

North Dakota University System

Core Technology Services 2020-2021 Annual Report

Report generally covers the period from July 1, 2020 to June 30, 2021





Dr. Mark Hagerott Chancellor



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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.

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 users' focus.

Improve and enhance North Dakota University System collaborative efforts.

The mission of Core Technology Services (CTS) 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.

A Message from the Vice Chancellor



Greetings,

Core Technology Services (CTS) is the technical arm of the North Dakota University System (NDUS) with goals and objectives that align and support the strategic vision of the NDUS. During these times of rapid digitization, global pandemics, and enhanced customer expectations, it is critical that CTS continue to focus on strategic goals and operational effectiveness.

Many accomplishments are focused on bringing value to the end users. The PeopleSoft team continues to expand and enhance the capabilities of the Human Capital Management, Financial Management, and Campus Connection environments by leveraging automated processes for institution departments to build efficiency while they conduct their daily business and internally streamline functional and technical efforts. The Enterprise Services team continues to bring new functionality and capabilities to Blackboard, Office365, document imaging, and the NDUS Help Desk. The Infrastructure and Operations team has expanded the services available to institutions by offering managed DNS/ DHCP and VPN services.

Information security continues to be a priority for CTS and all NDUS institutions. CTS has partnered with North Dakota Information Technology (NDIT) to implement behavioral-based endpoint protection at all NDUS institutions. This effort will lead to the development of the NDUS Security Operations Center using shared toolsets that will improve the ability to detect and respond to security threats.

The goal of CTS is to provide excellent service and systems to NDUS institutions. To do this, CTS initiated an extensive review of current processes with a focus on improvement across the entire organization. CTS and the NDUS institutions are collaborating to implement eight management practices to provide exceptional services. We call this "ServiceOne - Partnering for Progress" and are fully committed to improving services.

I encourage you to read further to learn more about the activities and accomplishments of the NDUS CTS team.

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."



Institutional Research (IR)

NDUS Department of Institutional Research is responsible for systemwide 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 Research 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)
- Provide a lead role in establishment of systemwide data governance through Information and Data Executive Governance (IDEG)
- Assisting the State and NDUS in developing dashboards for COVID-19 data

Data and Reporting Services

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

NDUS Systemwide IR Collaboration

The Institutional Research team leads the collaboration effort of the IR staff among all NDUS institutions and the 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 to validate data and methods are consistent, and to ensure IR staff are supported in their work and professional development needs. The IRUG meets annually for an extended face-to-face meeting and communicates daily on the IRUG listserv.

FY21 Institutional Research Service Tickets Completed by Category





NDUS Shared IR Services

The shared services provide contracted data and reporting services to NDUS institutions, focusing primarily on federally and state mandated reporting, including IPEDS and Student Achievement Measures (SAM).

Past Year Major Accomplishments

- Organized a major upgrade of the Strategic Planning OnLine software used for presidential evaluations
- Implemented labor market analysis software (Burning Glass) across the university system
- Automated data workflows for analytics for NDUS Funding Formula, Tuition Estimates, NDUS Enrollments and Human Resources Measures
- Created K-12 dashboards for federal accountability on Insights.ND.Gov
- Worked with NDDPI and NDIT for upgrade of state K-12 reporting system
- Completed 59 internal and external requests for K-12 data
- Designed and implemented a public dashboard for the Governor's Office for K-12 school attendance mode during the COVID-19 pandemic
- Conducted statewide teacher and parent surveys for DPI to understand the effects of COVID-19 on K-12 ecosystem
- Moved user group documentation and meetings onto TEAMS platform
- Major player in formation, development and ongoing work of the Information and Data Executive Governance Steering Committee (IDEG)
- Worked with Bismarck State College to create a cost analysis for offered courses
- Departmental staff acted as analytical support for development of public dashboards during initial stages of the Governor's COVID-19 Unified Command Center

Office of Human Resources (OHR)

The Office of Human Resources (OHR) provides human resource services and support to CTS and System Office staff of approximately 153 employees. Fifteen new staff members were recruited in FY 21 at CTS and one new staff member at the System Office. OHR supports the mission of the NDUS and CTS by providing services that attract, develop, and retain a highly qualified and diverse workforce. OHR services include recruitment, employee relations, learning and development, performance management, OHR information management, policy implementation, policy compliance and employee engagement/recognition. The OHR team consists of one director and one part-time administrative support position.



