



Core Technology Services

2022-2023 ANNUAL REPORT



Reporting Period: July 1, 2022 - June 30, 2023



2022-2023 ANNUAL REPORT

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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.



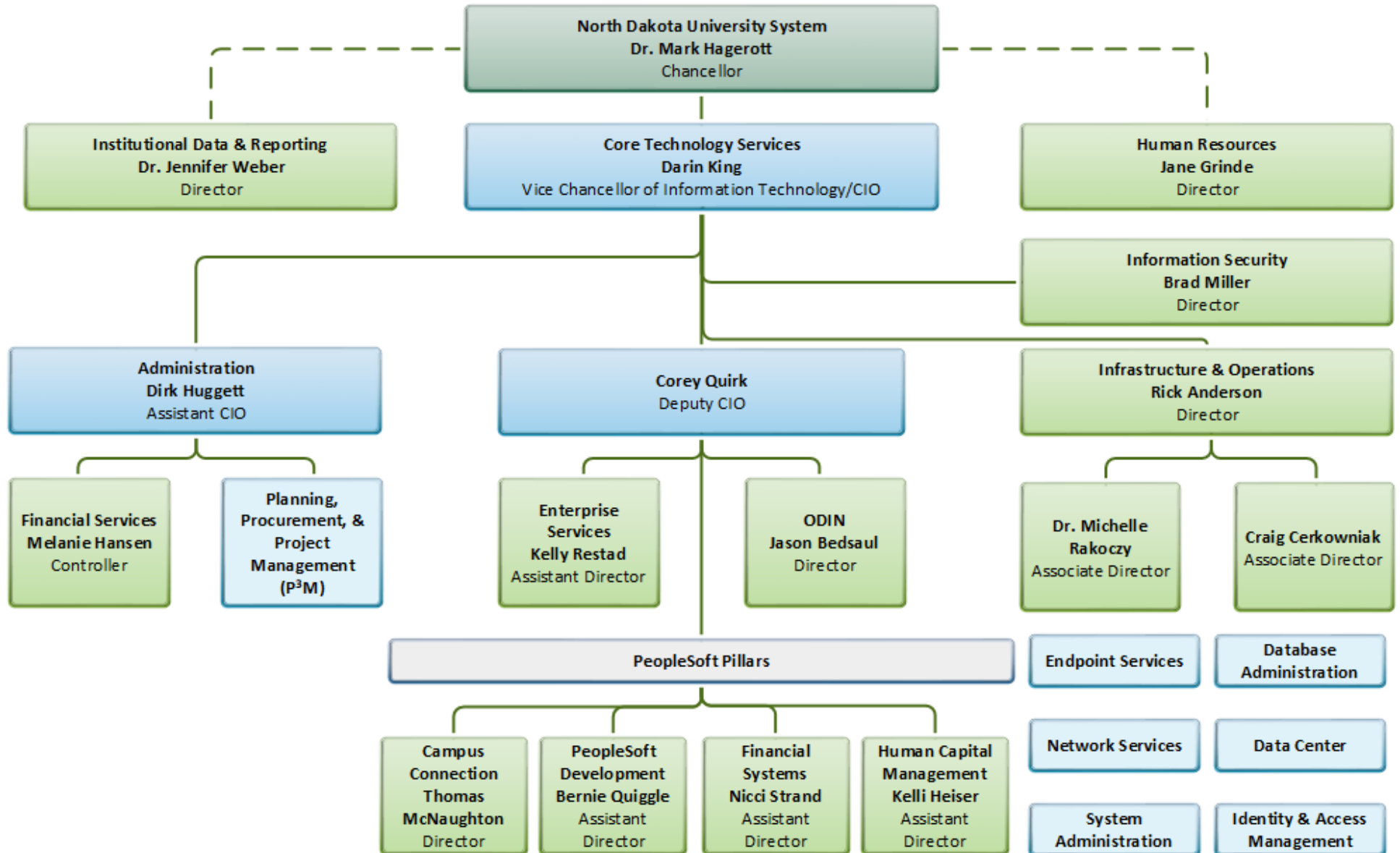
CTS Vision

To foster an organizational culture that delivers exceptional service, secure infrastructure, and access to information.

CTS Mission

To provide trusted technical and professional services to support the strategic goals of the North Dakota State Board of Higher Education.

Core Technology Services Leadership Team



Core Technology Services (CTS) is the technical arm of the North Dakota University System (NDUS) with goals and objectives that align with and support the strategic vision of the NDUS. The Office of the CIO works collaboratively with the CTS Leadership team and organizational staff to:

- Provide secure information management and technology services to the North Dakota University System.
- Link academic and business services within the NDUS community.
- Connect users to the information and educational resources they need to accomplish their goals.



Corey Quirk
CTS Deputy CIO



Dirk Huggett
CTS Assistant CIO



Corey Quirk – 25 Years
Dirk Huggett – 21 Years

Office of the CIO

A Message from the Vice Chancellor



Darin King
*NDUS Vice Chancellor of
Information Technology;
CTS CIO*

Greetings,

The CTS 2023-2025 Strategic Plan identified workplace culture, service satisfaction, and information access as key strategic themes. Throughout this document, you will find numerous examples of practices and processes that build our culture around service, security, and operational efficiency.

ServiceOne, the CTS information technology service management project (ITSM), is the cornerstone of our efforts to provide improved delivery of services and solutions to NDUS institutions. Several process improvement practices are operational and there are additional practices in development.

It is critically important that we continue to focus on information security across CTS and the entire NDUS. The implementation of tactical initiatives like automated email security, micro-segmentation of the NDUS data center, standardized de-provisioning processes, and privileged access management increase our capacity to better secure NDUS systems. In addition, thanks to additional funding from the legislature, we have added two additional staff members to the NDUS security operations center that monitor and mitigate hundreds of threats every day.

CTS leadership, in collaboration with campuses, initiated a comprehensive study of our current Peoplesoft environment, including finance, human capital management, and student information systems. This study, called ERP360, will help everyone better understand where these systems are today and could be in the future. These systems have been used for over 20 years and are vital to the daily operations of NDUS institutions. We expect a final report to be delivered to NDUS leadership by June 2024.

Ensuring data is securely handled, curated, and made available for appropriate use continues to be a focus area at CTS. Throughout this document are examples of new or enhanced systems that provide an improved user experience, access to data via real-time dashboards, or new data models that can be used in a variety of ways to increase efficiency. The NDUS Information and Data Executive Governance group, consisting of representatives from across the NDUS, did exceptional work developing the governing practices and standards that have allowed great progress in a relatively short period.

The 2023 CTS Annual Report highlights the numerous accomplishments and current projects for each CTS division. I encourage you to read on and learn more about the activities of the NDUS Core Technology Services team.

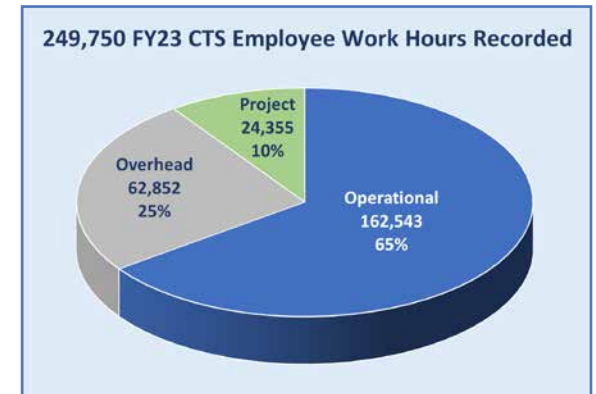
A handwritten signature in black ink, appearing to read 'Darin King'.



Administrative Services

Administrative Services (AS) consists of two major subdivisions, Financial Services and IT Planning, Procurement, and Project Management (P3/M). The department provides general administrative tasks and non-IT operational services for CTS, including financial, IT planning, procurement, and project management.

AS also leads a cross-functional team that maintains and supports CTS's work management and ticketing system. This system allows CTS staff to manage their project-related and operational work activities and respond to incidents and service requests submitted by campus personnel and internal staff. The work management system is the source for operational data, including time spent by staff performing specific types of work, and is used for CTS's organizational reporting.



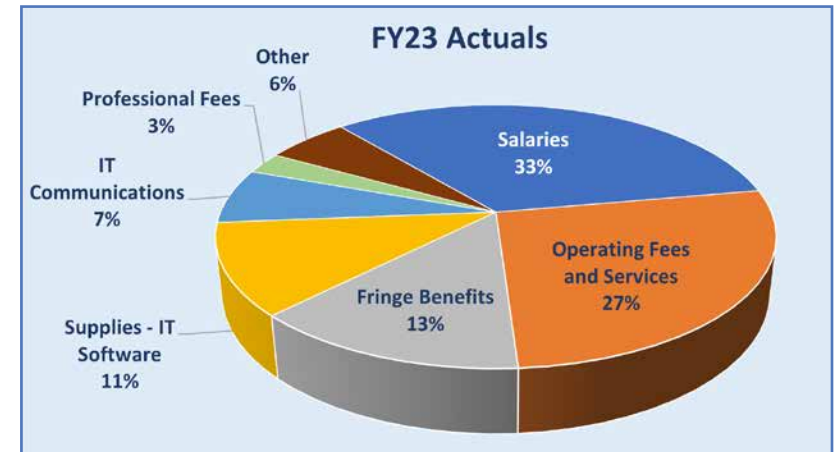
Financial Services

Financial Services provides financial oversight for CTS in the following areas: accounts payable, accounts receivable, asset management, budgeting, financial reporting, general ledger, internal controls and treasury activities. Overall, this team prepares and manages an annual budget in excess of \$38 million.

Last year, the team made two major changes: 1) returning outsourced tasks to insourced activities, and 2) the implementation of the GASB 96 regulation.

Several months of planning and the addition of one new staff member led to a smooth transition of the previously outsourced tasks. Once internal controls were evaluated and new procedures were in place, the elimination of the outsourced agreement resulted in more streamlined processes, increased timeliness, and better decision making.

GASB 96 is a new accounting standard that affects how governments report subscription-based information technology arrangements (SBITAs). SBITAs are contracts that grant a government the right to use a vendor's IT software, platform, or infrastructure over a period of time. GASB 96 requires governments to recognize a SBITA liability and a corresponding intangible



right-to-use asset in their financial statements with the goal of improving the consistency and comparability of governmental financial reporting. The Financial Services staff developed new processes to identify these arrangements in addition to working with all campuses to track and record SBITAs that CTS procures and manages.

Financial Services' future objectives are to simplify and automate the accounts payable approval process with PeopleSoft FIN. This redesign will reduce the approval time and improve the accuracy and timeliness of payments.



P3/M

P3/M is responsible for issuing the mandated IT strategic plans and the CTS annual report, oversees all CTS procurement, and completes all Level 3 & 4 procurements for the organization. This team also manages some of the most complex NDUS projects and performs Major IT Project Oversight when CTS or institution project costs are forecasted to be \$500,000 or more.

This past year, P3/M played a key role in coordinating efforts to align NDUS with the State Procurement Office (SPO) on procurement-related legislation, policy, and procedures. The team also led the collaboration between NDUS and SPO to deploy an enterprise-level electronic procurement system for solicitation and contract management. The current solicitation management system utilized for NDUS procurements is maintained by SPO and is over 20 years old; there is no standard contract management system in place for either the state or NDUS. Implementation of this dual-purpose solution could significantly reduce the number of audit findings related to procurement across all state agencies.

The team also completed an update of the 2023-2025 CTS Strategic Plan along with the mandated CTS Annual Report, NDUS IT Strategic Plan, and Statewide IT Strategic Plan. Current and past strategic plans and annual reports can be found at <https://cts.ndus.edu/reports>.

In the coming year, P3/M will be reviewing and updating the current CTS project management standards, processes, and templates to align with the most recent edition of the Project Management Book of Knowledge (PMBOK) and improve overall project management efficiencies. The team is also working to incorporate Agile methods into projects where appropriate, further develop the organization's Business Analysis methodology, and expand the team's Organizational Change Management involvement on a project level.



