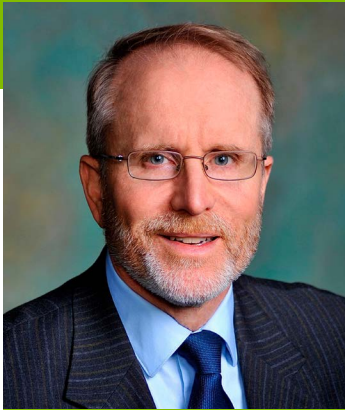North Dakota University System

Core Technology Services 2017-2018 Annual Report

Report generally covers the period from July 1, 2017 to June 30, 2018

NORTH DAKOTA
UNIVERSITY SYSTEM
ACCESS. INNOVATION. EXCELLENCE.

Dr. Mark Haggerott
Chancellor

Darin King
CIO

NDUS Information Technology Goals:

Support North Dakota University System infrastructure needs.

Improve North Dakota University System information technology-enabled business processes and services while providing and managing resources to align with NDUS strategic goals.

Improve and enhance North Dakota University System student learning and user's focus.

Improve and enhance North Dakota University System collaborative efforts.

Contents

The mission of Core Technology Services is to deliver technology-based resources, services, and solutions to NDUS students, faculty, staff, institutions, System Office, and North Dakota residents.

CTS does this by leveraging current technologies, researching new technologies, and positioning the University System to innovate and use future technologies.

CTS provides secure information management and technology services to the North Dakota University System, linking academic and business services within the NDUS community, and by connecting users to the information and educational resources they need to accomplish their goals.

This report was developed in accordance with N.D.C.C. §15-10-44.1.c.

Integration of higher education information technology planning and reporting with the board's strategic planning process and annual performance and accountability report required by section 15-10-14.2.

A Message from the CIO

Greetings,

It has been another exciting and challenging year for CTS. Staff have celebrated new life with babies and grandbabies, celebrated change of life with retirements and shared sorrow for the loss of loved ones. We faced the challenges of budget cuts and changing circumstances at NDUS institutions with fierce determination and adaptability. I am very proud of the accomplishments of this team.

Many of our accomplishments are focused on bringing value to the users we serve. The Office 365 consolidation has made inter-system communication much easier for students and staff. NetIQ, our new identity and access manager system, has allowed us to provide modern password reset, system federation, and multi-factor authentication to many the systems our users access on a daily basis. Our PeopleSoft teams continue to move systems to version 9.2, which brings a greatly improved mobile experience to users. The implementation of Blackboard Learn gives students and faculty a single online learning experience, regardless of which institution is providing the course.

We have made great strides in becoming more efficient and effective. We continue to mature our project management, procurement and planning processes to support organizational effectiveness. Our infrastructure and operations team is migrating to hyperconverged infrastructure and embracing hybrid cloud technologies that will allow us to provide very cost-effective services. The continued development of Team Dynamix provides us with the organizational intelligence to better understand the work we do every day and allow us to make informed decisions.

Information security has come to the forefront as a system-wide priority. Our information security team continues to develop policy, procedures, and standards that every CTS employee has a responsibility to understand to ensure the safety of our systems and data. We have dramatically improved our ability to manage system vulnerabilities, store and move data more securely, and protect critical systems from compromised credentials using multi-factor authentication.

On the pages below, you will see many of the accomplishments of each division, and more importantly, see where they are headed in the next 12-18 months. As an IT organization, we need to continuously look forward, see what is on the horizon and prepare our organization for change.
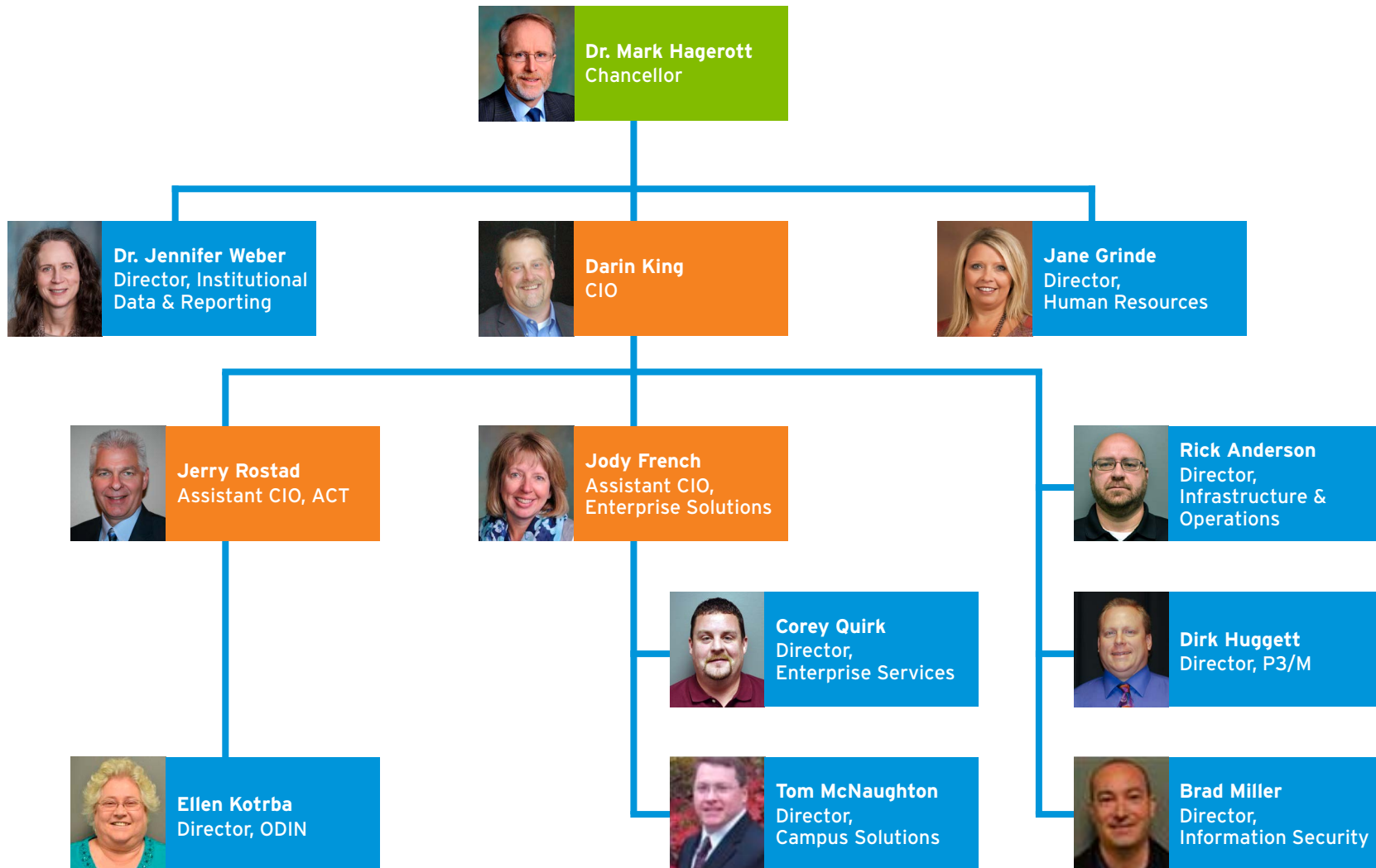
Our goal is to provide excellent service and systems to NDUS students and staff. To do this, we must work with institutions to identify and implement products that will meet their needs, provide value, and be cost effective. Given the diversity of NDUS institutions, this will continue to be a great challenge, and I am confident we can continue to deliver.

Sincerely,

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Core Technology Services Leadership Team

"Providing secure information management and technology services
to North Dakota University System students, faculty, staff, and state residents."

Dr. Mark Hagerott
Chancellor

Dr. Jennifer Weber
Director, Institutional
Data & Reporting

Darin King
CIO

Jane Grinde
Director,
Human Resources

Jerry Rostad
Assistant CIO, ACT

Jody French
Assistant CIO,
Enterprise Solutions

Rick Anderson
Director,
Infrastructure &
Operations

Corey Quirk
Director,
Enterprise Services

Dirk Huggett
Director, P3/M

Ellen Kotrba
Director, ODIN

Tom McNaughton
Director,
Campus Solutions

Brad Miller
Director,
Information Security

Academic Communications and Training (ACT) provides leadership in current and emerging technologies that expand and enhance teaching and learning across the North Dakota University System. ACT works with the institutions of the NDUS to develop and deliver enterprise-level academic systems, help desk support services, library services, and relevant training and communication support (see figure 1). By working closely with the institutions, we collectively and collaboratively expand the capacity to support infrastructures such as online learning programs, collaborative learning environments, resources to supplement student education, and more.

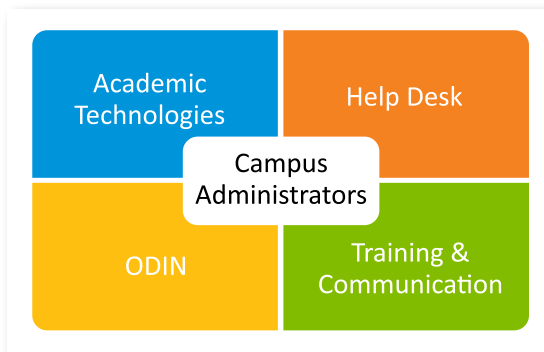In broad terms, the ACT service line breaks into four quadrants:

Figure 1: The Four Quadrants of ACT

Quadrant One: Academic Technologies

ACT supports an array of learning technologies that institutions use in support of both the online, distance learning experience as well as the face-to-face classroom experience. These technologies fill three primary areas of academic technologies, including the learning management system, academic tools, and productivity (see figure 2).

