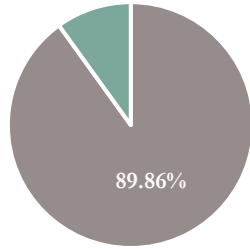
Service Requests by Client Status and Contact Source



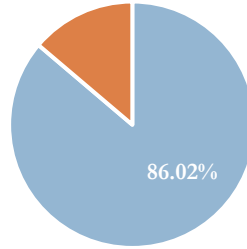
Service Request Trend



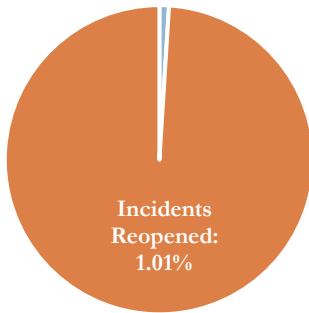
First Level Resolution
Rate Incident



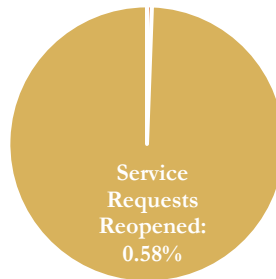
First Level Resolution
Rate Service Request



Incident Reopen Rate



Service Request Reopen
Rate



Significant Accomplishments

Overall IT Division

- **IT 2021-2022 Fiscal Year Objectives.** Each year, IT creates its annual “1-Pager,” listing the key objectives and projects for the division. During the year, IT measures its progress and success against completion of these objectives, scoring each item quarterly. For the 2021-2022 fiscal year, IT scored a 170 out of a potential maximum score of 200, resulting in a “B.”
- **Resources on Projects.** The IT division continues an annual objective for time spent on project activities and efforts. For the fiscal year ending June 2022, the objective was to spend a minimum of 30% of available work hours on project work. This goal was not met, with the final average of 27%. This was mainly attributed to staffing shortages due to turnover.
- **Board of Trustees Updates on Technology and Cybersecurity Risk.** IT presented updates on Technology and Cybersecurity Risk to the Board of Trustees. The updates were well received and demonstrated that we continued to make significant progress and provide value to WCU’s goals, operations, instructional delivery, and the student experience.
- **HDI Best Service and Support Organization Award.** The WCU IT Help Desk team was recently awarded the 2022 Help Desk Institute (HDI) Best Service and Support Organization at a global conference in Las Vegas. This is a highly regarded global award for businesses and institutions. The award recognized WCU achievements in *Shift-left*, a term widely used by the support industry to describe the process of enabling support staff to solve incidents more quickly by owning more resolution activities, eliminating the need to pass them on to additional support levels. WCU IT has significantly matured this approach over the years. Kenny Chapman, IT Help Desk Manager, accepted the award on behalf of the Help Desk team and WCU IT. This is an outstanding accomplishment.

Academic Engagement and IT Governance (AEITG)

- **Project Sequencing Process.** Since its initial launch with a pilot in 2018, the project sequencing process has completed several campus-wide iterations successfully. As we delve deeper into our project work across the division, small adjustments have been made in order to realize the greatest benefits. We now include a value case as a part of intake in order to help divisions make informed decisions regarding their workflows. AEITG has worked collaboratively with the IT Project Management Office since inception of this process, in communicating and carrying out the plan with our campus partners. We are planning a process review in the coming year to identify potential improvements.
- **The IT Educational Technology Team** (formerly embedded with the Coulter Faculty Commons) was moved to AEITG, in collaboration with the Provost’s Office, and relocated from Hunter Library to Belk. This allows the CFC to more fully focus on its roots in faculty development, and continues streamlining approaches in delivering the technical support and innovation that faculty and students need. The nature of faculty development and integration of technology has changed significantly over the past five (+) years – and especially during the last two years of the pandemic and the transition to Canvas as WCU’s Learning Management System (LMS). The CFC has experienced an increase in faculty development needs with respect to pedagogical assistance, consulting, course design, and the development and assessment of learning outcomes, alongside the broader integration of technology into the curriculum. IT has seen educational technology continue to expand beyond the Learning Management System (Canvas), to further encompass classroom design, external classroom linkages, future electronic textbooks and resources, and special tools – all of which must fit well within WCU’s technology architecture – as well as the requirement for broader and deeper integration with other systems and processes. In addition, the cultural frameworks that best deliver