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Transfer to new agency

Resignation

Learning and Developing

CTS provides employee professional development using several delivery methods, including 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 Infobase which offers a variety of training topics from Microsoft tutorials to workplace behavioral and environmental topics. CTS allotted a budget to each division, allowing prioritization of professional development requests within each department. OHR offers supervisor training quarterly. The OHR Director also works with the CTS/ System Office Professional Development Committee to provide additional professional development opportunities such as book clubs and presentations by CTS staff.

Recruiting

The OHR team assists CTS and System Office leaders in fulfilling recruitment requests with well-qualified candidates within a minimal turnaround time. The OHR department also advises the System Office on presidential searches.

Performance Management

The OHR 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. The OHR Director is a member of the Executive Steering Committee for the project to implement an electronic performance management system using PeopleSoft.

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. OHR 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. OHR 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. CTS/System Office Staff Senate and the NDUS Office of Compliance and Ethics support the surveys with OHR oversight.

Human Resource Council (HRC)

The Office of Human Resources is part of a larger system council called the 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. 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 twoyear institution, one from a four-year institution and one from a research institution.

Work-Based Learning

As part of the CTS Strategic Plan, CTS continues to promote a culture that supports the North Dakota community IT workspace. CTS staff development is needed on an ongoing basis to ensure consistent training on items such as professionalism, security, service, and culture. To help develop IT talent across North Dakota, CTS works with institutions and local high schools by providing internship and apprenticeship positions.



Apprentice Program

CTS has partnered with Lake Region State College (LRSC) in their Apprenticeship Program. Modern apprenticeships build a highly skilled and customized flow of talent, preparing workers who typically stay around for the long term. This program allows the apprentice to work full-time while attending classes online with LRSC. CTS currently has three apprentices, one in each of the following departments: Information Security, Endpoint Services, and Network Services. CTS also serves on the SAE Executive Board and Advisory Committee which helps to share and learn from others in our area.

Internships

CTS has three part-time employees who are also students at the University of North Dakota – one working in Network Services and two working in System Administration. These students gain work experience in their field while attending classes. Another program that CTS participated in this year was the high school pre-internship program with the Grand Forks Public Schools (GFPS). This high school intern worked in the Security department gaining experience working in information security through job shadowing, hands-on work and mentoring.

Work-Based Learning Roadmap

The work-based learning program will continue to develop over the next year. Once the pandemic is over and CTS is back to normal, the coordinator will explore opportunities to continue the pre-internship program with the GFPS. Open positions will continue to be reviewed for opportunities for apprentice and intern programs.

Future Goals for OHR

- Enhance the CTS and System Office HR Teams site to include expanded & timely communications and current materials.
- Develop HRC onboarding materials and mentor program for new HR Directors.

The Information Security (InfoSec) department, in collaboration with the NDUS Information Security Council (ISC), has identified 10 strategic initiatives as part of a 5-year plan. These initiatives are aimed at protecting CTS systems and data from known cyberattack vectors. These initiatives align with the Center for Internet Security's (CIS) 20 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.

InfoSec has planned and implemented several security initiatives during this past year. The security planning has been based on feedback from the ISC from the FY20 information security strategic planning summit. Also, CTS and member institutions participated in an information security assessment sponsored by the ND State Auditor's Office and conducted by a third-party security company, SecureYeti. The results from the information security strategic planning summit and findings from the security assessment have been and will continue to drive security initiatives within CTS and to support NDUS institutions.

Figure 1 - Cortex XDR Alerts (March through August 2021)



Security Operations

Security Operation Center (SOC) - during this past year, the InfoSec hired a Security Operations Manager and created the NDUS Security Operations Center (SOC). The NDUS SOC will continuously monitor the security posture within the NDUS with the intent to prevent, detect, analyze, and respond to cybersecurity incidents happening at CTS and NDUS institutions. Developing this security operations capability was a key finding in the SecureYeti security assessment and will continue to be a priority over the coming year.