The learning management system (LMS) is a primary focal point for ACT. Some productivity and academic tools operate as third-party add-ons within the LMS environment. However, institutions also use most of these tools outside of the LMS in a standalone mode.
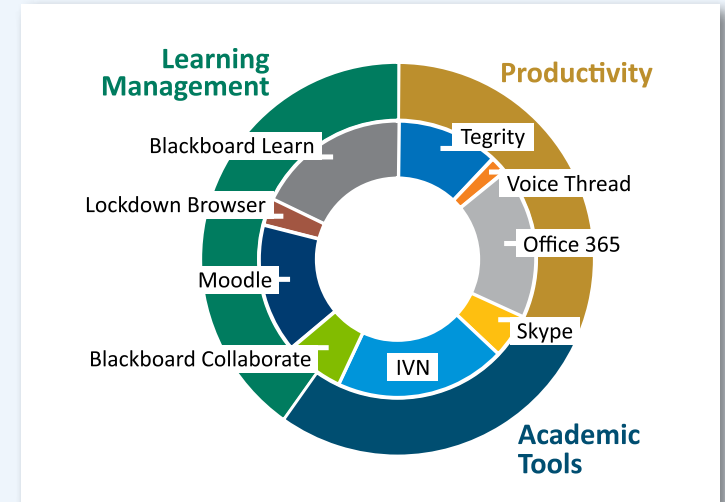
Figure 2: Breakdown of Academic Technologies Quadrant

Figure 3: Learning Management Ecosystem

Learning Management Systems of Blackboard Learn and Moodle

A learning management system (LMS) is a software application for the administration, documentation, tracking, reporting and delivery of educational courses or training programs. Institutions generally use it to deliver online classes, but they are also increasing the use to support traditional, face-to-face classes (see figure 3).

The NDUS is in the process of migrating all 11 institutions to a single instance of Blackboard (Bb) Learn. By the end of the Spring 2019 semester, ten of the 11 institutions will be operating on the Bb Learn system. While the migration to the single instance continues, the NDUS will also be looking at additional tools that will expand the features and functionality of the LMS enterprise. Options for consideration include accessibility tools, an analytics toolset, and an anti-plagiarism tool.
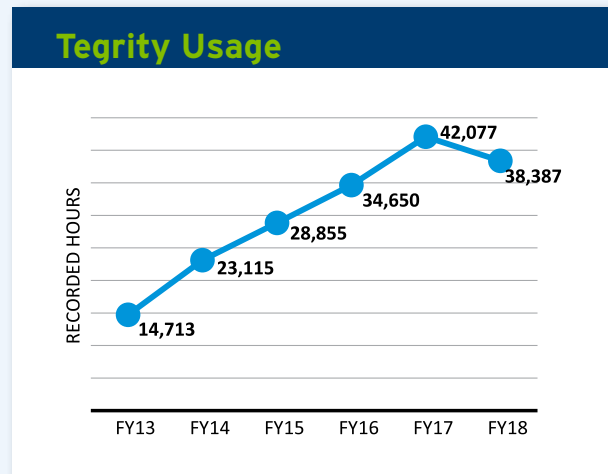
Meanwhile, the Moodle LMS is slated for disestablishment, once all its institutions have successfully migrated off this platform.

Voice Thread

This web-based application allows participants to share conversations and make comments to presentations using a mix of text and voice. VoiceThread is a new product and the institutions are in the early stages of adoption. ACT will continue to work with the institutions as usage rates increase. VoiceThread can be used both within the LMS or as a standalone tool.

Lecture Capture

Tegrity is a lecture and content capture software that enables faculty, students, and staff to record presentations, lessons, training, lectures, and more. Institutions have amassed more than 40,000 hours of lecture recordings in the system. While Tegrity has been a staple for many years, emerging technologies continue to influence the market space. Currently, ACT is working with the institutions to review possible alternatives in the lecture capture arena. Tegrity can be used both within the LMS or as a standalone tool.

Tegrity Usage

RECORDED HOURS

- 14,713 (FY13)
- 23,115 (FY14)
- 28,855 (FY15)
- 34,650 (FY16)
- 42,077 (FY17)
- 38,387 (FY18)

FY13 FY14 FY15 FY16 FY17 FY18

LockDown Browser

As the name implies, LockDown browser is a custom browser that locks down the search capabilities of a web browser during an online exam period. Lockdown Browser operates exclusively within a learning management system.

Video and web conferencing technologies

ACT provides support to three separate video and web conferencing platforms, including the Interactive Video Network (IVN), Blackboard Collaborate, and Skype for Business:

- ACT provides technical and training support for IVN. IVN replicates the traditional face-to-face classroom and institutions use it primarily to deliver classes to geographically remote students. IVN is also used for a wide variety of statewide meetings. During the 2018 Spring semester, institutions delivered 39 dual credit classes, 136 undergraduate courses, and 31 graduate courses reaching 2,960 students. Currently, ACT is looking at alternative scheduling and bridging technologies that can increase efficiencies and streamline functionality while decreasing overall costs.

- Bb Collaborate is a desktop web conferencing platform that operates equally as well within the LMS platform our as a standalone web conferencing tool. NDUS staff and NDSU Extension staff use Collaborate frequently for meetings and training webinars.

- Skype for Business is a third web conferencing platform that operates within Microsoft's Office 365 suite (see below for more on Office 365). This tool is primarily used for text, audio, video, and content sharing in one-on-one situations or within working groups. However, Microsoft recently announced that Skype for Business is going to be migrated into the Microsoft Teams environment. ACT will closely monitor this transition because the Teams environment may provide a very practical solution in academic settings.

Microsoft Office 365

Office 365 refers suite of productivity tools and applications that Microsoft enables over the Internet via cloud services. This past year, all NDUS institutions migrated into a single, shared Office 365 environment. Office 365 provides email and calendaring, along with Skype for Business (see above). It also provides productivity tools like Word, Excel, and OneDrive; and, it continues to add new tools to the environment. Recently, Office 365 launched Microsoft Groups and Microsoft Teams. These new services have generated strong interest across the NDUS. Both Groups and Teams are designed to create efficient ways for individuals and work teams to collaborate and share documents. ACT sees continued growth and development with Groups and Teams and will be monitoring the ongoing development of Teams within the academic environment.

Quadrant Two: **Help Desk**

ACT provides Tier 1 and Tier 2 help desk services for the North Dakota University System. The Tier 1 Help Desk is open 24 hours, 7 days a week. In 2017-2018, the NDUS Help Desk handled more than 46,000 contacts for the following NDUS systems and applications:

- NDUS Account IDs and passwords
- Password changes
- ConnectND applications, including Campus Solution/Campus Connection, Financials, and HRMS
- Moodle and Bb Learn
- Bb Collaborate
- Skype for Business
- SharePoint
- Office 365
- 'How To' support for Exchange Email and Calendar

NDUS Help Desk Contacts

Contacts, 46,190

First Contact Resolution, **83%**

- 50,000
- 40,000
- 30,000
- 20,000
- 10,000
- 0

NDUS Help Desk Call Volume

Abandoned Calls 9%

Calls 35,066

Avg Answer Time = 93 seconds

During this past year, ACT analyzed support tickets to improve customer experience and gain productivity efficiencies. The number one issue pertained to passwords and password recovery. ACT immediately provided the leadership to institute password self-service recovery features in the NDUS password management system. ACT also led the development of improved self-service password recovery processes for the three ConnectND systems of Campus Connection, HR Management System, and Financial System. In both cases, the improved changes will allow users to change their password without having to contact the Help Desk. In turn, this should increase overall user satisfaction while decreasing contacts to the NDUS Help Desk. While it is too early to measure the results of this change, it is estimated that the Help Desk will see the number of contacts decrease by 10-15%.

Additionally, the previously outsourced Tier 2 Help Desk service was brought in-house to ACT. Not only was this move designed to streamline the help desk process, but it also allows for a renewed CTS emphasis on knowledge management and enhancing the outage notification process, goals for Tier 2 in the upcoming year.

On both fronts, these efforts are designed to provide easier and quicker paths to problem resolution for users, with the net result of improved user experiences with NDUS technologies.
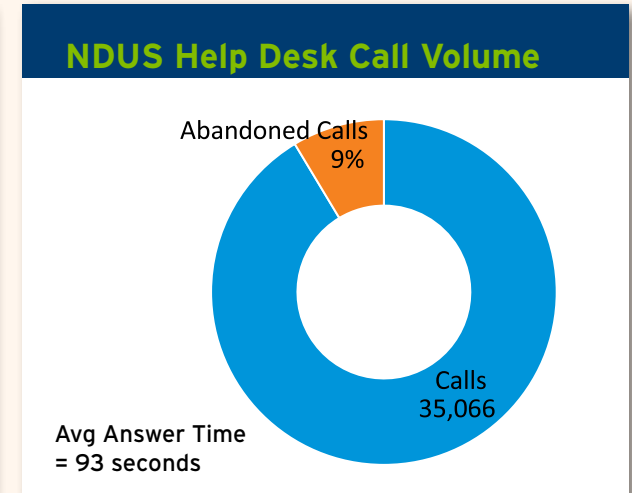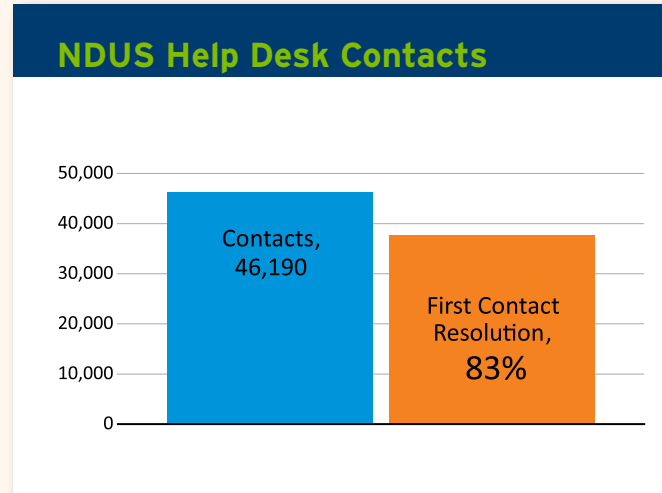
Quadrant Three: **ODIN**

The ODIN system provides library management services for 58 libraries across North Dakota, including all 11 institutions of the North Dakota University System. The remaining 47 ODIN libraries are disbursed across North Dakota at private higher education institutions; K-12 schools; local public and special libraries.

The ODIN service starts with a library management service called ALEPH. This service includes a discovery interface called PRIMO and a link resolver called SFX. Working in unison, this service searches for both print and electronic library materials. It provides circulation control, course reserves, acquisitions and serials control and an interlibrary loan function. NDSU uses the library management services of ALMA with PRIMO (this version has a built-in link resolver).