Janelle McGarry
31 Years

April Moser
23 Years

Pam Nielsen
23 Years

Procurement Fun Facts for FY23

Contracts
THE CTS PROCUREMENT TEAM OVERSAW **191 CONTRACTS**
- AN AVERAGE OF **63** PER PROCUREMENT OFFICER

Requests for Proposals
PROCUREMENT OFFICERS SPEND AN AVERAGE OF **94.22 HOURS** PREPARING AND MANAGING RFPS

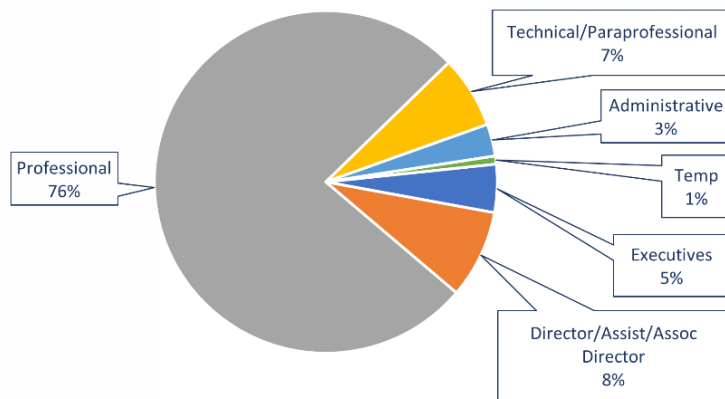
PCard Rebates
CTS RECEIVED OVER **\$54,000** IN **REBATES FROM \$3,000,000** IN PCARD PURCHASES



Office of Human Resources

The Office of Human Resources (OHR) consists of one director and one part-time administrative support position to provide HR services to the staff and administrators of CTS and the System Office. These services include employee development, conflict resolution, employee performance management, salary administration, and daily HR functions. OHR assists administrators in the development and management of personnel policies and procedures, and provides coaching and mediation to supervisors and staff. OHR supports the mission of the NDUS and CTS by providing recruitment services that attract, develop, and retain a highly qualified and diverse workforce. The HR Director leads the NDUS Human Resource Council and advises the chancellor and SBHE on human resource issues, HR organizational policies and procedures, and assists with administration of the NDUS retirement plans.

CTS Employees by Classification



Positive Workplace Culture

In its most recent strategic plan, CTS highlighted its commitment to promoting a positive workplace culture that values and supports employee well-being. To encourage a healthy work-life balance, CTS provides access to wellness programs, coordinates mental health awareness trainings, and offers flexible work arrangements for all employees.

As part of this initiative, OHR worked with the Village Business Institute this year to deliver employee-focused webinars, including Self-Care for the Remote Worker, Setting Healthy Boundaries, and Stress Management. Additionally, enhancements were made to the CTS orientation program to help strengthen engagement and reduce isolation gaps for newly hired remote employees. Every six to eight weeks, a cohort of new staff members gather virtually with the Director of OHR to introduce themselves, learn a bit about one another, and ask questions they may have related to the onboarding process or CTS.



Brenda Keller
23 years

NDUS Human Resource Council

CTS OHR is leading the strategic planning process for the NDUS Human Resource Council (HRC). The goals for this fiscal year include:

- Developing an HRC onboarding and mentorship program for new campus HR Directors. This is a collaborative effort utilizing internal HR talent and experienced HRC professionals as mentors.
- Collaborating with the NDUS Information and Data Governance (IDEG) to create standards and definitions for common HR data sets that can be used for the development of systemwide HR dashboards.

Work-Based Learning

CTS continues to support the North Dakota community IT workspace. Staff development is needed on an ongoing basis to ensure consistent training in areas such as professionalism, security, service, and culture. To help develop IT talent across North Dakota, CTS has worked with institutions and local high schools since 2020 to provide internship and apprenticeship positions. Interns and apprentices assist CTS by filling positions that have been difficult to recruit and hire, increasing job satisfaction for departmental staff who help mentor these new IT professionals.

Positions	FY23 Hired	Total Hired Since 2020	Placement Rate	Retention Rate
Apprenticeships	1	3	100%	100%
Interns	2	10	60%	60%



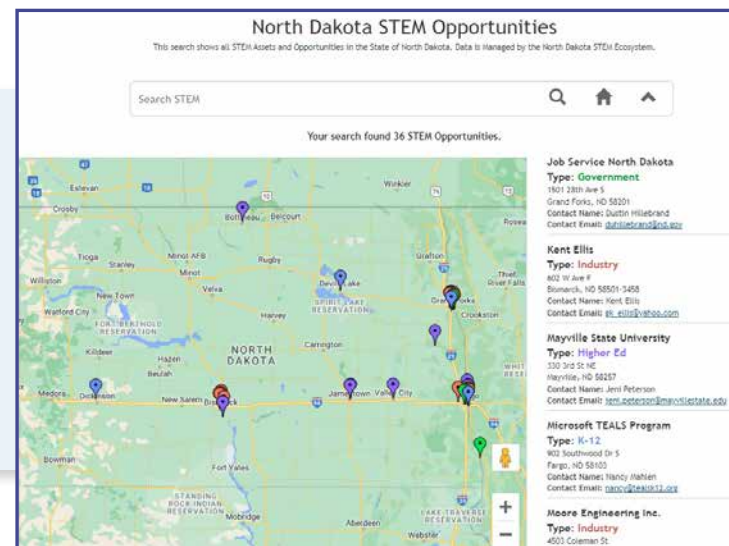
Institutional Research

Institutional Research (IR) oversees reporting, analytics, and inquiries for NDUS institutional data, performs systemwide research and development for SBHE reporting, and fulfills data requests to support studies and other reports presented by the legislature, governor, and the chancellor. Additionally, this team maintains datasets and prepares reports related to enrollment, retention, degree completion, productivity, and other areas of interest. IR also provides contracted data and reporting services to NDUS institutions and the North Dakota Department of Public Instruction (NDDPI), collaborates with other agencies on statewide data projects, and coordinates the required federal reporting efforts for the nineteen public, private, and tribal institutions within North Dakota.

The placement of Institutional Research within CTS is strategic and symbiotic. This positioning provides IR staff with greater access to the data systems needed for responding to systemwide requests, enabling technology personnel to focus on daily operations and other projects.

IR works collaboratively with NDIIT and NDDPI to develop and support [Insights.nd.gov](https://insights.nd.gov), the official public source for North Dakota's PK-12, higher education, and workforce metrics. This past year, dashboards containing Adult Education, Science, Technology, Engineering, and Math (STEM),

High School Enrollment, and FAFSA completion data were added to the site. [Insights.nd.gov](https://insights.nd.gov) brings value to North Dakota parents, agencies, and other stakeholders as a one-stop resource for accurate data regarding the state's educational and workforce outcomes.



IR Staff Highlights

Ryan Jockers was promoted to Assistant Director of Reporting and Analytics in spring 2023. Ryan's primary responsibilities include providing strategic and tactical leadership for the NDUS Information and Data Executive Governance (IDEG) and overseeing the prioritization and planning of IDEG development projects and business intelligence initiatives.

Greg Carlson:

- Presented at the following conferences this past year:
 - NDDPI Back-to-School Drill Down for School Leaders
 - Cognia IMPACT Conference
 - North Dakota Association of Secondary School Principals (NDASSP) Conference
 - North Dakota Association of Elementary School Principals (NDAESP) Conference

Ellie Shockley:

- 2022 graduate of the Bismarck-Mandan Chamber EDC's Leadership program and was selected by her class peers to be the speaker at the graduation event.
- Presented at the following conferences this past year:
 - Impacts of COVID/Societal Disruption on Teacher Retention & Student Proficiency - NDDPI Back-to-School Drilldown for School Leaders
 - Staff Shortages and Attrition: Regional and Occupational Trends - ND Association of School Administrators Mid-Winter Conference
- Served as a reviewer over the past year for the following journals:
 - Current Psychology
 - Basic and Applied Psychology
 - Political Psychology



Information Security

The Information Security (InfoSec) department is composed of three teams: Security Operations, Security Engineering, and Applications Security. These teams provide security services, policy and planning, incident response, and applications access security to CTS and the NDUS institutions. InfoSec leads the NDUS Information Security Council (ISC), which is comprised of representatives from CTS and each NDUS institution. The ISC supports and advises the NDUS CIO Council on information security policies, programs, priorities, and initiatives.

NDUS Information Security Council

The ISC has identified 10 strategic priorities aimed at protecting NDUS systems and data from known cyberattack vectors. During the council's biennial Information Security Strategic Planning Summit, ISC members meet to determine specific initiatives or projects that will support these priorities and further enhance security efforts across the NDUS. InfoSec works with CTS Senior Staff to align ISC priorities with those of the organization.

ISC Strategic Priorities

Systems and Software Management

Data Loss Prevention

Endpoint Security

Vulnerability Management

Penetration Testing

Centralized Logging

Identity and Access Management

Intrusion Prevention Systems/Firewalls

Security Awareness

Security Operations

Security Training and Awareness

The InfoSec department procured the InfoSec Institute's IQ Security Awareness platform for all NDUS Institutions. This platform provides security awareness training videos and resources, phishing simulations, and phishing reporting capabilities. The Security Engineering team worked with institutions to implement and expand the use of this valuable platform to educate faculty, staff, and students on how to effectively identify and prevent security threats.

Security Operations

The NDUS Security Operations Center (SOC) works to protect NDUS systems and data by monitoring, identifying, analyzing, investigating, preventing and responding to cyber threats and incidents. Through its incident response capabilities, the SOC improves threat detection, decreases the likelihood of security breaches, responds when incidents occur, and works with the appropriate campus and CTS support personnel to remediate issues.

Cortex XSOAR

The Security Operations team will be enhancing the Cortex XSOAR capabilities by creating automated playbooks and workflows to allow security operations analysts to be more efficient at handling the many security incidents and alerts occurring daily across the NDUS, enabling greater focus on more urgent and critical incidents. Cortex XSOAR, a security orchestration, automation, and response platform, was implemented in 2021 in cooperation with NDIT.