Centralized Security Orchestration, Automation, and Response (SOAR) - In cooperation with the North Dakota IT (NDIT) department, and to support the SOC, InfoSec implemented the Palo Alto Cortex XSOAR platform this past year. This platform will allow the SOC to manage the response to security incidents and alerts, streamline security processes, connect various security tools and systems, and enable automated responses for repetitive security tasks that often don't require human intervention. In the coming year, work will continue to create automated playbooks and workflows within the platform to allow security operations analysts to be more efficient at handling the many security incidents and alerts occurring daily across the NDUS, allowing them to focus on more urgent and critical incidents.

Security Information and Event Management (SIEM) - NDUS systems, applications, and networks are generating a huge amount of security events and logs. A SIEM analyzes and correlates these logs and alerts on the important security events. A SIEM will allow the SOC to be much more efficient and increase the likelihood that the SOC will be alerted to important security incidents occurring throughout our environment. During this past year, Information Security implemented Splunk Enterprise Security (ES) which is a SIEM that will enable the SOC to quickly detect and respond to internal and external attacks. Additional tuning and alert creation will continue in Splunk ES in the coming year.

Endpoint Security

Endpoint Detection and Response (EDR) - A key component to enable SOC operations is the deployment of a security detection and response platform called Palo Alto Cortex XDR. NDUS initiated a project this past year to deploy Cortex XDR to all NDUS institutions. Since deployment began in March 2021, Cortex XDR endpoint agents have generated over 33,700 security alerts (Figure 1). To date, NDUS has deployed this platform to over 7,000 endpoints and is enabled at five NDUS institutions as well as CTS and the System Office. Plans are in place to go live at additional institutions by the end of the fiscal year.

Mobile Device Management (MDM) - The Information Security department recognizes that many of the faculty and staff members at NDUS institutions are increasingly using mobile devices to access NDUS and institution systems and data. Making sure these devices are secure from attack and compromise is a priority for NDUS. CTS is exploring Microsoft Intune as a potential platform for MDM at CTS and the NDUS institutions.





Data Loss Prevention

Sensitive Information Discovery - Avoiding loss of data is paramount to security. InfoSec has procured a sensitive information discovery product called Spirion, which NDUS will continue to deploy and expand to find sensitive data on NDUS systems and reduce the footprint.

Sensitive Information Protection - When institutions must store sensitive data on NDUS systems, identifying and protecting it from unauthorized access is critical. During the coming year, Information Security will be exploring endpoint, server, and cloud data classification and encryption solutions, such as Microsoft Data Classification and Microsoft Information Protection (MIP), to further identify and protect sensitive data.

Vulnerability Management

Vulnerability Scanning for Internal Systems - NDUS currently scans thousands of systems across CTS and 11 institutions with the Tenable.io Vulnerability Management system implemented by InfoSec. This system is helping to mitigate threats and reduce the attack surface to systems, services, and applications. During this past year, InfoSec worked with NDUS institutions to expand scanning activities to include more of the internal systems and applications housed at NDUS institutions.

Centralized Logging

Centralized Logging for NDUS Institutions - InfoSec and a CTS functional team implemented Splunk centralized logging to assist in identifying security risks and conducting incident response for CTS systems and applications. Future efforts include providing centralized logging capabilities for NDUS institutions.

Systems and Software Management

Microsoft 365 security - Hackers use email and other collaborative systems to introduce many of the threats faced by the NDUS institutions, including malware, ransomware, phishing, fraud, data loss, etc. This past year, CTS conducted a third-party assessment with Netrix to identify existing threats and capabilities within our Microsoft 365 environment and developed a roadmap to address the threats. During the coming year, InfoSec will review the roadmap to identify opportunities to implement system capabilities to address and minimize this increasing risk.

Identity and Access Management

Privileged Account/Access Management (PAM) - several key findings in the SecureYeti security assessment dealt with the management of administrative and privileged accounts and access. Information Security will be exploring PAM solutions for CTS, with the potential to expand to NDUS institutions, in the coming year.

Administrative Services (AS)

The Administrative Services (AS) team handles the general administrative tasks for the Grand Forks site including the reception desk, meeting room setup, mail, travel arrangements, facility issues, and departmental data entry/file management. AS also includes other administrative services such as financial, IT planning, procurement, and project management services.