ODIN is conducting an RFP for the replacement of the ALEPH library management system. The goals are to identify a new solution by the end of 2018 and begin an implementation process in 2019. Concurrently, ODIN will also be evaluating whether the non-academic libraries could be better served on a separate library management system. That work will occur after the completion of the existing RFP process.

ODIN also provides authentication services for 60 licensed full-text databases and similar on-line material for more than 300 North Dakota libraries of all types. ODIN posts monthly usage statistics for these databases.

1.6M Databases by Vendor

- 10% Gale Group
- 12% ProQuest Newspapers
- 22% Ebritannica
- 56% EBSCO
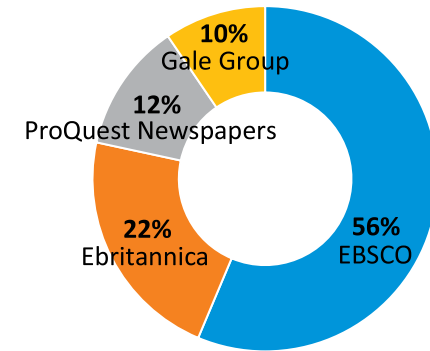
Authentication Services
60 licensed full-text databases
300+ North Dakota libraries

Quadrant Four: **Training & Communication**

The ACT Training and Communication quadrant consists of a mix of identifiable tools and services along with services and solutions that are reactionary in nature to emerging issues within the IT and NDUS Environment.

On the hardscape side, ACT supports the following technologies and services in the training and communication quadrant:

- State Authorization: ACT manages the State Authorization process required for degree-granting, post-secondary institutions that want to deliver curriculum in the state. All degree-granting post-secondary institutions offering onsite or distance education courses in North Dakota must seek authorization or exemption under state law. ACT staff provide the NDUS with leadership as the state portal agent and membership on the WCET Regional Steering Committee for state authorization.
- Records Management: ACT provides NDUS leadership in the records management arena. ACT works in coordination with records managers at each NDUS institution and ITD to ensure records are properly maintained and disposed in accordance with state law. The Records Management group meets on a quarterly basis to discuss ongoing issues.
- Web Services ACT is working with the NDUS System Office in redesigning the NDUS web site. Work is scheduled to continue through the end of the 2018 calendar year. Once the System Office website is complete, plans will be put in place to migrate the CTS website into the NDUS website.
- Qualtrics: Qualtrics is survey software available to those institutions that wish to participate. Eight of the 11 institutions are currently licensed to use Qualtrics and ACT is often the first line of contact for access or usage questions. Training is provided on demand.
- Hoonuit: Formerly called Atomic Learning, Hoonuit provides online professional training for institution staff personnel and faculty. DSU, MaSU, MiSU, NDSCS, UND, and the System Office are licensed to use Hoonuit.

On the softscape side, ACT provided support for a variety of emerging issues and topics. These are ever changing issues are typically short-fused, unplanned and emergent. Highlights during the past year include:

- ACT developed a variety of training and support documentation. These materials supported ACT technologies like Blackboard Learn, Tegrity, and Blackboard Collaborate. Other materials were created to support changes and updates to the Office 365 environment. And, ACT created further documentation to support changes/additions to the administrative systems of IT systems.
- ACT led the development and execution of a NDUS System-wide non-technical leadership training exercise in cybersecurity. Working with the Department of Homeland Security and other Federal Agencies, this daylong exercise exposed institution presidents and other institution leaders to the risks associated with cybersecurity while providing them with tools and solutions to reduce cyber risks.
- Working cooperatively with the state's Office of Management and Budget, ACT led the development of some online procurement training modules. These modules will be used by NDUS staff and other state government employees to enhance their knowledge of procurement rules and processes.

Enterprise Solutions (ENSO)

The Enterprise Solutions department includes ConnectND and Enterprise Services.

ConnectND is North Dakota's implementation of Oracle/PeopleSoft. Core Technology Services supports Human Capital Management, Financial Management and Campus Solutions along with dozens of ancillary systems for the eleven institutions in the North Dakota University System.

Enterprise Services is responsible for administration of enterprise-class information technology solutions including a Service Level Agreement for applications administration with the University of North Dakota.

A governance committee and multiple user groups support each of the ConnectND, Blackboard and document imaging services to ensure strong relationships and focused strategy and innovation.

North Dakota Higher Education User Group (NDHEUG) Conference

ND HEUG is a two-day conference for professionals who use Campus Solutions, Financial Management, Human Capital Management and related software in functional capacities. CTS hosts the conference on a bi-annual basis. The next one is scheduled for October 2019.

Enterprise Services

Enterprise Services (ES) is the business unit responsible for design, development, implementation, maintenance, and administration of enterprise-class information technology solutions while providing IT leadership, vision, and planning for the University System. The unit supports enterprise-level software applications including a document imaging system, dashboard software, learning management systems, student information systems, Web solutions and mobile applications. Enterprise Services is comprised of teams that are highly integrated to provide complete solutions to serve the needs of NDUS constituents.

Learning Management System

ES continued implementation of the NDUS System-Wide Learning Management System (LMS). Blackboard Learn delivers a single instance LMS to create a unified user experience across the 11 institutions and the System Office. To date, seven institutions (BSC, DCB, NDSCS, LRSC, UND, VCSU, and WSC) have fully implemented Blackboard Learn, while three more are planned for Spring 2019 (DSU, MaSU and MiSU.) NDSU is scheduled for the Summer 2019. The team continues to provide current production support, training, migration and planning, as well as third party and custom integrations, advanced reporting, and grades integration into CS.

Secure File Transfer System

ES continues to provide configuration and administrative services of tools that offer secure exchange of critical business data and sensitive files, both internally and externally. LiquidFiles (sendfiles) and MoveIt MFT (Managed File Transfer) ensure delivery to the intended recipients and document transfer activities with an audit trail and enforced file retention policies. A major project for CTS and campuses was to move all data and processes off the old MFT (Sophie) system. The project was complete in September 2018.

Data Analysis System

The team continues to work with all areas of CTS to integrate their systems into Splunk, a Security Information and Event Management (SIEM) system. This initiative has allowed CTS to automate the collection, indexing, analysis, and alerting of computer equipment event and security logs. This system is critical to CTS's operations and security. Currently the number of systems connected are at 10, with many more on a defined priority list.

Mass Communication Delivery Systems

The ES staff runs and maintains the day-to-day operations of the statewide Listserv system as well as the NDUS Blackboard Connect notification system. The current Listserv system, handles more than 42,000 subscriber emails a month across 4,400 different lists. The NDUS System Office and 11 institutions use the Blackboard Connect system for targeted emails, phone calls, Short Message Service (texting), as well as other message types, like NOAA weather alerts at UND. For FY18, institutions used Connect to send more than 1,000 unique email messages and dial more than 7,500 phone numbers.

UND SLA

CTS provides application administration for nearly fifty software applications hosted in the NDUS data center (On-Premise or OP) and in a cloud service (Software as a Service or SaaS). Software Application Administration Services include:

- Architectural design (OP)
- Application and Desktop Virtualization (OP)
- Installation and implementation (OP)
- Administration (OP/SaaS)
- Upgrades and patching (OP) Server replacements (OP) Security (OP/SaaS)
- Integration and Middleware
- (OP/SaaS) Backup (OP)
- Data recovery (OP) Tuning (OP) Support/ Troubleshooting (OP/SaaS)
- Vendor relations (OP/SaaS) Budget (OP/SaaS)
- Contract renewal (OP/SaaS)

Document Imaging

During the last year, the document imaging service went live with the retention module. The team will continue to expand usage to all institutions and departments. The document imaging team has completed the workflows for Records, Admissions, and Student Financial Aid for nine institutions with the last two in progress. The storage of historical financial documents across the eleven institutions is expected to be completed in the Fall 2018. Expansion of Transform online forms grew from 25 to 107 live forms with four forms that were implemented at a system level for all institutions. The start of the first cross institution workflow process, Collaborative Enrollments, is currently in in development with planned go live by the Spring 2019 term.

Campus Solutions

Campus Solutions is the system of record for more than 46,000 active students of the North Dakota University System. The system supports all 11 institutions with day-to-day operational data and functionality for every aspect of the student learning cycle, including Financial Aid, Admissions, Student Records, Academic Advisement, and Student Financials. In addition, Campus Solutions feeds most other University System data systems, including the Housing, Parking, Facilities Management, and scheduling (Ad Astra) systems. Lastly, Campus Solutions supports such initiatives as Blackboard Learn and the student intervention initiatives. While each module supports its own functionality, the total environment seamlessly tracks student progress, registration, graduation, and overall success.

Campus Solutions 9.2 Upgrade

The largest roadmap item for the next year will be the upgrade of Campus Solutions to a new version called 9.2. Oracle has developed and released delivered functionality labeled "fluid" that will allow Campus Solutions to become more mobile-compatible. Currently we have third party software that presents mobile-friendly screens and functionality. This upgrade or "fluid" development will provide both visual and functional improvement. As part of the preparation for this project, the CS team has been continuing to reduce and remove customizations across the environment that might otherwise impact the 9.2 upgrade. This will also support efficient, effective, and reliable data accuracy, and decrease maintenance efforts.
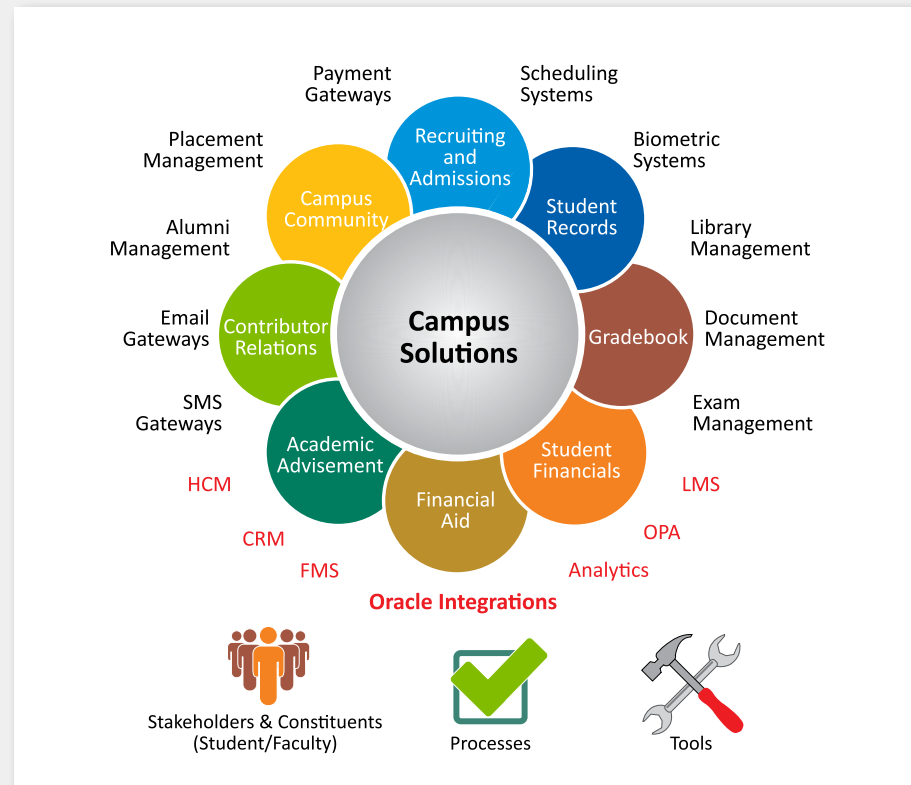
Student Retention