Email Attacks Prevented in FY23

Other Social Engineering
119,499



Payroll Fraud
1,116



Employee Impersonation
3,521



VIP Impersonation
817



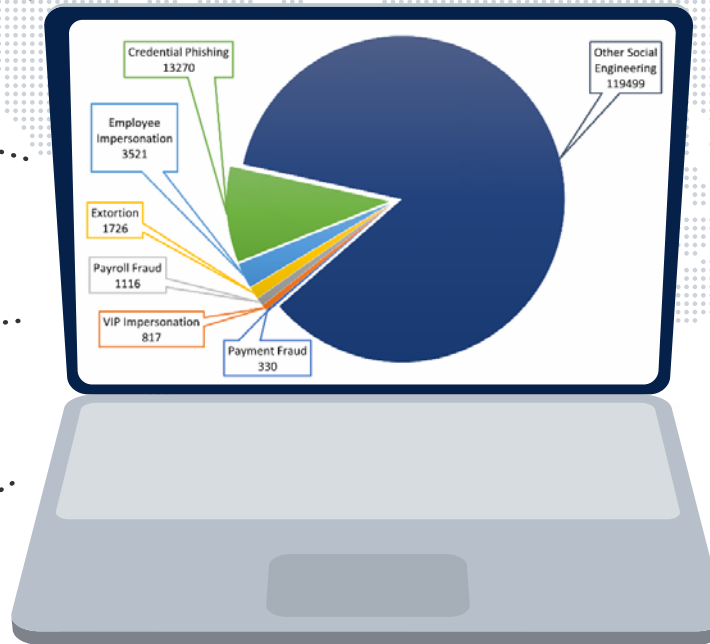
Extortion
1,726



Payment Fraud
330



Credential Phishing
13,270



Greg Tingelstad
33 years

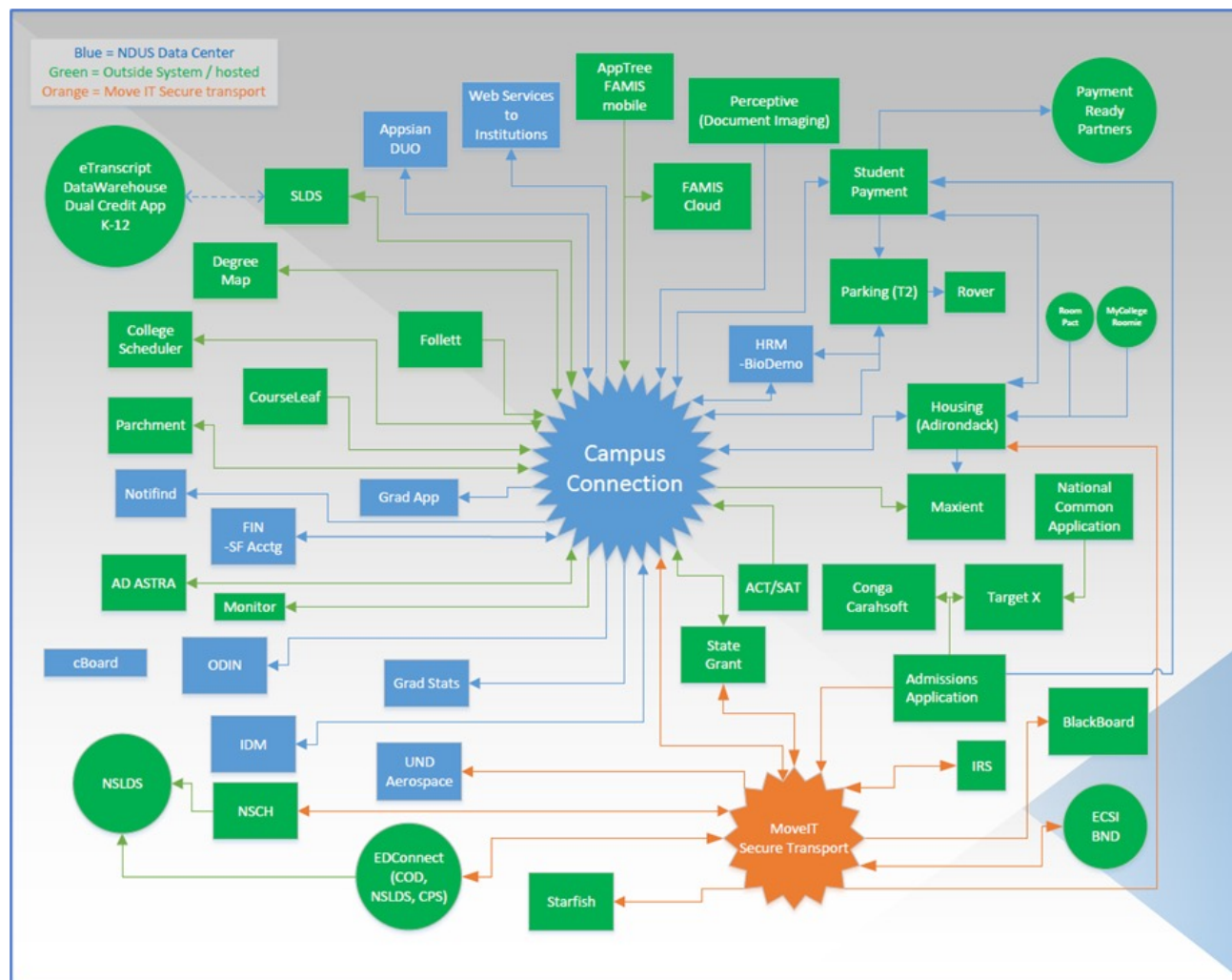
Bryan Ford
27 years

Annette Viergutz
27 years



Campus Connection

The Campus Connection team is responsible for supporting, maintaining, and enhancing PeopleSoft Campus Connection, the system of record for more than 46,000 active students within the NDUS. This comprehensive software suite streamlines administrative processes, enhances student services, and supports the daily business functions of the 11 NDUS institutions. Campus Connection consists of six major modules which handle various operations related to the student lifecycle, including admissions, enrollment, grading, program requirements tracking, financial aid disbursement, billing, payment processing, performance monitoring, and data-driven decision making. The team's expertise extends to integrating Campus Connection with over 40 university data systems, including Housing, Parking, Facilities Management, and scheduling (Ad Astra), as well as student success applications, namely Blackboard Learn and Starfish. These integrations contribute to the automation of administrative tasks, provision of self-service capabilities, and enhancement of efficiency and student experiences.



High-level overview of the 40+ applications integrated with Campus Connection, the NDUS student information system.



Over the last year, the Campus Connection team has completed several system developments that allow for campuses to better serve students and improve staff productivity, including:

- Automated notifications sent to students, faculty, and/or staff when triggered by specific actions or events, including midterm deficiencies, class cancellations, and differential tuition charges.
- Processes to update or add large amounts of information in the system, such as program and plan changes, term activations, and advisor assignments.
- Connect ND Fees Report to assist NDUS Controller and campuses in providing the same calculation for each campus.
- Updated Common Data Set.
- Veterans programming to support the Federal 85/15 rule.
- Changes to meet federally mandated Integrated Postsecondary Education Data System (IPEDS) reporting requirements.

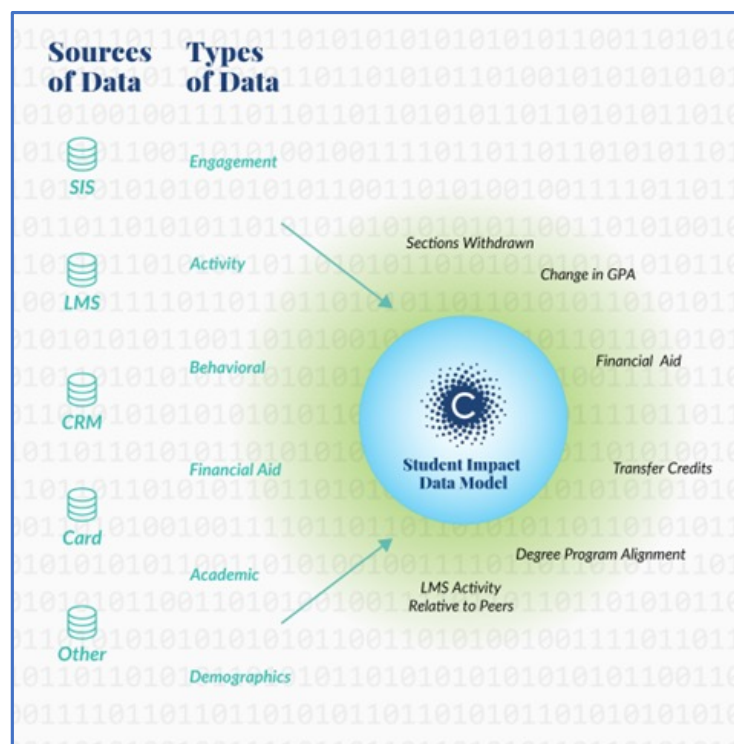
FAFSA Simplification Act

The Free Application for Federal Student Aid (FAFSA) Simplification Act represents a significant overhaul of financial aid processes and documentation, including a new FAFSA form, revised need analysis, changes to Federal Pell Grant determination, and numerous policy changes. All components of the FAFSA Simplification Act and the impacts on financial aid processing have been evaluated and prioritized. Work has begun on new developments for FAFSA/ISIR load, budgeting and packaging, Federal Work Study reporting, and many other aspects. To ensure a successful implementation, communication and training efforts are ongoing. The Financial Aid User Group is being provided monthly updates on the progress of this implementation by the Campus Connection Financial Aid team. Campus volunteers participate in topic-specific working groups to provide feedback and take part in early testing. The Campus Connection Financial Aid team also hosted a FAFSA Simplification Project Overview to discuss the overall implementation approach.

Civitas

The Campus Connection team will be assisting NDSU and UND with the deployment of Civitas through the fall of 2024. Civitas is a comprehensive student success, academic advising, and course analytics platform used by multiple NDUS institutions to support data-driven decision-making.

Data sources and types used by Civitas to create real-time insights to support the entire student lifecycle.



Ramona Breuer
32 years

Maria Saucedo
32 years

Sheri Gilbertson
27 years

Chad Gilbertson
25 years

Acey Olson
24 years

Jody Klier
21 years

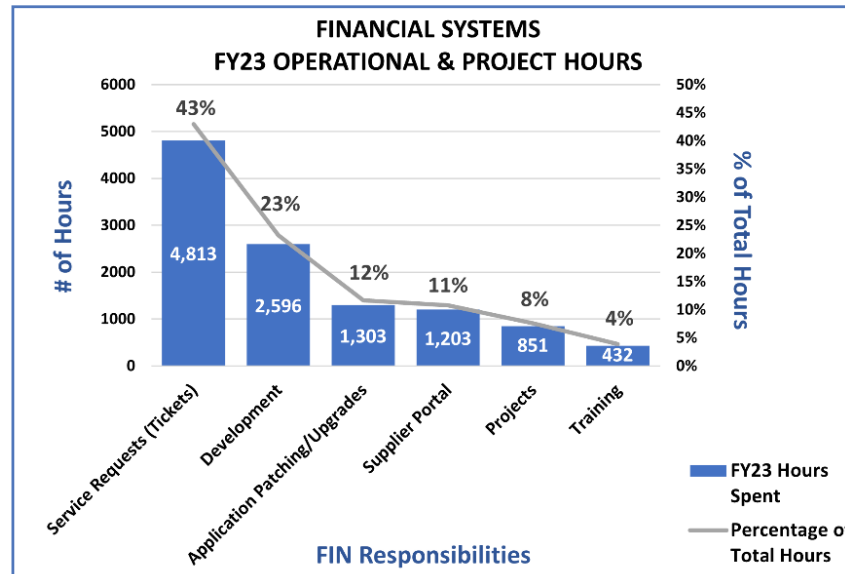


Financial Systems

The Financial Systems team maintains the PeopleSoft Financial Management (FIN) application, which includes developing and implementing system enhancements, performing system data cleanup and archival, and applying system patches to remain current with regulation changes and government-mandated reporting. FIN is the system of record for NDUS business operations and is comprised of several modules such as General Ledger, Commitment Control, Accounts Payable, Grants, Supplier Management, and Travel and Expense.

The Financial Systems team also conducts central

processing activities for the NDUS which include generating 1099s, performing fiscal year-end processes, extracting and uploading monthly PCard and bank statements, generating payroll journals, and troubleshooting financial transactions. The Financial Systems functional team actively partners with the NDUS Controllers and Financials User Group to gather requirements for new functionality, discuss common system issues, and gather feedback for potential solutions. This team also works closely with the System Office to ensure standards set forth by the Governmental Accounting Standards board (GASB) are properly followed for financial statement reporting.



This chart highlights the number of hours the Financial Systems team spent completing major FIN system responsibilities during the 2023 fiscal year.



Nicci Strand
24 years

Travel & Expense Updates

This year, the Financial Systems team modernized FIN's Travel and Expense (T & E) module with the implementation of PeopleSoft Fluid user interface. The transition to PeopleSoft Fluid provides the capability to enter travel and expense reports and upload receipts using mobile devices; the system recognizes the device type and adjusts the display size accordingly. This new update offers employees a more convenient method to enter their travel and expense data at any time, from anywhere.

An additional enhancement to the T & E module is the automatic calculation of per diem rates when entering expense data for travel outside the continental United States (OCONUS),

including Alaska and Hawaii. Previously, employees manually looked up rates for locations beyond the contiguous 48 states and entered the appropriate per diem. This new feature improves efficiency and increases productivity for staff.



Financial Systems Team

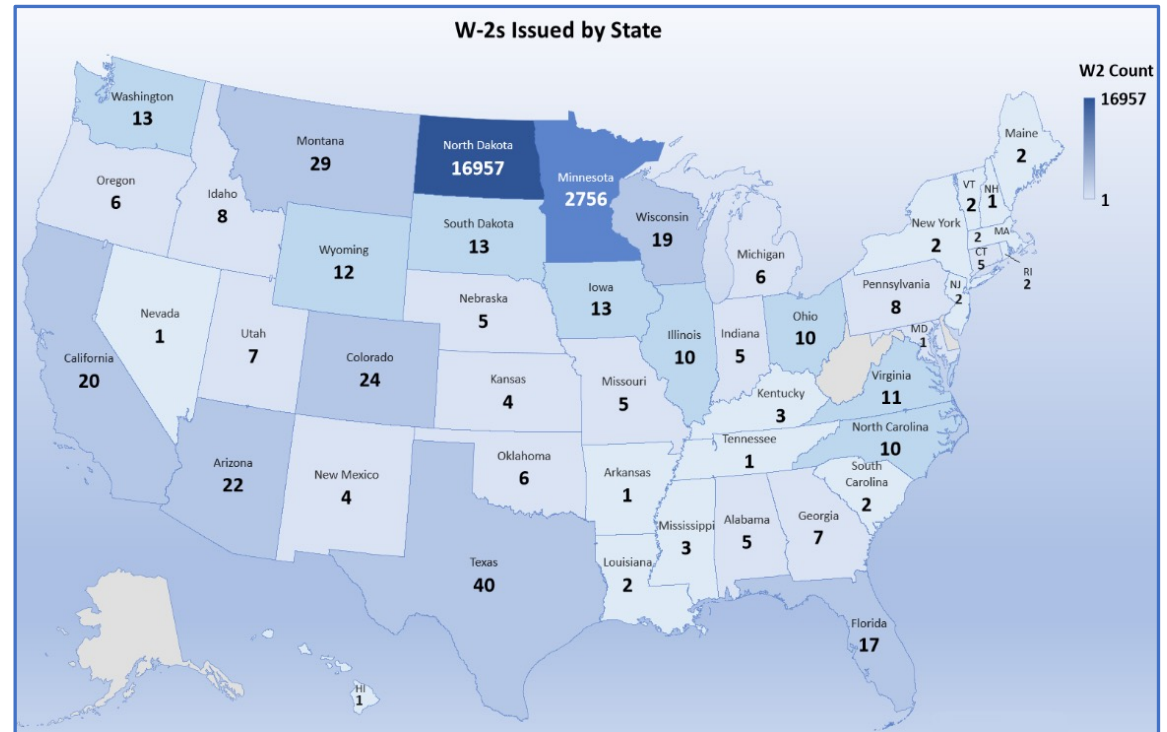


Human Capital Management

The Human Capital Management (HCM) team is responsible for supporting, maintaining, and enhancing PeopleSoft HCM, the single integrated human resource system used by NDUS institutions, CTS, and the System Office. This application provides for the management and delivery of HR functions and reporting for nearly every aspect of NDUS's 8,600+ employees, including benefits, time & labor, commitment accounting, absence management, performance, recruiting, and onboarding.