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 our ticketing system. AS leads a crossfunctional team who provides the support for the tool.

This team is working on continuing to expand and revise the use of the system, develop better reporting, and improve CTS departments' productivity with the tool. Over the next 12-18 months, the team's focus will be on deploying more ITIL processes via the system. The team is also advising NDUS institutions as they explore their own work management options and consider TeamDynamix.



Financial Services

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

As part of the American Rescue Plan, CTS was awarded \$1.3M+ of federal CARES Act funding. The Financial Services team managed these funds by developing a process to determine allowability of expenses, obtain approvals, track spending, and store expense documentation for future reference. The funds were used for expenses incurred as a direct result of the COVID-19 pandemic including instructional design resources, technology needs, expanded learning management system storage, the Dakota Digital Academy, personal protective equipment (PPE), air purification, sanitizing and cleaning supplies. The 11 NDUS institutions, the System Office, and CTS benefited from the services and supplies obtained with this federal funding.

The Financial Services team is currently working to automate the inventory process, streamline P-card transaction processing, and increase vendor ACH participation.

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

P³/M is responsible for issuing the mandated IT strategic plans and annual report, overseeing all CTS procurement, and performing all Level 3 & 4 procurements for the organization. This team also manages some of the most complex projects and performs Major IT Project Oversight.

IT Planning

The IT Planning team is responsible for assisting NDUS and all institutions with developing the biennial IT Strategic Plan and publishing required reports. This area utilizes business analysis practices and supports the rest of the organization with templates and training. Key reports that are published to the CTS website include:

- The CTS Annual Report
- The CTS Strategic Plan
- The biennial IT Strategic Plan

The team continues to work in collaboration with the North Dakota Information Technology (NDIT) department on the mandated biennial Statewide IT Strategic Plan by collaborating with CTS leadership and institution CIOs to ensure projects and institution initiatives are reflected on the NDIT Dashboard. The purpose of the dashboard is for stakeholders to view at any time, up-to-date initiatives that are happening around the state.

This year, the planning team collaborated with the CIO council and made the shift from the 1901.3 SBHE Policy and NDUS Procedure to an updated 1201.1 procedure. Submitted 1201.1 requests are vetted for approval, evaluating factors such as cost, resources, and schedule. There were 15 1901.3 requests and 14 1201.1 requests submitted this past fiscal year, for a total of 29 (Figure 2).

The planning team received positive comments from institution ClOs relating to the change in processing these requests. The team continues to make incremental improvements to the process and is currently working with the Enterprise Services team on developing a real-time dashboard to include the 1201.1 requests and make it available to all ClOs.



Figure 2. Annual 1901.3 and

Procurement

The procurement team supports both CTS and the institutions with IT purchases and software research. This area manages over 150 active contracts and offers centralized contracts that can be utilized by any NDUS institution. Further responsibilities for this team include ensuring CTS remains in compliance with all software licensing agreements and providing support to the system office for some of their procurement processes. The team also helps to advise institutions on their procurements. Additionally, the procurement team participates in state and national procurements, collaborating with the State Procurement Office and the Midwest Higher Education Compact. By expanding the use of the PCard, the team increased the CTS rebate last year by 719%.

Project Management

The project management team manages some of the most complex projects in the organization, many of which affect multiple institutions. This team is also responsible for performing Major IT Project Oversight as mandated by N.D.C.C. This past year, the team began to collaborate on a regular basis with the NDIT project team to discuss new templates, updates to methodology, review updated standards, and much more. The value of creating a synergy of like minds will assist in preventing rework and redesign, establishing new relationships, and aligning the two teams when working on projects together.

Overall, the CTS organization completed 41 projects this past year, reporting over 12,702 CTS hours, not including time from institutions or vendors. Additionally, the organization had two cancelled projects and one on hold. Currently, there are 38 projects classified as pending or in-process status, with most scheduled to be completed within the 2022 fiscal year. Table 1 describes projects assigned to P3M Project Managers that have been completed or are currently active.