Student intervention and success is a continuing initiative. Historical student data combined with real-time reporting creates a holistic approach. These systems gather information from various sources to produce data driven insight into student academic progress. In turn, institutions can use the data to make better-informed decisions. Starfish retention software is a direct, follow on project to the Predictive Analytics Reporting system or PAR. Integrating PAR and Starfish has effectively identified retention gaps while proactively assisting the institutions in taking corrective measures. Currently all 11 institutions are utilizing the PAR, while Starfish is available to all institutions.

TouchNet

TouchNet is the vendor utilized for all payments within the University System. It includes Single Sign On capabilities with easy access for parents and students making electronic payments. The "Marketplace" or storefront functionality also connects to our third-party vendors, including Hobsons and the Parking systems.

Campus Solutions Name Authentication Creation

The team replaced failing hardware with upgraded features to support NDUS name authentication services (DNA). The process brings real-time account creation instead of the antiquated 24-hour process, and is now located in the system of record, Campus Solutions.

Statewide Longitudinal Data System (SLDS)

The SLDS provides K-20 longitudinal data reporting. It is a collaborative effort involving the North Dakota University System, the Department of Public Instruction, the Department of Commerce, Job Service North Dakota and the State's Information Technology Department. The higher education project is on track and reports are currently under development in the Data Warehouse environment using data from four Campus Solutions modules: Admission, Student Records, Financial Aid and Student Financials. The SLDS will allow near real-time data reporting potential, while also supporting the P20 project for the state of North Dakota. Data and research results are located at https://slds.ndcloud.gov/public/SitePages/Research%20Home.aspx. A related project the team completed was the deployment of an early entry application project to support dual-credit high school students in North Dakota.

Other Campus Solutions Initiatives:

- Bank of North Dakota Application Fee Waiver Event: We estimate over 2,500 North Dakota students will take advantage of the free applications to University System institutions.
- Improve quality and functionality of systems.
    - o Coordinated University system-wide face-to-face visits to institutions fostering relationships. Included were training and troubleshooting issues and receiving feedback on our current processes, reports, and queries.
    - o Develop special systems in conjunction with ITD to support state scholarships and grants.
    - o Expanded and implemented additional built-in functionality including Communications, Student Center and Veterans Benefits.
    - o Developed and supported the Reverse Transfer development through the delivered Academic Advisement functionality to engage students that have not attained a degree.
    - o Implemented a new, unified log in screen across the ConnectND pillars or HRMS, Financials and Campus Solutions, providing a cleaner process for students and staff, allowing those seeking help and assistance clearer self-help options.
- Enhancements to required IPEDS reporting to streamline and automate processes, also building consistency in reporting efforts.
- Deployed multiple bolt-on systems to support institutional requests. One significant effort was the implementation of Civitas Degree Map for UND & NDSU. This product helps students and advisors plan the success of the student presenting pathways and courses to attain their degree, allowing them to complete the degree in the most effective path.

Financial Management (FIN)

The NDUS PeopleSoft Financial Management is the system of record for the North Dakota University System business operations. The system supports all 11 institutions with day-to-day operational data and functionality for every aspect of the system's budget. The system contains thirteen modules including General Ledger, Budget, Accounts Payable, Grants, and Travel/Expense. The FIN team provides daily support of the system including activities such as 1099 generation for all institutions, applying system patching to remain current with changes to regulations and government mandated reporting, and assisting institutions with troubleshooting financial transactions.

The FIN team also provides leadership in the application management such as representing NDUS as the Chair for the Oracle Higher Education Product Advisory Group, which is a global organization working closely with users and key Oracle strategists to improve the Academic Advising functionality for all institutions and participating in the NDUS PCard Policy and Procedure Workgroup. This group worked collaboratively with individuals from different institutions, the system office, and CTS to define system-wide policies and procedures for the PCard program that the ND Office of Management and Budget administers.

The team continuously works to improve quality and functionality of the system. Some of this year's successes include:
- Improved IBARS, the Higher Education interface to the State budgeting system, allowing more visibility for the Legislature.
- Integrated with Visual Compliance, which is a product that offers screening on individuals and entities. This integration automates the screening process, which puts us in compliance with Uniform Guidance (and other federal regulations) and will reduce an estimated time equivalent of 4.1 FTE system-wide from end users having to manually search to see if suppliers are on any suspended/debarred lists.
- Implemented the Elasticsearch Engine, which offers our users a robust search engine. Global searches can now be done from any page and across all modules of PeopleSoft. It allows for easy filtering of search results, and built-in security will only display information that the end user has permission to see.
- Institutions are starting to use Attachments throughout the modules within PeopleSoft. This will reduce real estate needed for physical storage, and greatly enhance transparency and accessibility when it comes to analyzing, reviewing and auditing documentation.

Over the next 12-18 months, the FIN team is considering the following initiatives:
- Review 1099 processes to generate correcting entries/file generation to be electronic (currently done manually via paper forms).
- Implement electronic approval workflows throughout Accounts Payable, GL, and other modules. This will be a multi-year project.
- Complete development on the Online Access Request form within PeopleSoft for the institution Access Control Officers to streamline their process for requesting access for their institution's users.
- Implement Cash Advances and Travel Authorizations in the T&E module.
- Implement Fluid Expenses (mobile version) of the T&E module.
- Start using Single Use Accounts associated with our PCard program; requiring a web service between PeopleSoft and JPMorgan Chase.
- Review/implement other Fluid features of PeopleSoft throughout the different modules.
- Implement Online Supplier Registry (internal use only for now). Since Higher Education uses a shared supplier database, this will greatly decrease errors and the amount of time it takes to support the application.
- Pending legislative approval, begin work on eProcurement. This will streamline procurement throughout the entire NDUS, recognize immediate savings on discounted pricing and will decrease non-contract spend.

Unique PeopleSoft Users
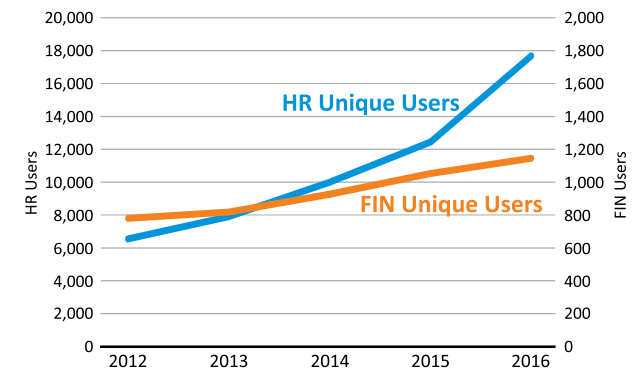
Unique Users by Year

13
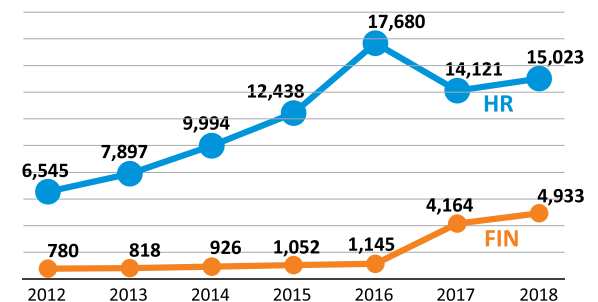
Human Capital Management (HCM)

Human Capital Management is the PeopleSoft solution that serves as a global foundation and system of record for HR data. The system supports all 11 institutions with day-to-day operational data and functionality for every aspect of the system's 7000+ employees. The system includes Time & Labor, Payroll, and Absence Management. The HCM team provides daily support of the system including activities such as the administration of all NDUS payroll, including the 11 institutions, applying system patching, providing WSI annual workers compensation reports and processing of W-2s and 1095Cs, and assisting institutions with troubleshooting HR transactions. Many institutions are successfully using Manager Self Service (MSS) and Onboarding making processes more efficient for employees and managers.

The HCM team also provides leadership in application management with activities such as offering training to institutions on topics like Time & Labor and Absence Management and the processing of Total Rewards Statements, Contracts, and Salary Letters. The HCM Assistant Director also represents the NDUS on the Oracle HCM Advising Product Advisory Group at the national level working closely with users and with Oracle to improve the Human Capital Management functionality for all institutions.

The team continuously works to improve quality and functionality of the system. Some of this year's successes include:
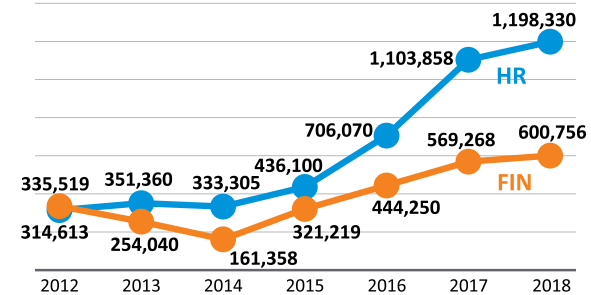
- Deployed an online process to improve efficiency for institution access control officers. The new online process enables security officers to add/remove roles for employees more quickly and easily.
- Deployed a new user interface called Fluid. The PeopleSoft Fluid User Interface enables users to use a single interface across different devices. The page layout dynamically changes, based on the size of the screen, as the system is accessed from a desktop, tablet, or smartphone.
- The 9.2 upgrade is in process, as the current application version was unsupported in early 2018. The updated system will be live in October 2018. The new version will offer an improved user experience including an increased mobility interface (Fluid) for employees and managers. A new module will be rolled out with the upgrade. The Company Directory will now reside within PeopleSoft with access to pull Organizational Charts.