Additionally, the HCM team administers the NDUS's semi-monthly payroll for all 11 institutions, the System Office, and Core Technology Services, applies system patching, provides Workforce Safety and Insurance (WSI) annual workers' compensation reports, processes W-2s and 1095Cs, and assists institutions with troubleshooting HR and Payroll transactions.

The HCM team also provides leadership in application management by offering training to institutions and serving as active participants in the HR User Group and Human Resource Council.



The map indicates the number of W-2s issued for NDUS employees working in each US state during the 2022 tax year; 3,133 employees are non-ND residents.

W-2 Preparation and Processing

The HCM team annually prepares files containing employee state and federal tax information and processes W-2s for each NDUS institution, CTS, and the System Office.

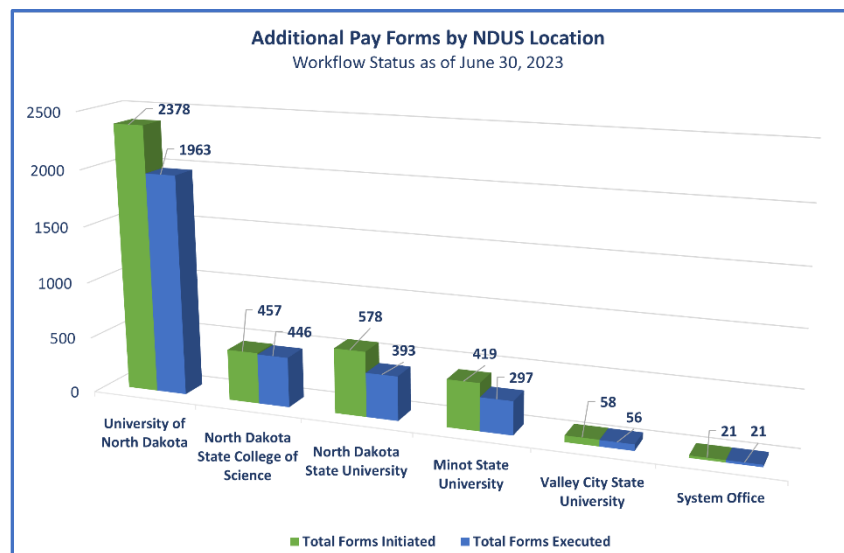
FMLA

To create greater efficiencies for the management of Family Medical Leave Act (FMLA) data, custom pages were developed in HCM for employees and managers to request FMLA absences along with an administrative page to determine eligibility and track hours used toward an FMLA event. Previously, this information was tracked manually using a spreadsheet, slowing down processing efforts.



Additional Pay eForm

Last year, the HCM team developed an electronic replacement for the paper Additional Pay form, which is completed for employees who may receive stipends or wages for work that is not included as part of their standard salary. The Additional Pay eForm and its associated workflow have provided significant efficiencies for users, approvers, and payroll departments by streamlining the form's entire lifecycle process, saving an average of 15 minutes per form. As of this year, five NDUS institutions and the System Office have implemented the Additional Pay eForm.



As of this year, five NDUS institutions and the System Office have implemented the Additional Pay eForm.

PeopleSoft Insights for Recruiting Solutions

The HCM team implemented PeopleSoft Insights, a set of interactive dashboards, for the Recruiting Solutions module. Available visualizations include job openings and applicant data which can be quickly filtered and analyzed at a granular level, providing NDUS Human Resource departments access to information that will help with the employee recruiting process. Over the next 12-18 months, more analytics will be deployed for other modules in the HCM system, including:

- **Absence Management:** Dashboards will display information on absence types, approval status, and absences by department. This will provide managers and administrators an overall view of staff absences and the impact, including negative hours and cost.
- **Payroll:** Displayed insights will include payroll cost, employer deductions and taxes, and employee gross pay. Analytics can quickly highlight potential payroll errors and show trends for different payroll categories.
- **Time and Labor:** Dashboards will visualize schedules, reported time, and payable time information more efficiently.

HCM Advisory Group

HCM staff member Kate Greicar serves as a member of the HCM Advisory group for HEUG, the Higher Education User Group. Advisory group members are experts in various product modules and technical areas of application software, and facilitate communication about specific product features, problems, and opportunities. The group also solicits feedback from the user community and conveys the information to system partners, often advocating for new functionality and resolutions to system problems.



John Lindstrom
45 Years

Gar Narum
44 Years

Karin Stinar
34 years



Enterprise Services

Enterprise Services (ES) is comprised of five highly collaborative teams, Document Imaging, Applications, Academic Services & Training, Development, and O365/Service Desk, that are responsible for the design, development, integration, implementation, training, support, maintenance, and administration of enterprise-level systems and web-related applications. Each team plays a crucial role in creating, delivering, and sustaining solutions that enable NDUS stakeholders to operate more effectively, improve collaboration, and achieve strategic objectives. Enterprise Services provides IT leadership and vision while planning current and emerging technologies that expand and enhance teaching, learning, and business operations across the North Dakota University System.

SUPPORTED APPLICATIONS

- Learning Management System (LMS)
- Document Imaging System
- eSignature Platform
- Secure Managed File Transfer
- Video Conferencing
- Web & Mobile Solutions



Document Imaging

The Document Imaging team provides support and creates efficiencies for NDUS campuses through continual improvement of its digital transformation efforts. Over the last 10 years, this team has worked with NDUS campuses to convert paper files into digital images and create workflows and electronic forms to digitalize internal and external business processes. Over time, these modern practices have greatly reduced the need for physical storage space for the institutions, increased productivity for office personnel, and decreased the overall time and effort spent by students to complete, submit, and follow-up on documentation. In the coming year, the team will focus on automating the retention procedures for electronic documents, simplifying the process to stay in compliance.

Applications

The Applications team maintains its dedication to improving the online teaching and learning experience for NDUS faculty and students. Over the past year, the team began assisting campuses with a migration to Ultra Course View, a modernized course design within the Blackboard Learning Management System. To ease future migrations to the new Ultra environment for other campuses, the team developed an online resource and support site for NDUS Blackboard Learn campus administrators. Enterprise Services also facilitated a Teaching and Learning Series for instructors and course designers, which showcased features within Ultra Course View to increase student engagement and improve learning outcomes.

Other achievements from the Applications team include the implementation of Rapid Online Analytical Reporting (ROAR), a business intelligence solution to provide campuses with improved data and analytics regarding student tracking and progress. The team also developed new internal processes to reduce data storage within Blackboard and other third-party applications to help lower costs.



Staff members from Enterprise Services presented at the annual Anthology Together conference to share how the NDUS is leading the way nationally in providing efficiencies through a single, system-wide learning management solution.



Academic Services & Technology

The Academic Services & Training (AST) team is in its second year of providing Microsoft productivity training to NDUS employees. Course offerings are regularly evaluated to meet the demand of employees wanting to elevate their knowledge of Microsoft applications and create efficiencies for managing various work tasks.



AST assisted the System Office in redesigning systemwide mandatory training courses for internal controls, theft and fraud, code of conduct, and purchasing cards to be more engaging for NDUS staff. New courses were also developed for vaccination education, advanced query training, and campus IT administrators regarding NDUS-supported learning technologies.

AST is committed to providing academic technology leadership for the NDUS

institutions by offering opportunities to share knowledge and discuss emerging issues concerning online learning and delivery.

Development

The Development team has been working on the design and creation of an application to track third party service providers who administer services for Title IV programs on behalf of NDUS institutions. Inventory data will be reported to the Department of Education as requested for transparency and compliance.

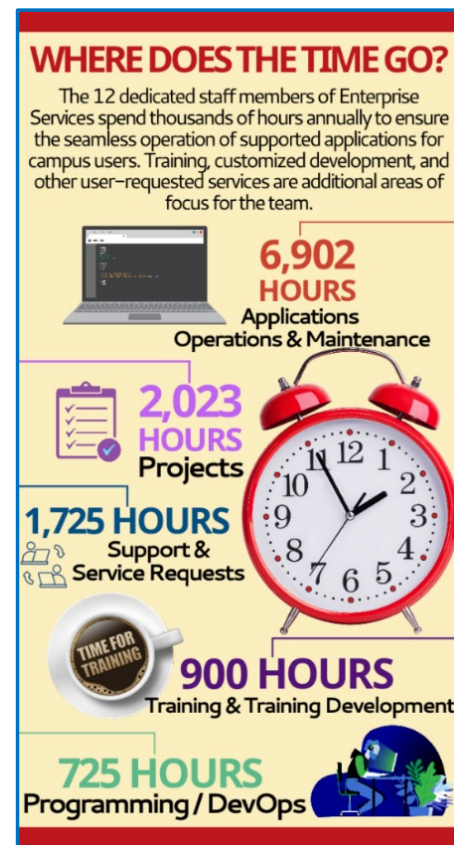
The team is also working on improvement projects to streamline work efforts and create greater efficiencies for CTS and System Office staff. Modifications are being made to processes and workflows within the CTS work management system that were impacted by service enhancements brought on by the ServiceOne Program. At the System Office, the team is helping to improve the management and distribution of committee documentation and resources.

O365/Service Desk

As part of the ServiceOne Program's implementation of the ITIL® Service Desk Practice, the O365/Service Desk team expanded the capabilities of the existing CTS IT Help Desk to become the single point of contact for reporting system outages and requesting IT services. The focus of the newly established CTS Service Desk is to improve user satisfaction by streamlining delivery and support of CTS services and providing standardized, timely communication regarding unplanned outages.

The O365/Service Desk team carried out other efforts over the course of the year:

- Assisted Dickinson State University and Williston State College with the migration from landline phones to Office 365 Teams Voice. Teams Voice simplifies user communication and collaboration by bringing calls, chats, and meetings into one application, effectively improving productivity for staff while reducing costs for the institutions.
- Coordinated Microsoft-focused professional development opportunities for CTS and NDUS institution staff. These educational offerings included Power BI training sessions for employees interested in creating reports to use for data-driven decision making and monthly mini symposiums to keep NDUS institutions up to date on the latest technology developments.



John Underwood
26 years

Chad Gratton
22 years

Trisha McElroy
22 years

Randy Wald
21 years



The ODIN Office provides library management services and system support for 65 member libraries across North Dakota, including the 11 NDUS institutions. The remaining libraries served by ODIN are comprised of two private higher education institutions, K-12 schools, public libraries, and special libraries. Higher education libraries use the Alma library services platform to manage their physical and electronic material; other member libraries use the Polaris integrated library system. The ODIN Office also provides authentication services for E-resource access to other ND libraries. In total, over 300 ND libraries benefit from ODIN's services.

ODIN continuously evolves by partnering with member libraries to explore and evaluate products that will best meet the needs of these libraries and their users. ODIN strives to identify technologies that will enhance the missions and strategic plans of ODIN and member libraries, while keeping an eye toward efficient, secure, and cost-effective solutions.

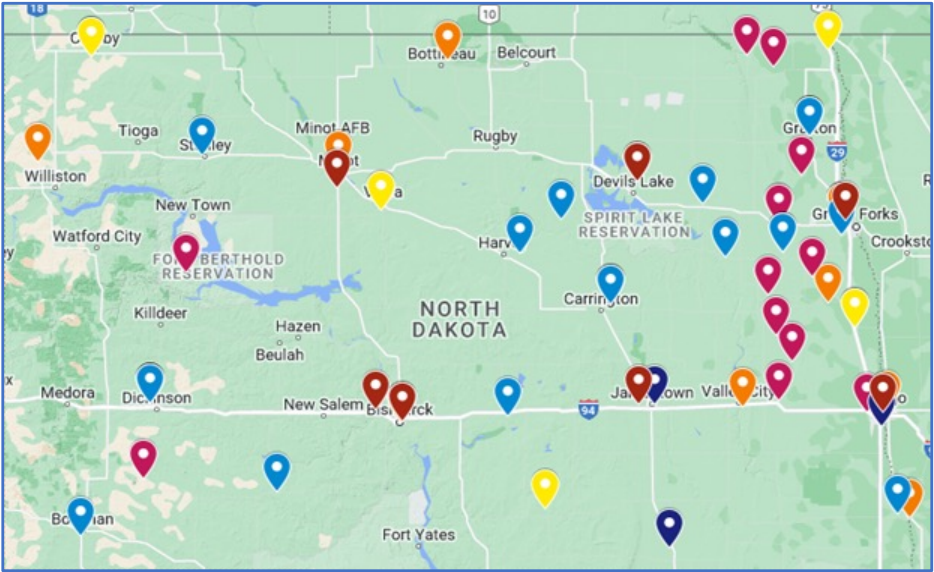
System Records Cleanup

ODIN annually performs database record cleanup for expired patron accounts and unused library items that are no longer in circulation. The chart shows the number of records removed from ODIN databases in FY23.