Table 1. CTS Projects

Project Name	Description	Status of Project
Maxient Project	Implemented Maxient which replaced Adirondack Solutions' Conduct Coordinator (CoCo) at seven institutions as well as provide new conduct case management to two other institutions: Bismarck State College, Dakota College Bottineau (new), Dickinson State University, Mayville State University, Minot State University, North Dakota State College of Science, North Dakota State University, University of North Dakota, and Williston State College (new). Maxient is used as a case management system to manage student and employee cases of discrimination, harassment, sexual misconduct, persons of concern, and other types of conduct and disciplinary matters. With the complexity of Title IX regulations, this system helps the institutions maintain compliance with the regulations.	Completed September 2020
Agenda.NET	Installation and implementation of a Board Management software tool for the NDUS System Office. The contract Statement of Work (SOW) was completed: including documentation, managing schedules, facilitating internal CTS resources, communications with vendor; scheduling, hosting, and recording training sessions and facilitating all meetings as requested.	Completed September 2020
Recruiting Solutions	Implemented the HCM Peoplesoft pillar Recruiting Solutions (RS) module consisting of Candidate Gateway and Talent Acquisition Manager. These modules streamline the recruiting process resulting in a more positive experience for candidates, hiring managers and recruiters. The systems allow institutions to generate reports and track their recruitment metrics more easily and efficiently. RS provides text messaging services to better engage job candidates in recruitment communication. As part of this project, CTS issued an RFP for Job Recruitment/Advertising services to procure cooperative contracts with competitive pricing.	Completed October 2020
FY20 UND Network Upgrades	For FY20, several UND buildings were identified as needing significant network upgrading to bring an increased level of network service to the UND community. Upgrades included wireless access points, switches and other network hardware as well as removing unused access points in ten buildings at the University of North Dakota	Completed November 2020
Supplier Registry	The project implemented the eSupplier Connection module to the current PeopleSoft Financials System (FIN). The project team created a document for best practices/guidelines for all institutions to use when managing suppliers in the FIN system. The project allowed suppliers to manage and maintain their own information in the system.	Completed October 2020
Splunk Enterprise Security (ES)	The Splunk ES project included the procurement and implementation of a superior security product that would enhance and strengthen NDUS's current centralized logging system. Using the current centralized vendor and a third-party vendor, consultants assessed the current system, and then work closely with CTS security experts through knowledge transfer to effectively detect and respond to threats by utilizing automation and improved overall orchestration of the current logging system.	Completed November 2020

Table 1. CTS Projects (continued)

Project Name	Description	Status of Project
Student Data Privacy Bill of Rights	The SBHE passed policy 503.2 Student Data Privacy Bill of Rights on May 29, 2020. The policy states in summary: The SBHE, the NDUS, and NDUS institutions are committed to responsibly collecting, storing, and using the PII of students, while protecting student PII from unauthorized access or disclosure. This Policy reflects the reality that students are the owners of their PII and should control access to and distribution of their PII to the greatest extent possible, yet many NDUS programs and technologies require student PII to function for the students' benefit. This Policy outlines student rights related to the privacy and security of their educational and personal data. CTS was responsible to comply with the new policy by December 2020 and have a process in place for when a student submits a request about PII data, CTS is prepared to respond. The CTS solution has been copied by some institutions to meet their requirements under this policy.	Completed May 2021
Blackboard Analytics for Learn (A4L)	The implementation of Blackboard Analytics for Learn (A4L) assisted three institutions with the configuration of A4L by using the NDUS SaaS Learn environment and integrating with Campus Connection. A4L provides the opportunity for these institutions to run reports to obtain the necessary data that can be utilized in making informed decisions, resulting in strategic actions to improve efficiency, cost, and positively impact student success and their learning experience. This project laid the necessary groundwork to onboard additional institutions by request.	Completed June 2021
Authentication Redundancy	This project guided the implementation of a cloud-hosted solution which provides authentication redundancy to obtain access to cloud- based applications should the state network (STAGEnet) or data center become unreachable.	Completed June 2021
ServiceOne Program	 CTS plans to incorporate the ITIL methodology into daily business practices. The project will include multiple projects identified based upon an extensive Discovery phase which completed in July 2021. Discovery phase activities included: Assessing the current state of how we provide service Conducting interviews, and focus groups to understand the Voice of Governance, Voice of the Customer, Voice of the Technology Partner, and Voice of the Employee. Collected and analyzed data for the Voice of the Data The core team created a discovery report of findings and recommendations and drafted a 2-year roadmap. CTS is in the process of implementing the recommendations. 	Active
Cortex XDR	Deploying the Cortex XDR application to 11 NDUS institutions' endpoint computers. The project also includes the configuration of individual institution policies, training, and setting up access in the administrative console. More details are in the InfoSec section of this report.	Active
Novelution (ERAC)	 This project involves implementation of an electronic system to replace the use of manual, paper-based processes for the administration and compliance of research grants at NDSU and UND. There are a total of six different modules across the entirety of the project. During the past fiscal year, the Institutional Review Board (IRB) module and the Institutional Animal Care and Use Committee (IACUC) were fully implemented for both institutions. Also, the final piece of the base module Sponsored Research (SR) was started. The SR module was re-baselined in 2019 to separate the final financial back-end integrations with PeopleSoft (PS) for this module until after the two compliance modules above were complete. This work is scheduled to wrap in November 2021. Originally, NDSU contracted for all six modules and UND for the first three. During this year UND decided to join for the Institutional Biosafety Committee (IBC) module, and the contract was amended. This is scheduled to begin in November 2021. 	Active