Future projects after the 9.2 upgrade is complete include implementation of e-forms as requested by the HR User Group, FMLA Administration & Plans, and Workcenters.

Collaborative Financial and Human Capital Management Projects

Provided integration development for the implementation of Novelution, a modular based electronic Grants Administration application, at the research institutions.

Total Logins by Year

HR: 335,519 (2012), 351,360 (2013), 333,305 (2014), 436,100 (2015), 706,070 (2016), 1,103,858 (2017), 1,198,330 (2018)

FIN: 314,613 (2012), 254,040 (2013), 161,358 (2014), 321,219 (2015), 444,250 (2016), 569,268 (2017), 600,756 (2018)
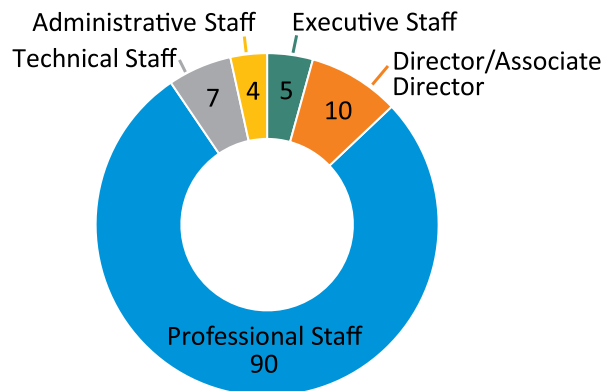
Human Resources (HR)

The Office of Human Resources provides HR services and support to CTS and System Office staff of approximately 140 employees. HR supports the mission of the NDUS and CTS by providing services that attract develop and retain a highly qualified and diverse workforce. HR services include recruitment, employee relations, learning and development, performance management, HR information management, policy implementation, policy compliance and employee engagement/recognition. The HR team consists of one director, and three part-time administrative support positions. CTS Human Resources is part of a larger system council called the Human Resource Council (HRC). The HRC advises the chancellor, institution presidents and other University System councils on human resource issues. The NDUS/CTS HR Director serves as the System Office liaison to the HRC. HRC council membership includes human resource directors from each institution and three employee designees: one from a two-year institution, one from a four-year institution and one from a research institution.

FTE* as of 6/30/2018: 116

*full-time benefited constitutes employees working more than 20 hours per week

Staffing Breakdown

- Administrative Staff
- Executive Staff
- Technical Staff 7
- 4
- 5
- Director/Associate Director 10
- Professional Staff 90

Recruitment/Onboarding

The HR team assists CTS and System Office leaders in fulfilling recruitment requests with well-qualified candidates within a minimal turnaround time. In FY18 twelve new employees were hired; four for the NDUS System Office and eight for CTS. The HR department also advises the System Office on presidential searches.

In addition, the HR team improved efficiencies for new employee onboarding. They worked with the CTS HCM team to automate the onboarding processes through PeopleSoft manager self-service. This allows employees to complete required paperwork in advance of hire date. CTS now manages onboarding preparations for logistical tasks through a workflow process via the workforce management system, Team Dynamix.

Learning and Development

CTS provides employee professional development using several delivery methods that include both formal and informal opportunities. CTS delivers formal on-site training to staff at least once per year by collaborating with the organization's employee assistance provider, Village Business Institute. Additionally, CTS uses various online systems to deliver web-based training courses in a variety of areas. Employees participate in mandatory compliance training on an annual basis in the areas of fraud, security, and internal controls. In addition, employees have access to an online system called Hoonuit, formerly known as Atomic Learning, which offers a variety of training topics from Microsoft tutorials to workplace behavioral and environmental topics. CTS allotted a budget to each division, allowing them to prioritize professional development requests within each department. HR offers supervisor training quarterly.

Performance Management

The HR department provides advisement and facilitation for employee performance management. A consistent process is in place for both CTS and the System Office to implement employee annual performance reviews, which has contributed to a successful completion rate for the past three years.

Salary Administration

The primary purpose of salary administration is to attract and retain well-qualified employees who can best contribute to the mission of the organization and the North Dakota University System. Decision makers in the salary administration process strive to make salary decisions fairly and communicate accordingly. HR oversees annual salary administration and market salary analysis. Market is derived by benchmarking positions against similar positions using salary surveys recognized by the North Dakota University System/Human Resource Council. HR compiles data on an annual basis ensuring current position data is matched and updated to the most recent market survey.

Employee engagement and recognition

Employee engagement is a priority at both CTS and the System Office. Both organizations hold annual staff recognition gatherings and several informal employee events throughout the year. In addition to events, employees are encouraged to participate in anonymous surveys that aim to gather feedback to improve morale. NDUS/CTS Staff Senate and the NDUS compliance office support the surveys with HR oversight.

Future goals for NDUS/CTS Human Resources include:

- Develop succession planning rubric/definitions for supervisory positions.
- Develop compensation guidelines for interims and promotions.
- Develop customer service framework and training for CTS leadership quarterly meetings.

Human Resource Council (HRC):

The HRC advises the chancellor, institution presidents and University System councils on human resource issues. The HRC also facilitates collaboration between institution HR staff to reduce inconsistencies in business processes, data entry, reporting, and policy and procedure implementation.

Future goals for HRC include:

- Develop system-wide reporting for key HR data including; turnover, faculty tenure, vacant positions, and staff FTE.
- Increase meeting from quarterly to monthly to align with other NDUS key council meeting schedules. This should improve communication and align agendas to State Board of Higher Education (SBHE) meeting dates, other NUS councils and regular board meetings.
- Collaborate on ideas to improve employee morale. Recent budget cuts placed added pressure on staff workload and the elimination of annual increases for the past two years has had a significant impact on morale.

FY17 turnover rate
10.3%

Turnover Breakdown

Discharged for cause 2 17%

Retired 4 33%

Resignation 2 17%

Transfer to new agency 4 33%
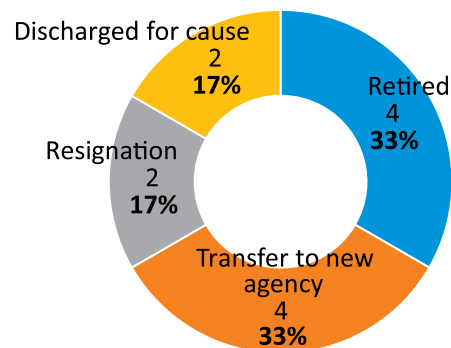
Infrastructure & Operations (I&O)

Infrastructure and Operations (I/O) is a business unit of Core Technology Services that is comprised of the following sub-units:

- Database Administration
- Endpoint Services
- Network Services
- Data Center/Production Control
- Identity and Access Management
- System Administration

We strive to not only provide, but also sustain and enhance, a robust, reliable, and relevant technological foundation that is used across the NDUS. Our successes are directly attributable to staff. They are action and detailed oriented, committed and passionate subject matter experts for many technologies.

Identity & Access Management (IAM)

The IAM team is responsible for managing the identity life cycle for all students, staff, and faculty of the NDUS. The team maintains the complex administration and processing of NDUS people, processes, and products to govern identities and access to resources of an enterprise environment. The team ensures that users have quick and secure access to the resources they need, affords users strong authentication without restricting productivity, and simplifies the process by which users gain access to IT resources.

Total Number of Accounts 380,812	Accounts Used Regularly 76,332
Accounts Created 33,606 / Year	Total Number of Accounts 105,396 / Day 38.5 Million Annually

NetIQ

NetIQ creates and manages all NDUS students, staff and faculty accounts in PeopleSoft and Office 365, but we are expanding its abilities to other NDUS services through federation and SSO. Planning has also started to have NetIQ provision the Active Directory at Lake Region State College.

Since the implementation of NetIQ on January 30, 2017, NDUS has deployed Office 365 synchronization projects at several institutions (NDSU, Board Office, CTS, LRSC, and DSU). NDUS is now provisioning and managing the local directory service for VCSU.

NetIQ's features and abilities are superior to the previous system. In just a few months of operational use, the IAM Staff had obtained a high level of competency with NetIQ. The amount of NetIQ documentation, vendor support, and user community forums enables the IAM Staff to be considerably more self-sufficient in supporting this product, as well as enabling the team to offer more enhancements and service offerings for the NDUS.

DBA

The Database Administration (DBA) team is responsible for enterprise-level software systems administration. This team is responsible for physical and logical configuration planning of enterprise-level architecture, technical implementation, and ongoing management of software supporting local and enterprise applications. The team ensures operational stability, integrity, and security of database management software and interfaces to that software, including keeping systems updated and patched. They support standalone and clustered databases on multiple database platforms. The DBA's constantly search for automation and tools that improve performance and perform technical functions in support of database-driven applications. They also provide database administration services to UND.

Looking forward, this team will be actively involved in the Campus Solutions 9.2 and PeopleTools 8.56 upgrades over the next year. Another significant project approaching is migrating to the Oracle Customer @ Cloud infrastructure. This new infrastructure setup allows us to leverage Oracle's cloud infrastructure and decrease licensing costs.