faculty development and educational technology often require a difference in approach. Faculty development can be quite individualized and creative, while delivering technology for over 14,000 faculty, staff, and students requires robust availability, reliability, and stability. IT has found this necessitates different planning horizons, larger project efforts, extensive integrations with other systems, and detailed analysis of changes. Overall, this change allows each area to focus on respective strengths while maintaining needed communications and collaboration frameworks between the CFC and IT, to provide the best possible service to faculty and students. Both operational and organizational changes were announced in April 2022.

Instructional Technology and Endpoint Services (ITES)

- **Endpoint Services and Asset Management.** The Endpoint Services (ES) and Asset Management team closed out a busy year. Despite continued adjustments post-pandemic, the team worked to keep the campus technology refreshes going via orders, deliveries, repairs, and surplus. Heath Smathers (ES Team Lead) and Jason Pry (IT Asset Manager) delved deep into asset reporting and developed a new dashboard that will be used by Fixed Asset Coordinators across campus to easily see when their assets need to be updated, replaced, or located. With over 6000+ endpoint devices that all need regular upkeep and tracking, this work is invaluable.
- **Video Services, Instructional Computing, & Embedded College Support.**
 - **Apodaca Building Opening.** The Apodaca Science building opened at the beginning of the fall semester, with 45+ technology-enhanced spaces. The rooms feature a new, light-weight classroom technology standard, allowing the faculty freedom of movement within the classroom. We added six general pool classrooms with this building.
 - **Coulter Classroom Changeover.** Completed the transition of four Coulter Electronic Computer-Lab Classrooms to Active Learning classrooms. These renovated spaces offer a more flexible model, providing facilitated instruction via student BYOD. The furniture within the spaces is easily reworked, accommodating many different educational modalities.
 - **Video Services.** Video services continues to be a valuable and necessary resource for the campus and the WCU public relations team. Ed Ledford and Frank Hachadurian were a part of the production team that set up and streamed the Chancellor’s Holidays on the Plaza live event, as well as our 2021 Fall and 2022 Spring commencement services. Together, these teams were able to stream to students, faculty, staff, and friends of the University across the globe so they could be a part of campus events from afar. Spring 2022’s graduation service was livestreamed to YouTube, and garnered almost 12,000 views from the US and worldwide.
 - **UNC Board of Governors WCU On-site Visit.** After spending many months in preparation for the UNC Board of Governors on-site meeting at WCU in April, we were rewarded with successfully hosting the twenty-four Governors, their staff, and numerous meetings. Members from the Video Services, Instructional Computing, and Embedded Support teams were key members of the technological successes during the week, providing a wide range of IT services including networking setup, digital signage, audio and video support, and broadcasting the meetings for public viewing in partnership with PBS-NC. We received excellent feedback from each portion of the event.
 - **College of Arts and Sciences Computer Science Technology Update Program.** Adam Chandler (Arts & Sciences Embedded Support) added new hardware and a new operating system in the computer science lab, along with new software management, providing hands-off updates and moving the technology forward in this key lab space. In addition, efforts continue in tailoring resources needed for the Computer Science primary development server. This year, we were able to reclaim unused resources dedicated to the server, and repurpose them for other needs.
- **Technology Commons.**
 - **Technology Commons Opening Semester Stats.** As patrons returned to our tech commons spaces last fall, we saw a 36% increase in visits, and a 37% increase in web checkout users. We also maintained a customer satisfaction score of 4.98/5.00 for our team during the first month of the semester.
 - **Technology Commons Campus Impact Plan.** Our Technology Commons Campus Impact Plan kicked off during the fall semester, with some popup help sessions across campus, resulting in

contacting over 200 students, creating 25 tickets for resolution, and handing out a lot of Tech Commons stickers. We also assisted users with converting to our new Authentication Method with our recent *#Authenticate* event. The Tech Commons contributed to a successful end-of-fall semester with our “No Stressin’ Before Testin’ ” Winter Event. Students came to the Technology Commons to enjoy holiday movies, snacks, video games, coloring, puzzles, and other fun de-stressing activities as they prepared for finals week. We had an excellent response from the campus community, with over 100 people in our space throughout the day and over 22,000 interactions with our social media/marketing info for the event.