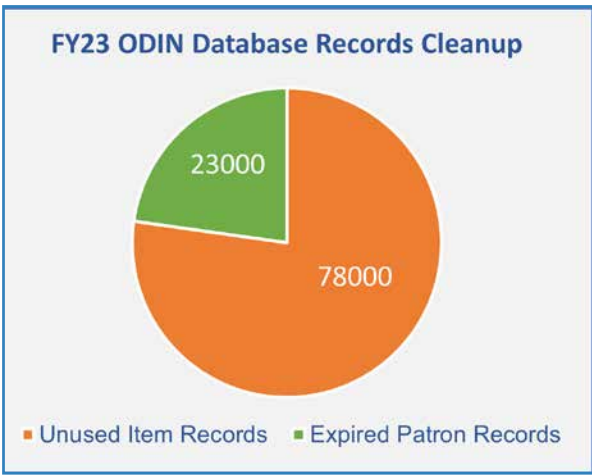
New Member Libraries

Three new member libraries joined the ODIN organization in 2022, funded by an ARPA grant through the ND State Library. As part of the onboarding process, ODIN Staff spearheaded the preparation and coordination efforts to migrate, configure, and test the new library management systems, provide user training, and assist with troubleshooting after go-live. Two of the three libraries had not used an automated library system before joining ODIN. A new member library is slated to join the ODIN organization in the coming year. Preparation work, migration details, and initial configurations are currently being coordinated between the ODIN Office and library staff.

ODIN



This map highlights the locations of ODIN's 65 member libraries across the state. The legend on the right indicates the type of library served, along with the total number of each:





Book Vending Machines

Ten book vending machines, purchased by the ND State Library, were placed in small ND communities with little-to-no library services. These machines allow patrons to check-out physical materials using their ND State Library account. ODIN Staff guided efforts to integrate the machines with the Polaris platform to allow for real-time account updates, seamless usage reporting, and inventory tracking.

ODIN Workdays

ODIN coordinated and participated in its annual Workdays event, a weeklong, online training and informational event for member libraries. 12 sessions were hosted and conducted by ODIN staff and volunteer library staff members, covering topics related to library management systems and online library resources.

Roadmap

A product called the Vega Starter Kit will be made available to Polaris customers with the goal of making the configuration of email notifications easier. Currently, ODIN office staff must create and maintain configurations for formatting and verbiage of patron notifications for each individual library. The starter kit will allow libraries to control their own configuration with minimal ODIN intervention. The ODIN office will provide initial configuration and testing of the product before rolling it out to member libraries once it is made available from the vendor.



Ginny Millette
35 years

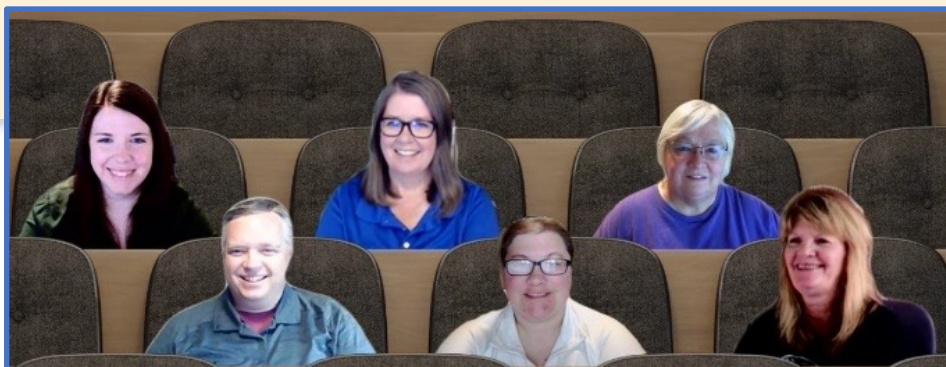
Lynn Wolf
35 years

Liz Mason
23 years

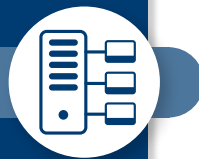


In Memoriam

Linda Allbee, Director of ODIN, unexpectedly passed away January 18th, 2023. Linda had recently taken over the Director position in August 2022 after Ellen Kotrba's retirement. It was a tremendous loss for her loved ones, the ODIN organization, CTS, the North Dakota University System, and the ND library community. She has been dearly missed.



ODIN Staff



Infrastructure & Operations

The Infrastructure and Operations (I/O) division, comprised of Identity and Access Management, Data Center Operations, Network Services, System Administration, Database Administration, and Endpoint Services, is responsible for the hardware and software foundation of the NDUS technology system. I/O collaborates with CTS staff, NDUS institutions, vendors, and NDIT to provide a robust, dependable, and relevant technology framework to ensure safe and secure data, continuous processing, and operational stability for the University System.

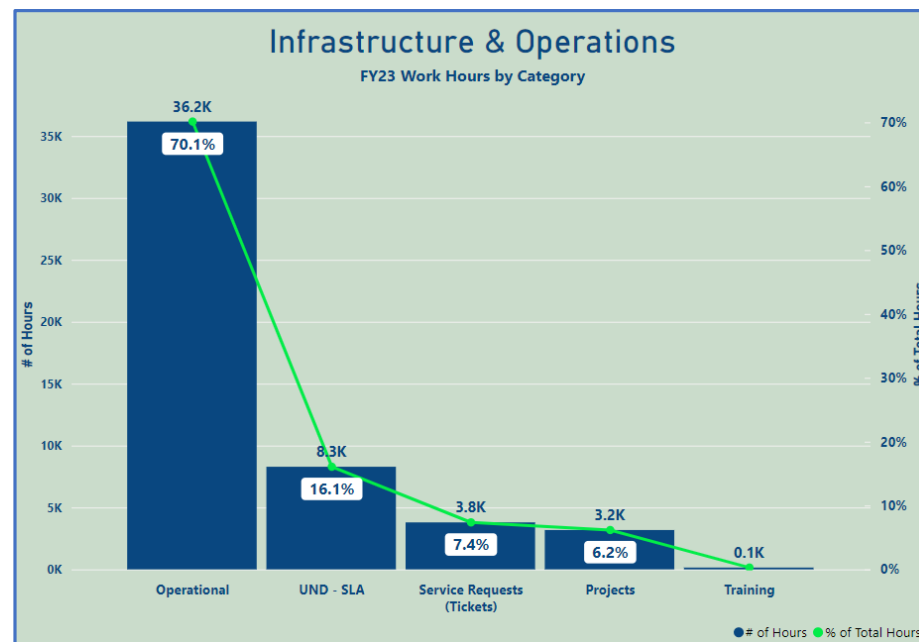
Identity and Access Management

The Identify and Access Management team manages the identity lifecycle for all NDUS students, faculty, and staff and governs access to enterprise environments. This work simplifies the process for users to gain secure access to the IT resources they need, providing strong authentication without hindering productivity.

The IAM team presented a workshop session at the USA National Technology Transfer Partners (TTP) conference this year titled *Using Access Manager to Authenticate Enterprise Services Outside of Your Data Center*. The topic covered the requirements, design, and implementation of a disaster recovery solution to ensure that cloud-based applications such as Blackboard, Odin (Library systems), and Microsoft O365 could still be accessed in the event of a statewide network outage.

Endpoint Services

Endpoint Services provides technical assistance to over 150 users at the NDUS System Office and CTS, including maintaining and updating end-user equipment. The team also collaborates with institutional staff on technology solutions relevant to their needs, including systems and other endpoint tools to manage user access and software/security updates.



This chart highlights the number of hours the I/O teams spent completing major responsibilities during the 2023 fiscal year.

Database Administration

The Database Administration team is responsible for the enterprise-level administration of software systems, which includes physical and logical configuration planning, technical implementation, and ongoing management of software that supports local and systemwide applications. These efforts ensure the operational stability, integrity, and security of database management software and interfaces. The team supports and manages over 50 standalone and clustered databases across multiple platforms, performing the essential technical functions that facilitate the smooth operation of database-driven applications.



Data Center Operations

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. The Data Center is staffed 20 hours a day, 7 days a week to ensure safe and secure data, uninterrupted processing, and physical security while continuing to monitor the mission-critical facility. Standard maintenance, proactive monitoring, and redundant power supplies and network connections were key contributors to the Data Center achieving 100% uptime this past year.

In spring 2023, NDUS enlisted the expertise of Reliable Resources, a consulting firm involved in the original design of the NDUS Data Center, to conduct a comprehensive evaluation of the present and future hosting capacities of the existing data center. The objective was to devise an infrastructure plan that could effectively support the growing demands of power, space, and cooling capacities, particularly for UND's High-Performance Computing research program and other initiatives. The assessment results provided the operations team with valuable insights into how future equipment implementations would impact existing and potential future demand loads. It also outlined the recommended capacities for technology upgrades and identified available residual capacities in the current implementation. Notably, the assessment highlighted an immediate need for an upgrade in power infrastructure controls to align with redundancy best practices and maintain uninterrupted operations during utility outages or maintenance procedures. This upgrade has been contracted, and implementation is scheduled to commence in the spring of 2024.

Network Services

The Network Services team is responsible for enterprise-level network administration, as well as the physical and logical configuration planning of enterprise-level architecture, technical implementation, and ongoing management of the UND Network. Additionally, the team works closely with NDIT to provide network services to the NDUS institutions via North Dakota's Statewide Technology Access for Government and Education Network (STAGEnet) and collaborates with NDUS campuses to troubleshoot local network issues.

This year, Network Services switched products for accessing NDUS Virtual Private Networks (VPN). Faculty and staff utilize a VPN to securely connect to an NDUS or campus network when working offsite. This ensures internet traffic is encrypted to protect sensitive information. This new VPN option utilizes existing firewall equipment which provides cost savings and a consistent user experience.

Other work completed by the Network team:

- Upgraded all STAGEnet wide area network circuits to 100G, enhancing internet speed and reliability
- Installed diverse fiber paths for VCSU and WSC to provide network redundancy, reducing the chance of a network outage
- Expanded use of a network monitoring tool to include BSC, DSU, CTS-Fargo, UND and all CTS laptops to help identify, analyze, and resolve performance issues

Through CTS's service level agreement with UND, Network Services assisted in the design and configuration of wired and wireless access in three UND buildings. The team also upgraded UND's core network to a more powerful, yet energy-efficient 100G WAN connection, resulting in cost savings and faster, more reliable data transfer speeds that greatly benefit the campus. Network Services is currently working on the configuration of wireless in five more UND buildings as well as contributing to the campus's telephony modernization project.



System Administration

Enterprise-level hardware and operating system administration is the core responsibility for the System Administration team. They also provide 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 NDUS-wide applications. These responsibilities deliver operational stability, integrity, and security, enabling CTS departments and institutions to provide services to staff, faculty, and students.

This year, system administrators upgraded server infrastructure to make the datacenter 100% virtualized; there is no standalone hardware that completes only one task. Computing, networking, and storage are combined in a single platform, resulting in more cost-effective servers, improved performance, reduced physical footprint, and better management of resources.

I/O Staff Highlights

Network Engineer, Akilesh Rajaratnam (Aki), embarked on his journey with CTS in 2018. Starting as an intern while completing his education at Infrastructure University Kuala Lumpur, he transitioned into a full-time employee later that year. In 2023, Aki achieved a significant milestone by becoming a U.S. Citizen.

Senior Database Administrator, Gail Sullivan, retired in May 2023 after 43 years of dedicated service to the North Dakota University System.



The Network Services team celebrating Aki's U.S. Citizenship.



Darin King and Gail Sullivan at Gail's retirement celebration.

Ronald Lauinger
42 years

Mark Diers
41 years

Darren Studney
36 years

Kevin Danielson
34 years

Craig Cerkowniak
30 years

Karen Burgard
27 years

Robert Peterson
27 years

Phil Moore
25 years

Heidi Strande
25 years

Diamond Pipiles
25 years

Darrin Were
24 years

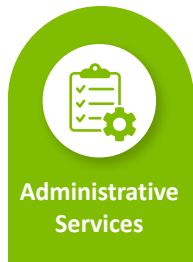
Doug Osowski
24 years

Steve Ristau
23 years

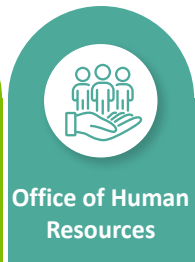
Brad Holcomb
22 years

Andy Holcomb
21 years

Grant Erickson
20 years



Administrative
Services



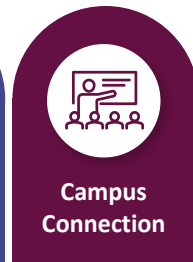
Office of Human
Resources



Institutional
Research



Information
Security



Campus
Connection



Financial
Systems



Human Capital
Management



Enterprise
Services



ODIN



Infrastructure
& Operations

Projects

For Core Technology Services, successful projects are a testament to the power of collaboration and the depth of expertise. The 2023 fiscal year was filled with a vibrant collection of initiatives supported by the dedication and diverse skillsets that permeate the organization. Each endeavor serves as a beacon of teamwork, showcasing the vast IT knowledge and experience of CTS staff and their unwavering commitment to innovation and excellence. The next several pages celebrate CTS's collective achievements that have shaped the past year and highlight upcoming initiatives that will continue to drive the organization forward.