Database Instances by Business Unit

UND
22
28%

NDUS
57
72%

Databases by Business Unit

NDUS
233
37%

UND
389
63%

Database Instances by Product

MySQL
13
17%

Oracle
23
29%

MS SQL
43
54%

Databases by Product

Oracle
21
3%

MySQL
211
34%

MS SQL
390
63%
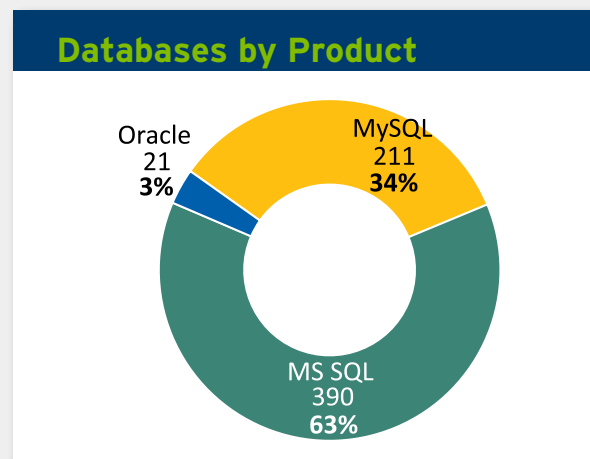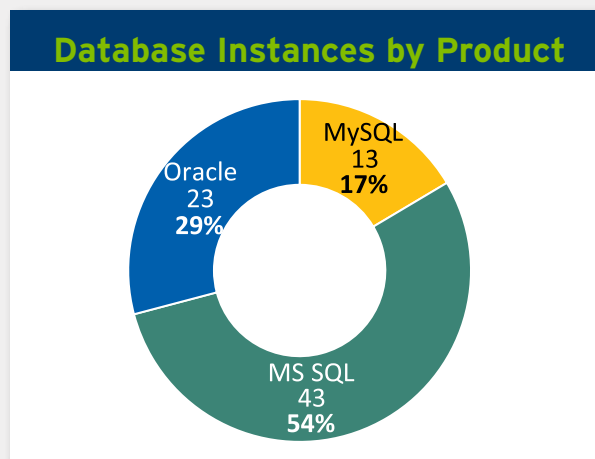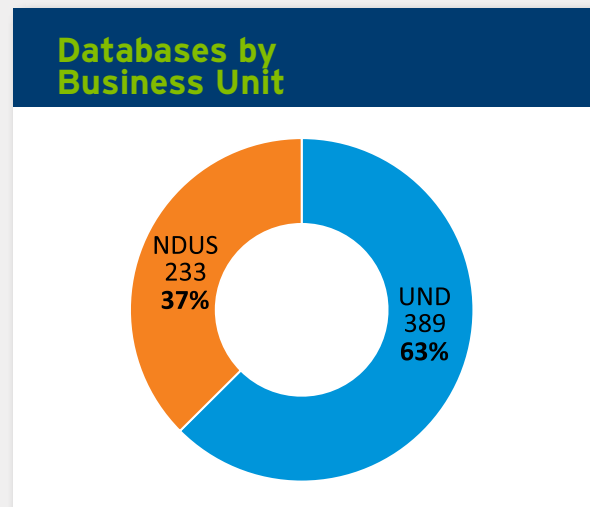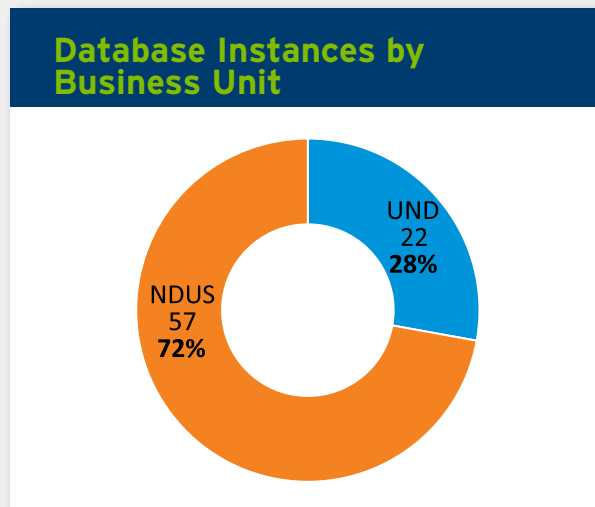
Data Center

The NDUS-CTS Data Center provides power, cooling, space, and Remote Hands support staff for the technology needs of higher education stakeholders and partners throughout the region. Skilled staff work 20/7 with established processes and approved operational governance practices to ensure safe and secure data processing in a Tier 3, mission critical facility.

The secure facility provides a prestaging burn-in room, a dedicated loading dock and lift, network distribution POP/IDF rooms, and electrical/mechanical system rooms for the following support infrastructure:

- Dual Caterpillar 400+kW Diesel Emergency Backup Generators with 800-gallon tanks
- Eaton Powerware 9395 375KVA Uninterruptable Power Systems (UPS)
- Liebert Computer Room Air Handlers (CRAH)
- Simplex Grinnell Pre-Action Fire Alarm and Xtralis Very Early Warning Smoke Detection (VESDA) System
- Trace-Tek Water Detection Rope Sensors
- 24/7 Johnson Control's Netasys Building Management Environmental System monitoring
- Advanced CBORD Physical Door Access System
- Extensive CCTV Monitoring and Surveillance

Building infrastructure remained uninterrupted during this year's maintenance cycle.

CTS is reviewing the current infrastructure to accommodate a third generator to meet the demands of continued expansion, in part, due to functional consolidation.

Endpoint

Endpoint Services provides technical support to the NDUS System Office and Core Technology Services. Services provided by this team include CTS desktop management, TeamDynamix support, Power BI development, and management support for Microsoft's System Center Configuration Manager (SCCM). In addition, the team assists and consults with institutions as needed. One of the major accomplishments was a deployment of updated computers across CTS. The team was also one of the leaders in enhancing our reporting capabilities using Power BI.

Looking ahead to the next 12-18 months, the team will be working on implementing a new desktop backup system, deploy new security tools to mitigate vulnerabilities, and participate on the CTS Power BI functional team.

Network Services

The Network Services team is responsible for enterprise-level network administration. The team is responsible for physical and logical configuration planning of enterprise-level architecture, technical implementation, and ongoing management of the UND Network. Network Services works closely with ITD in providing wide area network to institutions. Network support includes a cooperative arrangement between ITD and NDUS Network Services to support the common communications systems required for secure and reliable access to both NDUS hosted and outsourced applications, along with network interconnectivity between institutions, and to the Internet. Some of the future efforts for Network Services include:

- Work with institutions, ITD, and security teams to provide firewall services including blocking of services such as bit torrent and phishing attempts, as well as allow institution-level access to edge network and information security devices
- Work with ITD on STAGEnet upgrades (100Gbps core and minimum of 1Gbps to institutions) scheduled to occur the summer of 2019

CTS supports the UND campus network, consisting of approximately 25,000 wired connections and over 11,000 wireless devices during the semester. Network Services will continue to work with UND on their campus network upgrade including:

- Continue the core network upgrade
- Work with UND Aerospace to modify the network design and remove redundant systems
- Implement a secure SSID for wireless on the UND campus
- Review of network access control for functionality and UND needs
- Upgrade/add wireless access points to provide full coverage within 10 buildings meet capacity requirements in identified high use areas, such as classrooms and lecture bowls.
- Work with UND HPC and NDSU to plan and implement a 100g science DMZ for use with HPC systems.

System Administration

The System Administration team is responsible for enterprise-level hardware and operating system administration. The team is responsible for physical and logical configuration planning of enterprise- level architecture, technical implementation, and ongoing management of server, backup and storage hardware and software to support local and enterprise-wide applications. The team ensures operational stability, integrity, and security of servers and storage hardware and software to enable CTS departments and institutions to provide services to staff, faculty and students.

Next Generation Data Center: CTS continually researches new products and services to determine which will assist CTS with meeting the needs of the institutions, the strategic plan, and the mission of the organization. Products researched must be efficient, adaptable, based upon industry best practices, help provide data protection, have high availability, and be cost-effective.

This year the System Administration team expanded the hyperconverged Nutanix infrastructure. They will use this new infrastructure as they begin replacing aging equipment in the data center. This provided CTS an option to move to the Acropolis Hyper Visor. After extensive review, CTS determined to move all virtual servers to this platform. This hypervisor gives us additional functionality and eliminates the expense of VMware.

The System Administration team selected and implemented Rubrik as the backup system in FY18. After review, CTS also changed procedures on offsite backups. Working with ITD, we purchased off-site network-attached storage in Bismarck. Other off-site backups that CTS was storing for other NDUS institutions were migrated to this location as well.

> **700 Servers / Systems**
>
> **Over 1 Petabyte of Storage**
>
> **576 Virtual Machines**
> - 416 Vmware
> - 32 Hyper V
> - 128 AHV

Institutional Data & Reporting (IR)

The Office of Institutional Research is responsible for system-wide institutional research for State Board of Higher Education reporting, legislative requests, Chancellor studies, required federal and state reporting, and other ad-hoc data requests. IR conducts studies, maintains datasets, and reports information on topics such as enrollment, retention, degree completion, productivity, and other areas of interest. The four main areas of work for Institutional Data & Reporting include:

NDUS System Office Data and Reporting

System Office IR staff serve to fulfill data needs of the State Board of Higher Education, Chancellor's Office, legislature, and governor's office. They also contribute to statewide committees relating to workforce needs, K-12 education, and the state data warehouse. Ongoing responsibilities include:

- Annual enrollment reporting (fall, spring, annual), program enrollment and completion
- Development and maintenance of the State Board of Higher Education Strategic Planning dashboards
- Integrated Postsecondary Educational Data System (IPEDS) keyholder services for NDUS institutions as well as eight additional ND private and tribal schools
- Support of System Office and institutional staff for Strategic Planning Online (SPOL) software used for documenting strategic planning at all levels of the system
- Provision of requested data and/or reporting for legislature, governor's office, workforce, media, and other ad hoc requests
- Representing NDUS for the interagency North Dakota State Longitudinal Data System (SLDS)

ND Department of Public Instruction Data and Reporting Services

As of July 1, 2017, the ND Department of Public Instruction contracts IR services through the North Dakota University System. NDUS-IR works collaboratively with NDDPI and NDITD to provide services that include development and implementation of the federally required K-12 district profiles, accountability reporting, and state/school district public dashboards.

NDUS System-wide IR Collaboration

The Office of Institutional Research team leads the collaboration effort of the IR staff among all NDUS institutions and System Office. Known as the Institutional Research Users Group (IRUG), members meet monthly to discuss, critique, and plan for data reporting and processes across the university system so that data and methods are consistent, and so that IR staff are supported in their work and professional development needs. The IRUG also gathers twice per year for an extended face-to-face meeting and communicates daily on the IRUG listserv.