- **New staff.** Two new staff additions, Dustin Lomax and Nicholas Jones, joined the team as after-hours analysts. Dustin and Nicholas manage equipment checkout, monitor help requests, and work on data analytics for the team.
- **Successful June Freshman Orientations.** During June, 2022, the Technology Commons assisted 1,953 incoming freshman and their families (around 1,728 guests) in purchasing and setting up their devices for the coming fall semester, answering IT related questions as they prepare to move in during August, and supporting them as they navigate their first time setting up their class schedule.

Applications and Systems (A&S)

- **Help Desk.**

- The team continues building relationships, increasing technical skills, and growing organizational and process awareness by embedding personnel in other IT teams for limited-time engagements. This facilitates increased trust and communications within IT, while adding knowledge that can be brought back to the entire IT Help Desk team, ultimately improving problem resolution accuracy and timeliness. All team members now participate within other IT teams several days per week, including the Data Center, Networking, and Applications.

- **Application Services.**

- WCU continues to lead in the UNC system in our implementation of Banner 9. Steve Kadel, our Banner 9 technical lead, presented on the technical aspects of our Banner 9 implementation project at UNC CAUSE.
- A three-year strategic roadmap was created to guide technical work for all current major platforms, ensure key processes are being developed/updated, and older technology is being reviewed as replacement opportunities.
- The effort continues to mature our standards and practices in the ERP management space. This work will also be leveraged to create similar improvements in the SharePoint and .NET application development areas. The team is initially focusing on:
 - Maturing our ERP management processes (both development and production environments)
 - Enhancing standards and improving our code review practices
 - Formalizing IT and functional testing processes
 - Improving our documentation of system integrations
 - Enhancing our sequencing/prioritization of work requests with each functional area
- Two team members completed training/certification, expanding their skillsets related to automation, integration, and API development:
 - Joy Clavel completed training in Postman, PowerApps, PowerAutomate.
 - Bill Turner gained certification in Microsoft Power Platform Fundamentals.
- Additionally, the team is collaborating with the UNC System Office to further develop their operational processes, including:
 - Emergency outage management and communications
 - Change control

- **Data Center Services.**
 - Data backup:
 - Performed an upgrade to Netbackup version 10 in our backup environment.
 - Re-evaluating backup architecture to include cloud-based services with extended data retention capabilities.
 - Completed the migration of our tier one database and our myWCU database environments to the virtual server environment, increasing redundancy and reducing workloads.
 - Created an innovation group to help surface new ideas and process improvements, hoping to find new and innovative things we can do to improve IT at WCU.
 - Completed two data center outages (January and March):
 - Exercised our Disaster Recovery Run Document by testing the redundancy in the following environments: myWCU, Netapp Tier One Storage, Petasan, and the Cisco Fabric Interconnects.
 - Upgraded security monitoring software.
 - Remediated several remaining security risks.
 - Upgraded several pieces of our storage environment.
 - Worked with Residential Living and the vendor to update the room management system.
 - Continued working with the IT Security Office to advance opportunities identified in the IT Audit.
 - Planning for our next data center outage:
 - Apply the latest update to several infrastructure applications and platforms.
 - Continue testing our “Disaster Recovery Run Document” (document which lists out all tasks necessary to rebuild the data center in the case of a catastrophic event).
 - Continue work with the Help Desk to identify Shift-left opportunities around data recovery as well as email and calendaring-related tickets.
 - Security and risk management areas:
 - Identified funding to purchase Microsoft Defender for Endpoint Server for our server environment, which will be implemented by year-end.
 - Implemented Lastline for email phishing protection; we are currently working on scripts to automate actions on alerts.
 - Worked with the IT Security Office to implement a risk exposure tool, using that data to reduce the risk in the environment. Continued to advance opportunities identified in the IT Audit.
 - Migrated from our virtual backup appliance, running Windows, to a physical backup appliance from Veritas, providing increased security in our backup environment.
 - Worked closely with the IT Security Office, participating and conducting our IT Ransomware Tabletop exercise.
 - Continue working through items identified in the Ransomware Assessment conducted last quarter.
 - Implemented impersonation protection for high profile targets.
 - Automated alerts for detecting email phishing attempts using a third-party tool and some custom scripts.
 - Nearly completed implementation of an additional ransomware protection tool.
 - Improved our email security posture – implemented two additional protocols to block newly found threats.
 - Began work to integrate the Operational Security role into the Data Center Team as part of a recent IT re-organization.