Table 1. CTS Projects (continued)

Project Name	Description	Status of Project
PeopleSoft Test Framework	NDUS, along with the State of North Dakota, contracted with a vendor to automate, as much as possible, the application testing done in PeopleSoft (PS). This project involves the Human Capital Management (HCM), Financials (FIN), and Campus Connection (CS) applications. This is expected to improve testing accuracy, consistency, and reporting. It will also enhance regression testing and ease the challenge of staff turnover.	Active
Nelnet	This project will replace the current payment application, TouchNet and implement a new payment system, Nelnet, throughout the 11 institutions, System Office, and CTS. Included in this implementation are: Quikpay instance that will consist of 11 individual nodes, eBill, Payment Plans (PP), and Commerce Manager. Rolling out the details of the implementation to the institutions will be identified in the planning stages of the project.	Active
Next Generation Datacenter(s)	CTS designed the NDUS Data Center (DC) with security in mind. As the technology has matured, CTS needs to adapt and utilize all tools available. Protecting data includes segmenting servers and applications to ensure that the data center only allows traffic where needed. CTS needs to ensure the design of the network in the data center considers future projects in disaster recovery and continuity of operations.	Active
Information & Data Executive Governance (IDEG)	This project aims to establish a process, workflows, and governance structure to enable self-service Business Intelligence (BI) reporting and analysis within the NDUS. Catch Intelligence, a third-party consultant, has verified the increasing need for a centralized BI approach within CTS and identified current BI operational gaps. The project work completed this year has begun to address a portion of those gaps including development of a governance charter, roles and responsibilities for committee members, and several processes and procedures to ensure NDUS has a sustainable framework to mature its BI capabilities.	Active

Business Analysis

This past year, the P3M department hired a full-time Business Analyst. This new position allows the department to offer Business Analysis (BA) professional services to the CTS organization as well as managing projects and writing strategic planning reports. Departments can submit BA requests through the TeamDynamix ticketing application. The team piloted two BA requests, one internally with CTS and the other with an institution this past fall, both focusing on process improvement. Business Analysts are responsible for facilitating meetings, identifying key stakeholders to assist in defining the problem/need and eliciting requirements for possible solutions. A BA may also diagram the current state of a process and, with the assistance of stakeholders, diagram the desired state working through the challenges and requirements.

Also this year, CTS offered a BA Master's Certificate program to staff from various departments; eleven staff participated by completing a variety of BA courses. These courses will help prepare staff with various BA tasks such as diagramming, eliciting requirements, organizing questions to ask stakeholders, understanding the problem/need, and conducting stakeholder analysis activities.

Roadmap for Business Analysis

The goal for the upcoming year is to continue expanding the BA area by developing templates the organization can use, revising existing documentation and creating a BA methodology. To reach this goal, the organization can refer to resources provided by the International Institute of Business Analysis (IIBA) and its local Fargo chapter, and connecting with NDIT resources. Once a methodology and templates have been established, an additional goal is to expand the professional services out to the institutions.