NDUS Shared IR Services

An expanding division of NDUS-IR team, the shared services provided contracted data and reporting services to NDUS institutions, focusing primarily on federally and state mandated reporting, including IPEDS and Student Achievement Measures (SAM).

Future goals for Institutional Data and Reporting

- Establishment of a NDUS Data & Reporting distribution list to inform institutions and stakeholders regarding publication of system level reports and research being conducted by SLDS.
- Assisting in the establishment and growth of a state-wide, interagency PowerBI users group.
- Implementation of additional phases of the NDDPI accountability dashboards (insights.nd.gov).
- Validation of NDUS Enrollment reporting being developed in SLDS/Cognos by CTS staff.
- Transition of ndchoose.com from the current, static website to be integrated into insights.nd.gov (with NDITD).

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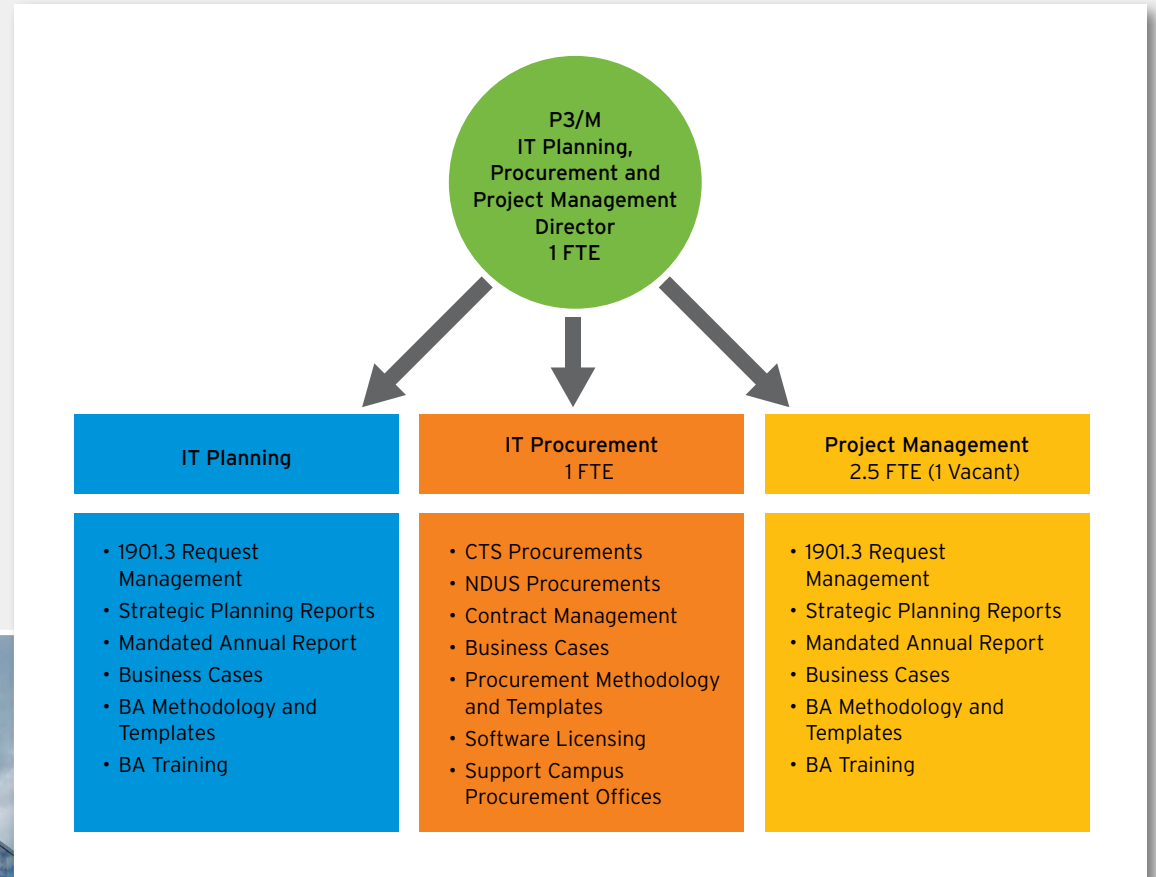# IT Planning, Procurement & Project Management (P3/M)

P3/M consists of five FTEs and is responsible for issuing the mandated IT strategic planning and annual reports, overseeing all CTS procurement and performing all Level 3 procurements for the organization. We also manage some of the most complex projects and perform Large Project Oversight as mandated in N.D.C.C.

IT Planning

The focus of this team is assist NDUS and all institutions with developing a strategic IT plan and publishing required reports. We utilize good business analyst practices and support the rest of the organization with templates and training. Key reports we publish:

- The CTS Annual Report
- The Performance and Accountability Report
- The biennial IT Strategic Plan
- We also worked in cooperation with the State of ND's Information Technology Department on the mandated biennial Statewide IT Strategic Plan.

Another responsibility of this team is to coordinate the review and approval process for institution IT requests known as 1901.3 according to the corresponding policy number.

P3/M
IT Planning, Procurement and Project Management Director
1 FTE

IT Planning	IT Procurement 1 FTE	Project Management 2.5 FTE (1 Vacant)
• 1901.3 Request Management • Strategic Planning Reports • Mandated Annual Report • Business Cases • BA Methodology and Templates • BA Training	• CTS Procurements • NDUS Procurements • Contract Management • Business Cases • Procurement Methodology and Templates • Software Licensing • Support Campus Procurement Offices	• 1901.3 Request Management • Strategic Planning Reports • Mandated Annual Report • Business Cases • BA Methodology and Templates • BA Training

Procurement

The procurement team supports both CTS and the institutions with their IT purchases. We provide several centralized contracts that any institution can use. We also help research software and participate in state and national procurements collaborating with the State Procurement Office and the Midwest Higher Education Compact. This area is also responsible for ensuring CTS maintains compliance with all software licensing agreements.

Project Management

The project management team leads by example. They manage some of the most complex projects in the organization, many of them affecting multiple institutions. They also serve as mentors for others in the organization who are managing the multitude of projects going on in the organization. This area is also responsible for performing Large Project Oversight as mandated by N.D.C.C.
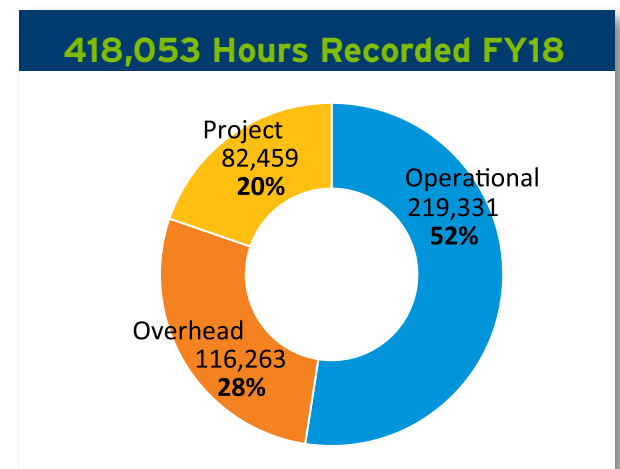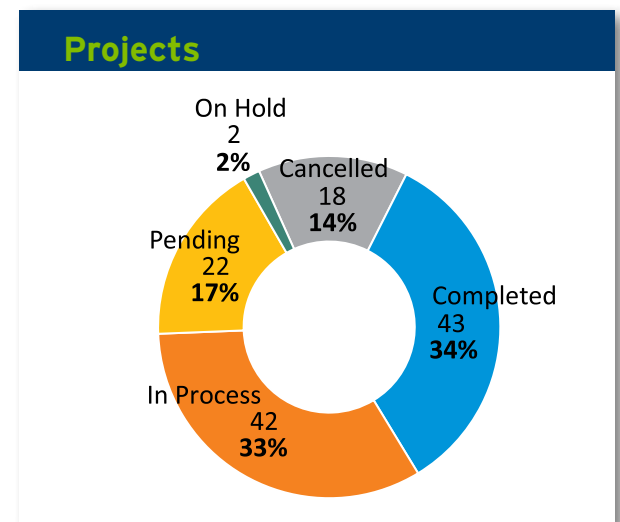
Active Projects

- **Blackboard:** The P3/M team is managing the system-wide deployment of Blackboard LMS.
- **Novelution:** Novelution Electronic Research Administration and Compliance software solution began implementation at both NDSU and UND this year. Novelution will provide a central repository for researchers to track their projects and help foster consistency, accuracy, completeness, and compliance using the software's forms, workflows and accessibility.
- **FAMIS:** CTS is moving the existing facilities management software to the SaaS solution offered by the vendor.
- **Campus Solutions 9.2:** As noted earlier, this is a major upgrade of the Student Information System.

Completed Projects

- **O365:** All NDUS institutions, the System Office, and CTS have migrated to a single NDUS email tenant. In addition, the team has synchronized the passwords between Office 365 and the NDUS Active Directory system.
- **Electronic Health Records system (EHR):** CTS coordinated with MiSU, NDSU, & UND on a common Medicat consolidated system contract, along with other updates to that service. MiSU is a new EHR deployment and UND is migrating to the same cloud- based service that NDSU has used.
- **Duo/GreyHeller:** This project added two-factor authentication to Campus Solutions.
- **Predictive Analytics Reporting (PAR):** This project deployed PAR to all 11 institutions. It is used to provide data to the student retention applications.

Work Management System (WMS)

CTS implemented the TeamDynamix Work Management System in March 2015. CTS staff use the system for time and project tracking. WMS also provides other capabilities such as a service catalog and ticketing system. P3/M leads a cross-functional team who provides the support for the tool.

Projects

- On Hold 2 **2%**
- Cancelled 18 **14%**
- Completed 43 **34%**
- In Process 42 **33%**
- Pending 22 **17%**

418,053 Hours Recorded FY18

- Project 82,459 **20%**
- Operational 219,331 **52%**
- Overhead 116,263 **28%**

Security (SEC)

The Information Security Department (InfoSec) continues to focus its efforts on initiatives aimed at protecting CTS systems and data from known cyberattack vectors. Much of the security program is focused on implementing the Center for Internet Security (CIS) Critical Security Controls (CSC), which are a set of actions for cyber defense that provide specific and actionable ways to thwart the most pervasive attacks. InfoSec also utilizes the National Institute of Standards and Technology (NIST) Cybersecurity Framework (NCF) as the foundation for much of its security planning efforts.