- **CATalytics (data warehouse and business intelligence).** Work continues helping the campus move towards more data-informed decision-making by improving our data and analytics capabilities across multiple divisions.
 - In collaboration with Office of Institutional Planning and Effectiveness (OIPE):

- Continued our efforts sponsoring a joint IT/OIPE Data and Analytics team; enabling the sharing of resources, increasing exposure of available data, and laying the groundwork for future campus-wide data governance:
- Continued identifying and working data quality issues with both OIPE and functional areas.
- Continued creating a first ever data dictionary/business glossary of key definitions and terms.
- Continued helping OIPE operationalize their work with the System Office Student Datamart, reducing their manual efforts.
- Dashboard development over the past year:
 - Enhanced "Course Planning by Attribute" dashboard for Academic Affairs leadership and the Enrollment Planning Committee (EPC).
 - Enhanced "Student Enrollment Point-In-Time" dashboard for Academic Affairs leadership and EPC.
 - Enhanced "Instructional Resource Planning" dashboard for Academic Affairs leadership.
 - Published production "Student Success Factors" dashboard for Office of Student Retention/Student Success.
 - Published test "Admissions Funnel Point in Time" dashboard for Undergrad Admissions.
 - Published test Diversity/Equity/Inclusion; constructed a dashboard with faculty, staff, and student views, and diversity elements including race/ethnicity, gender, veteran status, disability status, and age. Worked through validation with Chief Diversity Officer and Human Resources; next validation coming from Provost's senior leadership. Expect to publish enterprise views of university data, and drill down views of division, college, and/or department for select users.
 - Enrollment Growth (New UNC System Office funding model) – working with Provost Office and Budget Office on requirements for new dashboard. Working with System Office on Delaware data model and data acquisition. Mock-up developed.
 - Instructional Resource Planning – Built and deployed a summary that is now being used by Provost, deans, and others, for evaluation of instructional staffing needs.
 - Admissions – Continued validation of "Admissions Funnel Point-In-Time", specifically looking at discrepant records between the dashboard and Slate; data set has been published to production and additional features developed (Early College and Distance/Resident Credit filtering and views).
 - Miscellaneous improvements to Orientation Management (MAPS roster) and Athletics Reporting (demographics by team)
 - Published production COVID vaccination rate dashboard.
- Data warehouse development over the past year:
 - Enhanced the Course Enrollment point-in-time data source that includes program information for expanded drill down capabilities.
 - Developed complete data model for Admissions point-in-time, developing the first ever point-in-time data capabilities for Banner admissions data. This allows multiple groups easily view/compare data from year to year.
 - Developed complete data model for the following COVID reporting requirements: Employee Vaccination Status; Student Vaccination Status; "Return to Work" data extract; Random testing list for employees/students that do not have a validated full vaccination record; COVID incentive drawing.
 - Work continues re-architecting/upgrading the data warehouse production/test environments.
 - New test/production data warehouses 100% functional; all dashboard data sources now using new environment. Work continues with OIPE to migrate their data, further automating their specific data sets within the overall data warehouse.
 - Deployed SACSCOC Faculty and Instructional profile data sets/dashboard to production

Project Management Office (PMO)

- **PMO Maturity Model.** Implementation of the Gartner PMO maturity model roadmap continues, as different types of resource management tools are being discussed. In addition to our current PM metrics, others are currently being defined for monthly reviews.
- **PMO Timekeeping.** A time tracking by phase is being rolled out to the IT department. This will allow better estimates to be gathered prior to project launch.
- **Project Changes.** Continue to define and implement IT roles and rates in our project management software to determine ROI/VOI for individual projects. This information may change with the implementation of resource tracking.