■ FY23 Completed CTS Projects ■

Advanced Email Security

An advanced email security platform was implemented within the Office 365 email environment for NDUS. Behavioral AI (Artificial Intelligence) is used to block malicious and unwanted emails, such as phishing, business email compromise, ransomware, and more. It also prevents and remediates compromised email accounts and automates phishing reporting and response, streamlining workflows to save time and effort for the NDUS Security Operations Center.

CTS Collaborative Teams:



Active Directory Identity Sync

The NDUS aims to make full use of the features and benefits provided by the university system's Microsoft 365 subscription. This year, CTS implemented Azure Connect to enable synchronization of user accounts in the on-premises NDUS active directory (AD) with user accounts in the cloud-based NDUS Microsoft Azure AD (now called Entra ID). The synchronization process associates multiple accounts belonging to a single individual under one user identity. This makes it easier to manage and track the usage of enterprise applications.

CTS Collaborative Teams:



NDHEUG Conference

The North Dakota University System Higher Education Group (NDHEUG) Conference is a biennial event planned by CTS and attended by staff members from all NDUS institutions to network, share ideas, and collaborate on best practices. Last year, over 200 people gathered in Bismarck for presentations by CTS and institution staff regarding specific campus business areas and departments. The conference also featured sessions on broader topics, including data security, student success, and data governance, vendor supported events, and a dynamic and engaging keynote presenter who spoke on making the most of everything you do.

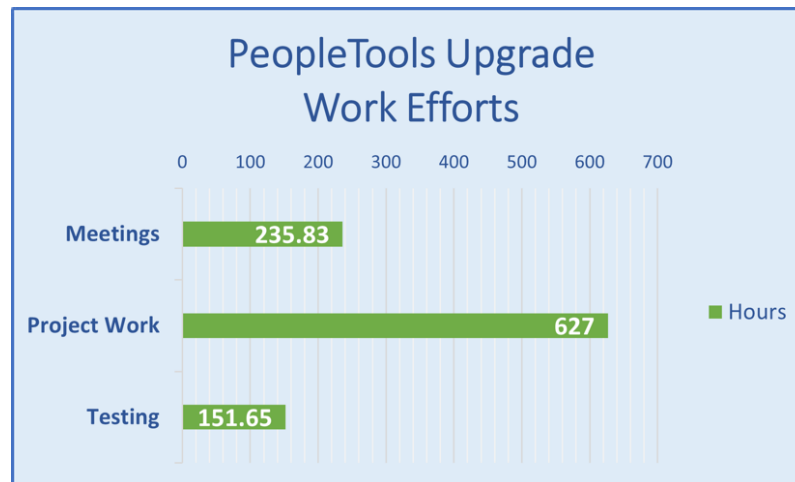
CTS Collaborative Teams:



PeopleTools 8.59 Upgrade

PeopleTools is a software technology that provides the underlying infrastructure for PeopleSoft applications and is used to develop, deploy, and maintain those applications. This year, CTS implemented and updated PeopleTools in all Campus Connection environments. The upgrade to the latest version was necessary to receive continued support from the Oracle software vendor and take advantage of technical improvements and enhancements to the PeopleTools and Campus Connection code.

CTS Collaborative Teams:



TargetX

TargetX is a Customer Relationship Management (CRM) system and online admission application that has been used successfully by the University of North Dakota (UND) and North Dakota State University (NDSU) for several years. After a successful RFP process, CTS guided the other nine campuses through the transition from their previous CRM and admission application to TargetX. This decision was driven by the desire to enhance engagement and cultivate enduring relationships with potential students and applicants. TargetX empowers campuses to collect, analyze, and apply data to create personalized experiences and execute targeted initiatives throughout the application and enrollment processes. This not only streamlines the student journey but also allows for a more tailored approach to each individual's needs.

The implementation of TargetX is anticipated to deliver a consistent student experience, bolster collaborative efforts, and provide significant cost savings across all institutions. Moreover, it will equip campus staff and students with the tools necessary for success. This strategic move towards a more unified and data-driven approach positions the NDUS institutions at the forefront of higher education innovation.

CTS Collaborative Teams:

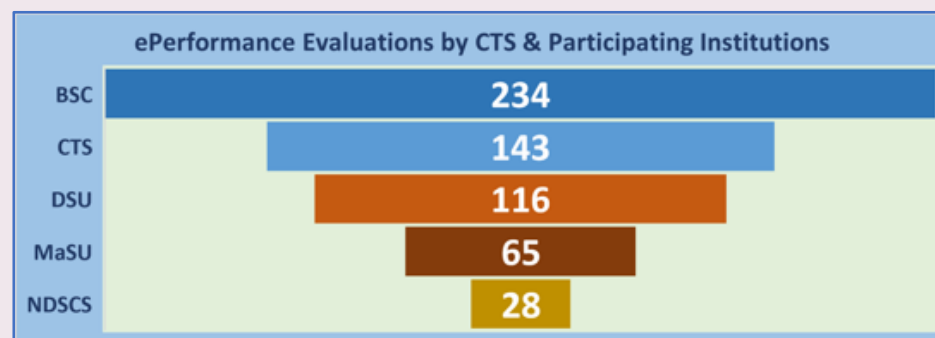


ePerformance

In summer 2022, the HCM team launched the ePerformance module, a self-service performance evaluation management solution within PeopleSoft. ePerformance streamlines the appraisal aspect of the employee development process, from goal planning and coaching to performance assessments and rewards. Managers, employees, and HR administrators can collaborate on performance evaluations and goals, review performance history, and monitor and manage the overall performance process.

In the fall of 2022, CTS fully implemented ePerformance across the entire organization; the following institutions also rolled out ePerformance to select campus users:

- Bismarck State College (BSC) and Dickinson State University (DSU): Staff (non-faculty)
- North Dakota State College of Science (NDSCS) and Mayville State University (MaSU): Pilot Groups



The Office of Human Resources (OHR) provided training for supervisors and employees of CTS and held open office hours for questions prior to going live with each new step in the process. CTS staff utilized the system's full capabilities for FY23's entire employee performance cycle. Upon completion of this year's employee performance reviews, OHR conducted a supervisor feedback survey; responses were analyzed

to identify areas of opportunity and efficiency for improving the ePerformance experience. Employees are currently working with their supervisors to set performance goals for the upcoming fiscal year.

CTS Collaborative Teams:



■ FY23 In Progress CTS Projects ■

Appspan Analytics

The implementation and enhancement of Appspan360 across the NDUS's three PeopleSoft pillars (Campus Connection, Financial, and Human Capital Management systems) will deliver real-time, dashboard-based visibility and monitoring of system data access and usage. Features such as alerts and actionable insights can be used to combat security and compliance threats, effectively respond to audit findings, enable compliance, and ensure user productivity. This initiative involves significant participation from NDIT, reflecting our commitment to leveraging agency partnerships and cutting-edge technology to drive value and efficiency.

CTS Collaborative Teams:



Data Classification & Information Protection

CTS is exploring and testing Microsoft's Data Classification and Information Protection technologies within Office 365. These solutions will allow CTS and NDUS institutions to identify sensitive data within Office 365 and on endpoint computers and protect it from unauthorized access.

CTS Collaborative Teams:



Deprovisioning

The deprovisioning project aims to create a standardized NDUS process for removing access to enterprise applications, systems, and data when a user transfers departments or leaves the organization. The goal is to protect the NDUS IT environment from unauthorized access attempts using old credentials. This project will result in a framework for deprovisioning users across all NDUS entities, strengthening the lifecycle management of user accounts. This new process will adhere to best practices established by the National Institute of Standards and Technology (NIST) and the NDUS Information Security Council, emphasizing automation to minimize human error.

CTS Collaborative Teams:



GLBA Safeguards Rule Assessment

CampusGuard, a leading information security consulting firm, has been engaged to assess the compliance of CTS and the 11 NDUS Institutions with the provisions of the Gramm-Leach-Bliley Act (GLBA) Safeguards Rule. The GLBA is a federal law that regulates the collection, storage, and transmission of Nonpublic Personal Information (NPI) by financial institutions. This law applies to NDUS and other higher education institutions that collect, store, and use student financial aid records containing NPI. The assessment will help NDUS identify any gaps in its information security and take corrective measures to ensure the confidentiality, integrity, and availability of sensitive data. Consultant interviews with the campuses will be conducted throughout fall 2023; CampusGuard intends to deliver their assessment by the end of the year.

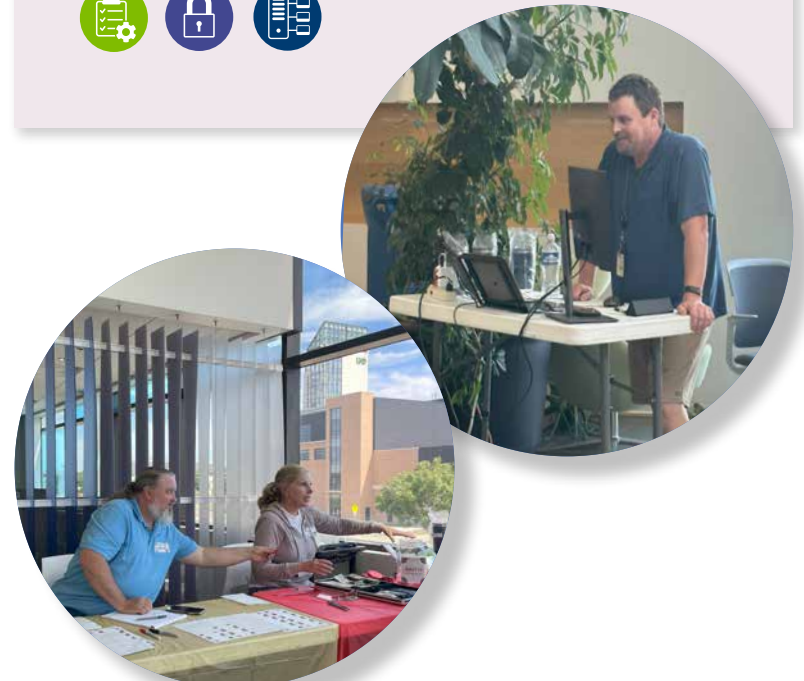
CTS Collaborative Teams:



Next Generation Data Center - Microsegmentation

The NDUS Data Center was designed with security in mind. As technology matures at a rapid pace, methods to reduce server attacks must be adapted to protect system data. CTS implemented microsegmentation in the Data Center, an approach that divides networks and servers into segments, allowing for the application of individual security policies for each segment to control access at a more granular level. This process will monitor and control communication between servers in the Data Center, resulting in reduced attack surface by preventing lateral movement. It also identifies workload behavior anomalies, helps remediate threats, and continuously monitors compliance.

CTS Collaborative Teams:



Novelution - Electronic Research Administration & Compliance

Novelution is a web-based management platform that will streamline the administration and compliance of research grants for the NDUS's two major research universities: the University of North Dakota (UND) and North Dakota State University (NDSU). The project aims to digitize the paper-based processes of proposal submission, routing, approvals/revisions, and protocol compliance, resulting in significant time-saving efficiencies for faculty, departments, researchers, and staff. CTS is managing the implementation of six separate modules across both campuses; four at UND and six at NDSU. This strategic initiative aligns with the enhanced research vision of the North Dakota University System (NDUS), demonstrating dedication to supporting research excellence and innovation across the institutions.

CTS Collaborative Teams:    

Privileged Access Management



The 2021 security assessment, coordinated by the State Auditor's Office and conducted by Secure Yeti, identified the category of access control for privileged accounts as a significant high-risk issue for the NDUS. Implementing Privileged Access Management (PAM) for CTS is an important security initiative; compromise or misuse of a privileged account poses significant risk to the organization. A PAM solution will allow CTS to manage and secure administrative access and privileged accounts on CTS computers, systems, and infrastructure, providing visibility to risky privileged account behavior. Adhering to least privilege (bare minimum) principles can reduce the likelihood and impact of a credential attack.

CTS Collaborative Teams:    

■ FY24 CTS Project Roadmap ■

Centralized Logging


Centralized logging is a process where logs of important information are collected from systems, stored in a single location, then analyzed to identify potential security risks and facilitate incident response. Although centralized logging has been in place for CTS the last few years, future efforts include providing this same capability to all NDUS campuses.