Infrastructure & Operations (I/O)

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

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

I/O strives to provide, sustain, and enhance a robust, reliable, and relevant technological foundation used across the NDUS. The team's successes are directly attributable to staff. The staff are action and detail-oriented, committed, and passionate subject-matter experts of many technologies.

Managing service requests is a significant portion of I/O workload. The department handled over 2,500 service tickets this past year (Figure 3).

I/O staff conducted 47 root cause analyses for unplanned system outages. In 83% of those analyses, staff had a high or medium confidence level to determine the underlying causes. The benefit in determining the underlying causes establishes and implements preventative actions to avoid a recurrence of comparable incidents.

I/O stakeholders completed 211 survey requests; the average rating on a five-point scale is shown in Figure 4 for technician competency, resolution timeliness and customer service.

University of North Dakota (UND) Service-Level Agreement (SLA)

CTS continues a Service Level Agreement with UND to provide support and maintenance on a variety of software(s) and infrastructure needs. Figure 5 reflects CTS hours spent this past year based on department/product.

Figure 3. I & O Tickets



Figure 4. Survey Results **Technician Competency Resolution Timeliness Customer Service** 4.94 4.89 4.95 Average Rating Average Rating Average Rating 9 (4.27%) 8 (3.79%) 15 (7.11%) Tech Competency **Resolution Timelines** Customer Service Very satisfied Very satisfied Very satisfied Satisfied Satisfied Satisfied Neutral Neutral Neutral 201 (95 26%) 192 (91%) 201 (95,26%)

Figure 5. SLA Hours by CTS Department



I/O staff provided the following services to UND related to SLA hours broken down by department:

Data Center/System Administration	Database Administration	Identity & Access Management	Network Services
Data center facility management	Database hosting and administration	Identity system administration	Campus LAN/WAN management, including high performance computing
Server hosting (physical & virtual) and administration – laaS, PaaS and SaaS	Capacity planning	Account provisioning	Data Center network management
Information Security – vulnerability management, backup/recovery, data encryption	Software installation	User account services	Network monitoring and analysis
System monitoring and analysis	Install patches and upgrades	One-off account creation	IP address management, including DNS and DHCP
High performance computing	Monitoring and analysis	User Account Auditing	VPN Management
	Backup and recovery		Campus wireless management
		-	Network security

Identity & Access Management (IAM)

The IAM team is responsible for managing the identity lifecycle for all students, staff, and faculty within the NDUS. The team maintains the complex administration and oversite of NDUS people, processes, and products, and governs identities and access to resources of enterprise environments. As the team shifted to working remotely this past year, they ensured users had quick and secure access to the resources they needed, while providing strong authentication without restricting productivity, and ultimately simplifying the process of gaining access to IT resources.



Partnerships

In addition to provisioning the NDUS Active Directory, the IAM team works with Minot State University, Valley City State University, and the University of North Dakota to provision their local Active Directories.

The IAM team also provides single sign-on (SSO) for ten of the eleven institutions, CTS, and System Office for multiple enterprise applications.



Development

The IAM team took advantage of recent system upgrades to streamline backend processes and expand self-service options that benefited stakeholders and institution help desks. Major growth in access management necessitated the need to pursue a high availability solution for SSO. The IAM team worked with other CTS departments to extend access management redundancy to the cloud. IAM developed an NDUS Portal to save users time. It consolidates back-end applications into one point of access, increases security by providing a single sign-on for NDUS applications, and promotes products to customers in a consistent way. It is currently in its final stage of testing.

Roadmap

The IAM team continues to work with vendors as they integrate various IAM components to form a unified structure for IAM governance. The goal of implementing IAM governance is to provide administrators and managers with tools to easily collect relevant user and access information, ensure that users have focused access, and provide access request and approval. When the NDUS Portal officially rolls-out, the IAM team anticipates current SSO configurations will take advantage of the new service.



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. While the pandemic created challenges for everyone, skilled CTS staff were on-site working 20/7 to ensure safe and secure data processing was not interrupted and physical security and monitoring of an NDUS mission-critical facility was maintained.





Database Administration (DBA)

The Database Administration (DBA) team provides enterprise-level software systems administration. Additionally, the team is responsible for physical and logical configuration planning of enterprise-level architecture, technical implementation, and ongoing management of software to support local and enterprise-wide applications.