Chief Information Security Office (CISO)

- **Privacy Assessment.** A third-party firm was contracted to conduct a privacy maturity assessment for WCU, focusing on compliance with FERPA as well as the ISO 27701 Privacy Framework. Future assessments will be used to help WCU implement the framework and improve our overall maturity around information privacy.
- **Ransomware Tabletop Exercise.** In May, the IT Division held a ransomware tabletop exercise in conjunction with the Administration & Finance Division. The exercise also included staff that would be part of any security incident response. This was a very productive event and helped us fine-tune our response procedures.

Staff Accomplishments

- Recognized for their work towards IT's theme of *Proactive, Process, and Prevention*, our **Triple P Award** winners for the 2020-2021 year include: **Daniel Shields, Amy Davis, and Brad Lewis (Overall Winner)**.

Triple P Winners



Daniel Shields



Amy Davis



Brad Lewis

- Professional development.** The IT division regularly invests in staff professional development, insuring our employees have the knowledge and skills needed to successfully implement and manage new technologies and improved business processes. This ties directly to the division and university strategic plan goals to “invest in our people.” During the 2021-2022 fiscal year, about sixty DoIT staff received professional development of some sort, including events that ranged from online certification testing/renewals and conference presentations, to week-long instruction in core technologies.
- Several team members have completed degrees, trainings, and/or received certifications this past year. These certifications help team members continue developing their skillsets, aid in continuing to add tasks to Tier 1 support via shift-left opportunities, and benefit several recent internal projects. These team members include:
 - Lettie Cooper** – BS in Psychology from WCU
 - Stephen Mercier** – BIS in Applied Management of Information Systems - Operations Management from UNCP
 - Jason Perry** – HDI: Troubleshooting & Problem-Solving Boot Camp
 - Tabatha Springer** – EDUCAUSE New Managers’ Institute
 - Jenn Lohse** – Masters of Project Management from WCU
- Dr. Jonathan Wade** completed the second segment of the Canvas Certified Higher Education Professional sequence. Jonathan also collaborated with the First Year Program and the Honors college to provide support for the continued improvement of the online assets of the First Year Program, which is a part of the effort of student retention at Western Carolina University.
- Brad Lewis** and **Jonathan Wade** presented “Grading as Communication: Making the Most Out of Grading Tools in Canvas” for the Summer Institute on Teaching and Learning.

PROJECT STATUS

Between July 1, 2021, and June 30, 2022, the IT Division completed twenty-two projects. Currently, twenty-four projects are active and in work and four are on hold. There are twenty-one projects waiting in the queue and fifteen in discovery. Below are updates on selected projects:

Adding Catalog to WCU Canvas Environment

This project provides the capability to offer professional development training to WCU employees or community members.

- Status: Complete.

ALEKs-PPL - Implementation

A new IT system in which students can take a math placement exam to gauge their math level, engage in tutorials in areas where they may need improvement, and retake the math placement exam for final placement into an appropriate math course at WCU. This is part of the freshman student success initiative.

- Status: Complete.

Athletics Ticketing System Replacement

A new ticketing system was selected to replace Technotic Sports.

- Status: Football completed. Other sports in progress.
- System online and in production. Full migration: December 2022.

Banner 9 Self Service: HR

This project involves the implementation of Banner 9 Employee Self Service. All but one of the applications are live and in use. The remaining functionality – Time Entry – is currently being tested by HR with the System Office.

- Status: In Progress.
- Go Live: August 2022.

Banner Forced Update and Notification

This project will allow WCU to obtain updated contact and ethnicity information for all WCU constituents by designing a new survey for collecting and re-certifying all contact information.

- Status: On Hold.
- Go Live: TBD.

Chancellor's Board Room

This project upgrades the current boardroom AV, virtual meeting capabilities, and other improvements to make it a more efficient and effective space, provide added technical capabilities, improve ease of use, and enhance supportability.

- Status: Complete.

Episcopal House Simulation Lab

This project will add in the Audio/Visual (IVS Valt) and simulation hardware and software to create an effective “at home” simulation workspace for both Social Work and Physical Therapy students. This is part of a larger construction project to renovate the Episcopal House to create the simulation workspace.

- Status: On Hold.
- Go Live: TBD.

Microsoft Teams Roadmap and Governance for Campus

Analyze campus requirements for Microsoft Teams and related M365 tools (as well as possible applications for integration), IT capability for supporting additional tools, and updated definitions for both supported and best effort applications.