CTS Collaborative Teams:  



Scholarship Management System

The North Dakota University System Financial Aid Office (NDUSFAO) has faced numerous issues with its existing scholarship management system (SMS), including inefficient manual processing, costly development, and support challenges. CTS is working with NDUSFAO to implement a new software as a service (SaaS) solution that will consolidate all activities related to the administration of ND state-funded grant, scholarship, and loan repayment programs. This new system is expected to streamline processes, respond quickly to changes for state-funded programs, and improve the quality of service provided to applicants. This will not only bring value to the NDUSFAO, but also greatly benefit the students of North Dakota by making the scholarship and loan repayment programs more efficient and accessible.

CTS Collaborative Teams:  

ERP Market Study

Since 2002, the NDUS has utilized Peoplesoft's Campus Connection, Financials, and Human Capital Management software products, along with over 40 integrated ancillary applications, for its Enterprise Resource Planning (ERP) solution. Collectively, these systems provide the necessary tools for CTS, the System Office, and the 11 institutions to manage their respective business processes across different departments and functions. This fall, NDUS will embark on a several-month analysis of the current global ERP software market to determine how the existing system stacks up against others in meeting the changing business needs of the university system.

The purpose of the study is to understand ERP market trends and developments. By identifying the strengths and weaknesses of the current system and other ERP solutions, NDUS can evaluate how each will integrate with existing applications. The market analysis has five main objectives:

1. Conduct a current state assessment of the existing NDUS PeopleSoft ERP system.
2. Identify the top ERP solutions that fulfill NDUS's business needs.
3. Evaluate the potential benefits and drawbacks of implementing a new ERP system for NDUS.
4. Assess the risks with implementing a new ERP system and identify strategies to mitigate them.
5. Estimate the costs associated with implementing a new ERP system and prepare an appropriations request to present during the next legislative session.



CTS staff attended Workday for Higher Education at Ohio State University, an event comprised of educational and networking opportunities related to the Workday system and ERP product innovations.

A comprehensive analysis of the ERP market will yield the essential data required to formulate a detailed Request for Proposal (RFP) and empower NDUS to make well-informed decisions in selecting the most suitable solution that meets the needs of university system.

CTS Collaborative Teams:



■ Ongoing CTS Collaborations ■

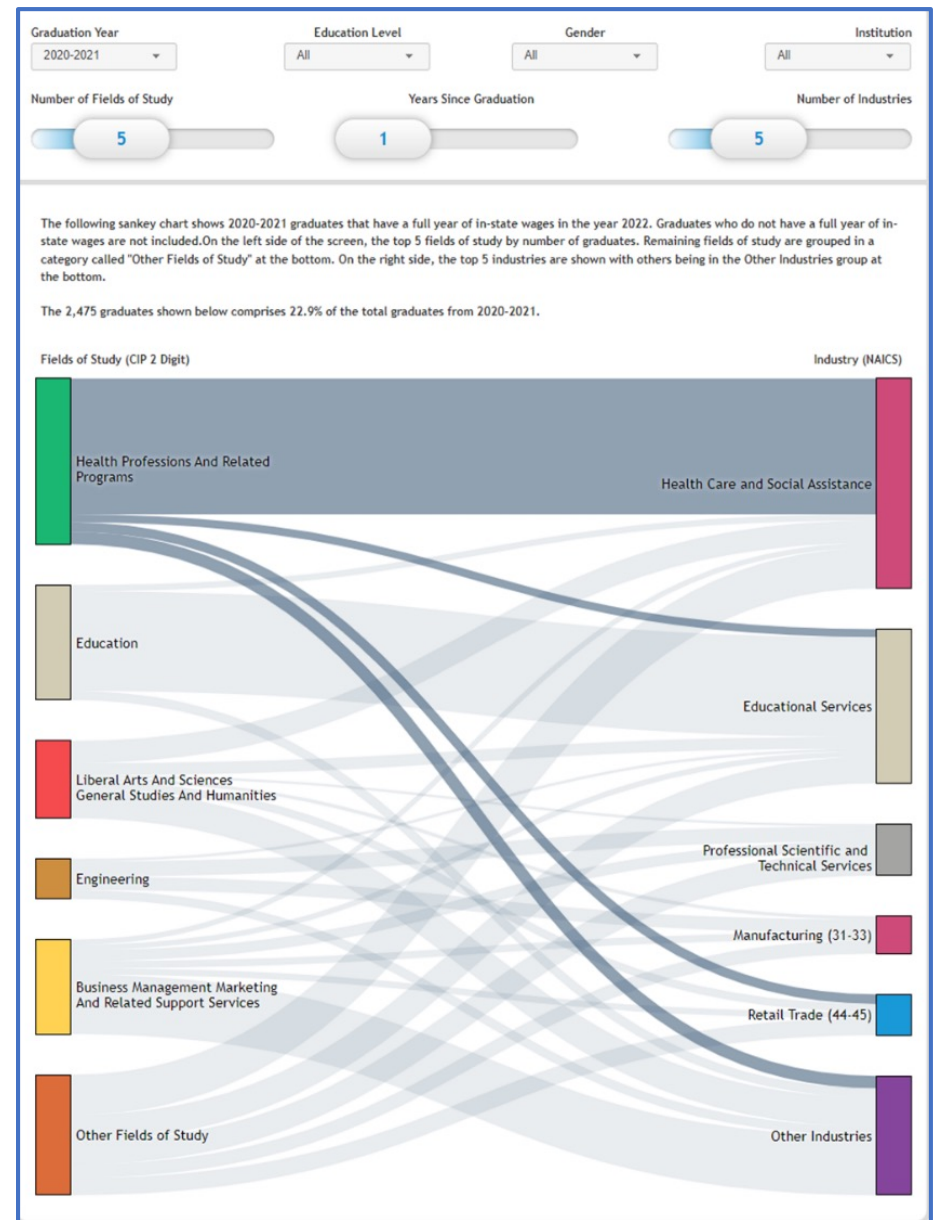
SLDS

The Statewide Longitudinal Data System (SLDS) was established in 2007 by an act of the state legislature for the purpose of collecting and analyzing data that could be utilized for mandated federal reporting and provide greater support for North Dakota's K-20 students. SLDS is a series of secured data warehouses, managed by NDIT, that are comprised of historical education and workforce information gathered from several North Dakota state agencies. The availability of this data makes it possible to track an individual's education and workforce journey, evaluate program effectiveness, and enable NDUS to respond to education and policy questions that cross agency boundaries.

CTS maintains both an operational and a governance role for the SLDS. The PeopleSoft Campus Connection team works with NDIT to ensure that NDUS student data is transferred securely and accurately to the SLDS. This team also assists in the development and maintenance of SLDS-supported data systems, including the North Dakota Scholarship Management and the Reverse Transfer systems.

The Director of Institutional Research serves on the SLDS Committee, representing the NDUS. This committee is the governing body of the SLDS and provides operational oversight and strategic planning, establishes policies and rules regarding SLDS data, and works to ensure all SLDS data is secured and protected as required by federal and state laws and NDUS policy.

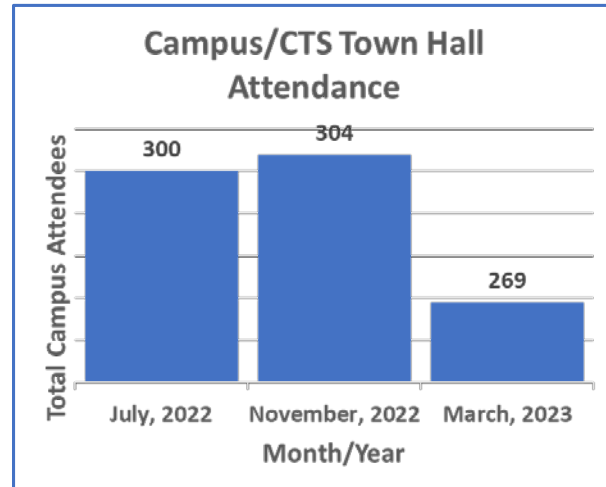
CTS Collaborative Teams:



From insights.nd.gov; the North Dakota Post-Secondary Outcomes dashboard driven by SLDS data. This image shows NDUS graduates by field of study and the industry in which they subsequently gain employment in North Dakota.

ServiceOne

The ServiceOne Program was approved in July 2021 with the goal of improving the delivery and support of CTS' products, systems, and services for the NDUS institutions' staff, faculty, and students. This multiyear program incorporates the ITIL® service management best practice framework to aid in establishing a more cost-effective, secure, and stable IT environment prepared for growth, scale, and change.



Last year, CTS implemented five ITIL® practices, including Organizational Change Management, Relationship Management, Incident Management, Problem Management and Service Desk Management. The Relationship Management Practice focuses on strengthening communication and working relationships with the campuses' personnel. To create more open dialogue between CTS and the institutions, in-person and virtual Town Halls are organized for each campus twice per year as an opportunity for CTS to share new information or updates and for campus staff to ask questions and provide feedback.



In January 2023, eighteen months into the ServiceOne Program, campus users who had submitted Incidents and/or Service Requests were surveyed to gauge the level of progress CTS had made toward attaining ServiceOne's documented objectives. ServiceOne-specific questions were also added to the biannual CTS Employee Engagement Survey to measure the level of attainment of employee-centric program objectives. Thematic results for both are noted on the chart.

Most positive differences resulting from ServiceOne initiatives:	
Campus Users	<ul style="list-style-type: none"> • Ease of ticket submission • Simple, easy-to-use portal • Increased communication and responsiveness from CTS
CTS Employees	<ul style="list-style-type: none"> • Common terminology • Clear guidelines for managing tickets • Centralized ticketing • Streamlined processes and procedures • Defined service expectations • Performance baselines and reporting • Relationships and communication with the campuses has improved • Enhanced data and metrics to enable data-driven decision-making • Improved customer service • Additional training

CTS Service Desk

The role and responsibilities of the original CTS Help Desk were restructured and expanded as part of the implementation of the Service Desk Management Practice. Now renamed, the CTS Service Desk serves as the entry point for fulfilling submitted Service Requests and resolving reported Incidents. Service Desk Agents are also responsible for logging, categorizing, and documenting all calls or tickets received, and follow standardized protocols to communicate major incidents or assign more complex service requests to the appropriate CTS staff.

In conjunction with the rollout of the Incident and Service Desk Management Practices, CTS created a single Incident reporting form and redesigned the help ticket submission portal. These efforts stemmed from user feedback previously collected through ServiceOne focus groups. Multiple users from each campus, along with CTS staff, reviewed portal samples and identified components and functionality that would improve the experience when requesting a Service or reporting an Incident. Users preferred a clean, simplified interface with essential features that were labeled with a clearly understood purpose.

The new ticketing portal displays the current health status of all CTS-supported systems that will indicate that either all systems are operational or an issue has been identified and is being reviewed or worked on. The portal also provides a single button to report something isn't working as it should, functionality for users to view their active or previously submitted tickets, and enhanced search capabilities to easily locate the correct ticketing form to request a particular CTS Service.

This year, while maturing existing practices into sustainable operational procedures, CTS successfully deployed three additional practices:

PRACTICE	PURPOSE	FORECASTED BENEFITS
Service Request Management	To support the agreed quality of a service by fulfilling all pre-defined, user-initiated service requests in an effective and user-friendly manner.	<ul style="list-style-type: none">• Increased user productivity.• Increased user satisfaction.
Service Level Management	To set clear business-based targets for service performance, and to ensure that delivery and support of services is properly assessed, monitored, and reported against these targets.	<ul style="list-style-type: none">• Increased accountability to institutional personnel regarding incident resolution and service request fulfillment within defined and agreed timeframes.
Change Enablement	To maximize the number of successful service and product changes by ensuring risks have been properly assessed, authorizing the implementation of changes, and managing the change schedule.	<ul style="list-style-type: none">• Increased availability of CTS' products, systems, and services.• Minimal impact to business operations from planned outages.

As part of the Service Level Management practice, CTS negotiated a blanket Service Level Agreement (SLA) with all NDUS campuses and the System Office which documents the level of service that CTS is expected to provide regarding Incident Management and Service Request Fulfillment across the NDUS. The SLA includes specific response and resolution targets for defined priority levels; the higher the priority, the quicker an Incident or Service Request must be acknowledged and resolved or fulfilled. Performance is measured and reported monthly to institutions and CTS staff.

The implementation of these eight ITIL® practices has provided CTS with more opportunities to collect and analyze quantifiable data that not only highlights achievements made in the delivery and support of CTS services and products but also identifies where further improvement is needed. These insights serve as valuable tools that help drive informed decision-making throughout the organization.

Overall, the ServiceOne Program has enhanced the efficiency and quality of service provided by CTS staff, resulting in more effective communication and stronger relationships between CTS and NDUS campuses.