CTS and the institutions of the North Dakota University System are facing many real and ongoing cybersecurity threats and challenges as they try to keep their systems and data safe from attack. Some of these threats and challenges include:

- Social Engineering – Phishing emails daily attempt to trick recipients into providing their passwords or opening malicious attachments. These attacks often lead to compromised accounts and computers and can ultimately cause a data breach.
- Malware – Malicious software is often installed on end-users computers through malicious email attachments, downloading unsuspecting files from the Internet, or any number of other avenues. This malicious software is typically designed to steal passwords or personal data, hold data or computers for ransom or financial gain, or gain access to computers to use them for further attacks or illegal activity.
- System vulnerabilities – NDUS servers and computers and the software that runs on them continually have vulnerabilities that NDUS IT teams must fix or patch. If we do not remediate these vulnerabilities, attackers can use them to gain unauthorized access to the systems or applications.
- Cloud security – As CTS begins to leverage cloud-based solutions, new security challenges emerge such as data protection and governance.

InfoSec has made progress on improving the security stance of NDUS and continues to focus on the following areas:

Organizational and operational improvements

The CTS Director of Information Security leads the Information Security Council (ISC). The ISC was formed as a system-wide governance group to conduct strategic and operational security activities and serve as a consultative body for the CIO Council. InfoSec will continue to expand and seek improvements in operational security, including forming the NDUS Security Operations Center (SOC).

Policies and Standards

InfoSec, in coordination with the ISC, has completed three security policies and six security standards. Future plans include drafting security standards for encryption, authentication and passwords, and data disposal.

Endpoint Security

InfoSec has worked with CTS and institutions to facilitate the purchase, deployment, and management of multiple endpoint security products. Efforts are planned to expand capabilities and systems that improve endpoint computer security.

6,700+ computers protected by endpoint security software
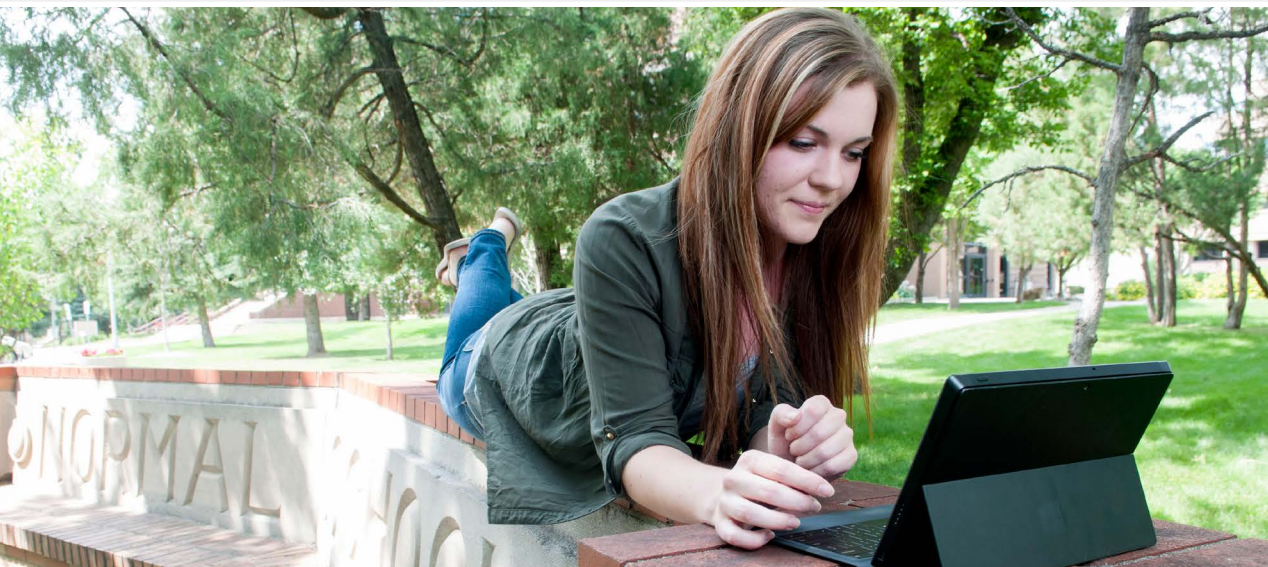
Multifactor Authentication (MFA)

MFA, InfoSec's top priority, is the most effective security solution for dealing with stolen and comprised usernames and passwords. Currently, the MFA system implemented by InfoSec protects 42 critical business applications and over 23,000 faculty and staff accounts across the NDUS. Plans are to continue expanding MFA to more areas of Campus Solutions, Office 365, and other critical systems. NDUS is also planning to extend MFA services to include protecting student accounts in the coming year.

> **MFA**
> 42 business applications
> 23,000+ staff and faculty accounts

Vulnerability Management

NDUS currently scans over 7,500 systems with the Vulnerability Management system implemented by InfoSec. This system is helping to mitigate threats and reduce the attack surface to systems, services, and applications. Future work will include expanding the service to more systems and begin using the system to conduct more detailed and accurate credentialed scans, to conduct web application scans, and to configure and conduct policy scans to assess compliance with the CIS security benchmarks.

Centralized Logging

InfoSec has led a CTS functional team to implement a centralized logging platform to assist in identifying security risks and conducting incident response for CTS systems and applications. Future efforts include the expansion of log collection to more CTS data center systems and implement security/incident event dashboards/alerts that proactively address security risks.
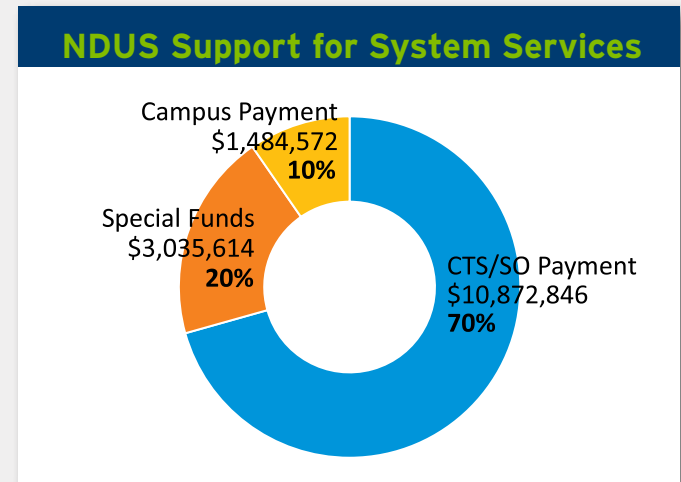
Data Loss Prevention

Avoiding loss of data is paramount to security. Work in this area will include procuring and deploying sensitive information discovery tools to scan endpoints and network systems for restricted and private information. In addition, InfoSec will work to implement data loss controls in systems where sensitive information might be exposed, such as email and cloud services.

Security Awareness

Helping faculty, staff, and students understand security risks, as well as how to protect themselves, NDUS data, and resources is a key to improving the overall security posture of the NDUS. InfoSec will continue awareness, education, and training initiatives to include procuring and deploying a phishing assessment, reporting, and analysis solution.

NDUS System Service Cost Evaluation

NDUS System Services Spend by Campus (Student FTE)

Campus	Spend
BSC	$995,254
DCB	$201,952
DSU	$412,356
LRSC	$381,703
MaSU	$295,675
MiSU	$925,877
NDSCS	$807,178
NDSU	$4,779,997
UND	$4,409,394
VCSU	$405,418

Cost by System Service (Over $10,000)

System Service	Cost
PeopleSoft - Enterprise Financial & HR Systems	$3,799,144
STAGEnet	$2,211,066
PeopleSoft - Student Information System	$1,901,918
Enterprise Learning Management System	$1,737,080
NDUS Help Desk & Ticketing System (SNow)	$815,760
Student Retention Applications	$763,528
Credit Card Processing	$529,000
Microsoft Office 365 & Windows Server	$414,561
Document Imaging Solution	$382,881
Campus Application System and Customer Relations Management System	$382,000
Online Resource Databases	$283,780
Lecture Capture System	$279,990
Facilities System	$244,773
Security: Vulnerability Management	$228,720
Integrated Library System & Hosting	$215,303
Parking System	$196,892
Identity Management System	$156,965
Others	$849,672

NDUS Support for System Services

- Campus Payment $1,484,572 **10%**
- Special Funds $3,035,614 **20%**
- CTS/SO Payment $10,872,846 **70%**

NDUS System Services
Spend per Student per Year
$378.42

Core Technology Services – Goals

Four goals provide Core Technology Services (CTS) with the guiding principles for information technology planning and system implementations. This framework allows for the information technology goals at the eleven institutions to roll into the goals of CTS and ultimately make their way into the strategic plan of the State Board of Higher Education.

Goal 1 - Support North Dakota University System infrastructure needs.

Infrastructure holds information technology systems together and allows systems to communicate with each other over a network. It includes such things as security and access control for which guidelines must be developed and updated as needed. Enterprise Architecture provides a blueprint for establishing information technology policies, procedures, and guidelines to promote effective use of information technology.

1

Goal 2 - Improve North Dakota University System information technology-enabled business processes and services while providing and managing resources to align with NDUS strategic goals.

In order for the NDUS institutions to remain competitive and offer information technology support for students, faculty, and staff, including research and public service, the NDUS must provide and manage information technology resources aligned with NDUS strategic goals.

2

Goal 3 - Improve and enhance North Dakota University System student learning and users' focus.

The focus of this goal is to empower student learning and development through the use of technology by providing a near seamless environment for learning through boundless access to informational, educational and research resources, both inside and outside the classroom, for all types of students from undergraduates to the life-long learners. The NDUS encourages and supports an operational environment where characteristics of its users – student, faculty, staff, North Dakota residents, and affiliates worldwide – are identified, their needs are understood, relationships and expectations are effectively managed, and quality assurance is fostered for high-quality services and support.

3

Goal 4 - Improve and enhance North Dakota University System collaborative efforts.

By working together with the State, K-12, and other constituents, the NDUS is able to bring new technologies to North Dakota and support existing ones. Communicating with stakeholders is an important factor and everyone must work together in making necessary information available to every administrator, faculty, staff, and student across the North Dakota University System institutions.

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