- Status: In Progress.
- Go Live: July 2023.

Undergraduate and Graduate CRM replacement

This project replaces the current undergraduate and graduate admissions' Customer Relationship Management (CRM) system with Slate.

- Status: Complete.

Cherwell Product Releases

Implementation of new modules, configuration changes/enhancements, and bug fixes to support on-going IT operations. The Cherwell platform was recently acquired by Ivanti and, although they continue to support our platform, additional work may be required in the future as Ivanti further details their plans for how Cherwell fits into their product portfolio.

- Status: In Progress.
- Go Live: Scheduled releases occur throughout the year.

Data Center Micro-segmentation

Phase 1, isolating servers in our HIPAA and Finance VLANs, is complete. Phase 2 includes expanding to protect other critical systems. We are working with the IT Security Office to identify Phase 2 systems, and we continue to move servers as we evaluate the budget; including the Bookstore Time system, Dining Services, and others. We are currently reviewing the rules recommended for the application Titanium, used by our Counseling and Psychological Services department. Additionally, we are planning an upgrade to the latest version of NSX, which should resolve some bugs which are limiting our ability to move forward.

- Status: Phase 1 Complete.
Phase 2 Addressing systems as budget allows.
- Go Live: Continuing, pending funding.

myWCU Portal

This project will replace existing portals (for applicants, students, and faculty/staff) as the technology the current 1.0 portal is built upon will be reaching end-of-life by the vendor. The initial focus is the student portal – and work was completed during the last quarter on key architectural and focus areas/requirements for a new portal. Eight engagement sessions with students were completed, where current portal usage was discussed, along with what a new portal would function and look like. The project team is now taking that direct student input to the major student-facing organizations on campus to solicit their input.

- Status: In progress.
- Go Live: TBD.

OnBase Implementation for WCU Bookstore

This project enabled the bookstore to begin using OnBase to store their documentation electronically, providing easier storage and search capabilities.

- Status: Complete.

SharePoint Migration Implementation

With the planning project complete, this project begins the migration of sites, forms, and workflows identified in the SharePoint Migration Plan to the Azure Cloud environment.

- Status: In progress.
- Go Live: Late summer 2022.

Web Application Server Migration

The goals of this project are to migrate four servers that are running end of life Windows Server 2008 OS, and add redundancy to two servers identified in the IT Risk Register. New servers are in place.

- Status: In progress.
- Go Live: July 2022.

One Identity Manager (Phase 5)

This project includes ongoing security and process improvements for Banner ERP modules and enterprise applications. A key goal of Phase 5 is to fully automate user access for Banner Admin ERP, sensitive file shares, and shared mailboxes to the business owner, allowing the business owner to add and remove users without IT involvement. This phase also includes automated recertification capabilities for sensitive access. Finance was recently added to automated recertification process. Admission module is underway.

- Status: Phase 5 complete.
- Note: Phase 6 begins July 2022, focused on business process automations, onboarding sensitive file shares, and shared mailboxes.

Azure Multi-factor Authentication (MFA)

This project migrated MFA service from on-premise to Microsoft Azure MFA, which is completely cloud-hosted, enabling WCU to more easily migrate current on-premise authentication services to Azure and providing additional identity protection capabilities.

- Status: Complete.

Endpoint Device Management Tool

The Endpoint Device project will allow IT to manage University-owned devices, computers, laptops, phones, tablets, etc., while these devices are either on- or off-campus. Currently, several thousand endpoint devices have been moved to the new tool.

- Status: In Progress.
- Go Live: Fall 2022.

Core Network Upgrade

The scope of this project replaces aging equipment, leverages new campus fiber infrastructure, enables the growth of the core network beyond 10GB, enhances security by allowing more segmentation of the campus network, and provides additional network features not available with the current infrastructure.

- Status: Infrastructure completed, fully utilizing new network capabilities; a nagging technical issue is preventing completion of this effort. Continuing to work with vendor to resolve.

Wired Port Authentication

This project enabled authentication on all non-residence halls wired network ports. All devices connected to the wired network have to successfully authenticate or be placed into a limited access guest role (similar to guest WiFi role). At the same time, several other authentication services were retired.

- Status: Complete.