Over the next two years, CTS will focus on continual improvement of ServiceOne operational practices while integrating the following new practices to further enhance benefits:

PRACTICE	PURPOSE	FORECASTED BENEFITS
Knowledge Management	To maintain and improve the use of information and knowledge across the organization.	<ul style="list-style-type: none"> • Campus end users can troubleshoot and remedy issues experienced with enterprise applications, products, systems, and services, improving user satisfaction and productivity. • Knowledge will be formatted consistently across CTS. • Document repositories will be consolidated for easy access.
Workforce and Talent Management	To ensure the organization has the right people in the correct roles, with appropriate skills and knowledge, to support its business objectives.	<ul style="list-style-type: none"> • Enables organizations, leaders, and managers to focus on creating, executing, and evaluating an effective and actionable people strategy including (but not limited to) succession planning, professional development, career ladders, and onboarding practices.
Service Catalog Management	To provide a single source of consistent information on all services and service offerings, and to ensure availability to the relevant audience.	<ul style="list-style-type: none"> • Provides a single-entry point for campus users to request available products, services, applications, and systems provided by CTS. • A technical view of user-facing products for CTS to facilitate troubleshooting and development of test plans for changes to the infrastructure, increasing system availability.

CTS Collaborative Teams:



Information & Data Executive Governance

Background History

In September 2018, the CIO of Core Technology Services established an informal functional group to develop standards and implement solutions that would address inconsistencies in the methods used for accessing and reporting data across the NDUS. The focus was to standardize the use of Microsoft Power BI, a business intelligence (BI) tool, to extract student, human resource, and financial data from NDUS systems and develop secure, certified datasets for use in the creation of reports and interactive dashboards. This group completed work on multiple fronts but lacked a formal governance structure.

In early 2020, CTS engaged CATCH Intelligence to conduct a BI and data warehouse assessment. Consultants examined system documentation and analyzed questionnaire and interview responses from CTS and campus stakeholder groups to understand the current management, governance, delivery, and reporting methods for NDUS enterprise system data. Upon completing the assessment, CATCH Intelligence identified BI operational gaps and provided recommendations and best practices for improving data management, governance, and BI/analytical capabilities, and defined a future state roadmap for a successful migration to a self-service, data-driven culture for NDUS.

In response to the assessment, the CTS CIO created the NDUS Information and Data Executive Governance (IDEG) Committee to:

- Take the lead role in the creation, implementation and oversight of NDUS enterprise-level information and data management goals, standards, practices, and processes, and ensure alignment with the goals of the North Dakota University System.
- Provide expert advice and support concerning all aspects of information and data governance, including data ownership, protection, privacy, quality, usage, classification, and retention.
- Promote data governance at an executive and senior management level.

In January 2021, the IDEG Committee expanded by forming three subcommittees – Functional Development, Technical Development, and Campus Representatives – to assist with the establishment of a formalized, enterprise data governance framework. Subcommittee members included staff from CTS, the System Office, and each NDUS institution, which provided a diverse mix of experience, perspective, and skillsets to draw from. This major effort evolved into a full-scale project filled with goals and objectives, along with a detailed work plan and a two-year implementation timeline. By March 2023, all of the planned project work was successfully completed, resulting in a solid foundation for the NDUS's enterprise data governance structure.

Data Governance Project - Years One & Two Accomplishments

- Established a governance charter for the IDEG Steering Committee.
- Defined subcommittee roles and responsibilities.
- Documented operational processes and procedures.
- Created data management practices and standards.
- Developed a data catalog that contains available enterprise data models for use.
- Delivered the first centralized data models for systemwide use
- Implemented automated processes for data model development and access requests.
- Created a SharePoint Information and Data Hub as a one-stop site for NDUS enterprise data resources.
- Completed a Business Intelligence Competency Center (BICC) discovery engagement with CATCH Intelligence to identify specific data and BI governance gaps within IDEG and CTS. The results of this evaluation outlined the next steps for IDEG to take in its effort to move NDUS up the data maturity curve.

Recent IDEG Projects and Future Initiatives

NDUS Data Lakehouse

In more recent months, IDEG identified the need for a data lakehouse, a data platform that merges the best aspects of both a data warehouse and data lake, as a flexible, efficient, and secure cloud-based system to expand the capacity for centralized NDUS data storage. To ensure CTS could manage and maintain a data lakehouse that would be scaled to accommodate future needs, IDEG worked again with CATCH Intelligence to successfully produce a data lakehouse proof of concept (POC). Members of IDEG are currently implementing best practices and recommendations learned during the POC to create a data lakehouse production environment that will centralize enterprise data consolidation, access, and delivery for the NDUS. Evaluation procedures are being developed to review criteria, such as need and value, to determine which NDUS enterprise data will be added to the data lakehouse once it goes live.

Financial Budget Data Model & Dashboard

IDEG rolled out a financial budget data model and dashboard template to campuses by request. The dashboard allows NDUS entities to compare their budget to actual spending. Institutions can choose to use the dashboard's general budget reports as delivered or customize the dashboard template by adding extra visualizations to meet campus-specific reporting needs.

Artificial Intelligence and Machine Learning - Policy & Best Practices

Institutional Research collaborated with IDEG members to draft a policy on the use of Artificial Intelligence (AI) and Machine Learning (ML); this policy was recently adopted by CTS and is currently under review by the SBHE as a potential systemwide policy. A small workgroup was created within IDEG to research and draft best practices for the appropriate use and development of AI/ML models.

Standardized Processes for IDEG Developments

IDEG is currently working on creating standardized, repeatable processes for IDEG data model and dashboard developments; processes will also be developed for testing, validation, certification, as well as just-in-time training for dashboard usage and customization. Once completed, these processes will be piloted for upcoming developments, further refined, and fully implemented. The goal is to ensure a consistent practice is followed by CTS subject matter experts and a seamless experience is provided to users, starting from the initial development request through its delivery to NDUS stakeholders.

Centralized Data Governance Platform/Tools

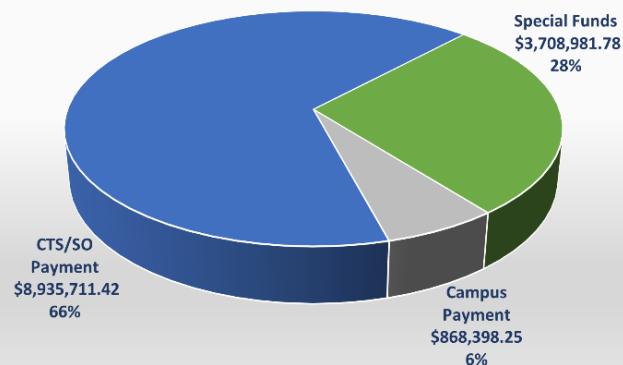
A small team of campus and CTS staff worked together to identify requirements for a data governance platform, a collection of tools to help define, manage, and secure NDUS's enterprise data resources. The identified requirements were met by Microsoft Purview, a SaaS solution included with CTS's current Microsoft licensing. IDEG will kick-off implementation of the platform in the coming year.

CTS Collaborative Teams:

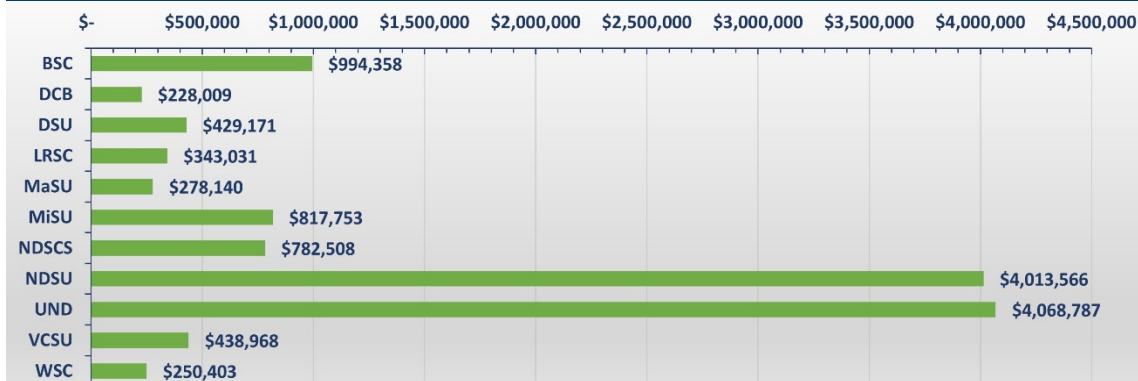


NDUS System Service Cost Evaluation

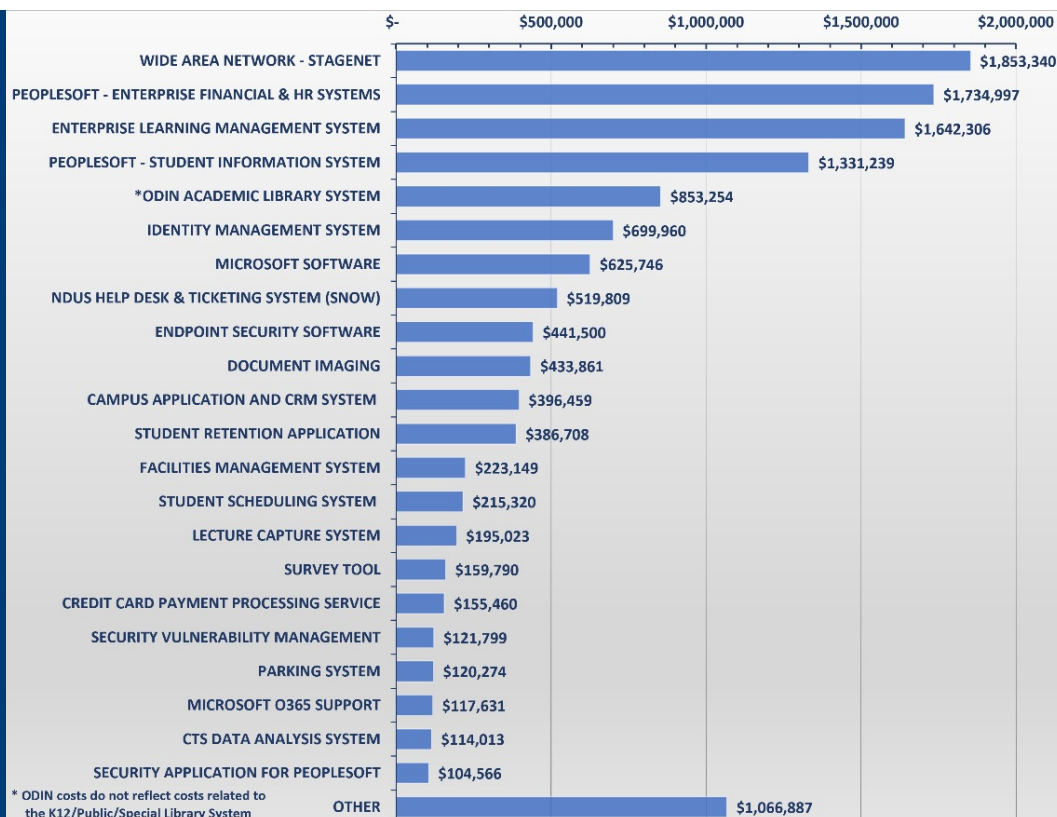
NDUS Support for System Services



NDUS System Services Spend by Institution (Student FTE)



Cost by System Service (Over \$100,000)



**NDUS System Services
Spend - per Student
per Year: \$381.71**

Core Technology Services - Goals

Four goals provide Core Technology Services (CTS) with the guiding principles for information technology planning and system implementations. These information technology goals are shared among the eleven NDUS institutions and align with the six goals outlined in the North Dakota State Board of Higher Education's strategic plan:

Alignment with SBHE Strategic Plan

Goal 1 - Financials: Optimize student affordability while maintaining campus financial health

Goal 2 - Responsive: Provide access to programs people want, where and when they need them

Goal 3 - Student Success: Prepare students for success

Goal 4 - Unified System: Maximize the strengths of the unified system

Goal 5 - Research: Research Excellence and Innovation

Goal 6 - Workforce: Workforce Development

Goal 1

Support the North Dakota University System's infrastructure needs.

This goal provides the foundation for Information Technology (IT) in support of NDUS business processes. Infrastructure integrates and links information technology systems and allows those systems to communicate with each other over a network. Infrastructure 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.

Goal 2

Facilitate digital transformation of systems and services.

Digital transformation enables reduced cost and improved productivity, customer service, governance, and compliance. To remain competitive, the NDUS will facilitate and provide opportunities for digital transformation.

Goal 3

Provide a user experience that is responsive to changing needs and expectations.

In the rapidly evolving world, the needs and expectations of our users - students, faculty, staff, North Dakota residents, and affiliates worldwide - are changing. The NDUS systems and services must be responsive to meet their needs and address their expectations.

Goal 4

Improve and enhance the North Dakota University System collaborative efforts

By working together and with the State, K-12, and other constituents, the NDUS is able to implement, integrate, and support systems and services that further the missions of NDUS institutions.