The DBA team also ensures operational stability, integrity, and security of database management software and their respective interfaces. The team supports standalone and clustered databases on multiple database platforms and performs technical functions in support of database-driven applications.

Partnerships

While the DBA team works with many application and system owners, significant collaboration occurs with Enterprise Solutions, specifically Campus Connection BA and programming teams.

Major Accomplishments

- Performed significant technical work to finish a successful upgrade to Campus Connection PeopleTools 8.58
- Performed significant technical work to maintain Exadata Cloud@Customer architecture integrity
- Successfully applied ongoing security-related and critical patch updates to all database platforms in a timely manner
- Successfully applied and assisted in the process to apply multiple application upgrades to mission critical applications including Campus Connection, IAM software, housing, and document imaging software
- Successfully performed multiple data refreshes throughout the year across several platforms and applications
- Successfully migrated Oracle databases to Exadata Cloud@Customer architecture to support an NDUS institution application
- Worked with multiple teams to successfully implement several new, non-production interfaces to Campus Connection including Phire, Nelnet, GT eforms, and PeopleSoft Test Framework
- Performed analysis and successfully tuned the Campus Connection application to maintain and improve overall performance during peak activity periods and in conjunction with institution users, vendors, and NDUS staff

Roadmap

In the coming year, the DBA team will guide CTS through a migration to Oracle's Exadata Cloud @ Customer Gen 2 platform. The team will also be upgrading Oracle databases to the latest 19c version.





Databases by Product



Figure 6. Managed Clients by Institution



Endpoint Services

Endpoint Services provides technical support to the NDUS System Office and Core Technology Services. In addition, the team provides assistance and consultation to institutions.

Desktop Support

This has been a challenging year for Endpoint Services. With CTS staff working from home, the team continued to support staff with both hardware and software to accommodate remote working. Endpoint Services purchased additional hardware and distributed it to enable remote work for all CTS and System Office staff; Endpoint Services was able to remotely assist with troubleshooting and installation of the equipment. The team provided timely, interactive support that respected the safety of Endpoint Services and the colleagues being served.

Microsoft Teams for collaboration and videoconferencing was a learning curve for many staff, and Endpoint worked to assist as needed. With Microsoft Teams now being the primary video conferencing for staff, the team worked to upgrade all conference rooms in the Fargo, Bismarck, and Grand Forks offices to enable Microsoft Teams usage. This equipment will allow for more seamless meeting between onsite and remote workers.

Endpoint Services continues to support and enhance end user backups using a cloud solution and has further improved the deployment and patching functionality of the Microsoft Endpoint Configuration Manager (SCCM) environment.

As part of ongoing security improvements this year, Endpoint spent additional time ensuring all systems meet security benchmarks and elevating the security posture for CTS laptops. In addition to CTS and System Office machines, the CTS Endpoint team collaborates with DSU and WSC on endpoint management tasks. Figure 6 indicates the breakdown of the CTS, DSU, and WSC computers managed. Keeping machines updated and patched is a priority; nearly all CTS computers are on current OS versions.

Institution Partnerships

Endpoint Services works with the staff at institutions to provide support and technology solutions relevant to their needs. Support continues this year for DSU and WSC for their integration into the NDUS System Center Configuration Manager (SCCM) environment. Endpoint Services has worked to expand the utility of the NDUS SCCM environment to DSU and made it easier for WSC to deploy, manage, and update user and lab computers. The Endpoint team is also working with institutions to begin leveraging cloud device management using Microsoft Intune and other technologies.

Endpoint implemented and tested strategies for using Intune, Azure Active Directory and other cloud-based endpoint management tools that will benefit CTS, System Office, as well as all institutions. Because this is the direction that Microsoft is moving, it is imperative that CTS and institutions also move in this direction. These systems allow conformation to the new Microsoft licensing and updates.



To enhance communication and partnerships with institutions, an NDUS CIO Endpoint sub-council was created. The specific responsibilities of the sub-council include:

- Ensure effective communication and coordination between CTS and institutions regarding:
 - Computer support
 - Software/patching
 - Conference room technology
 - Audio/visual technology
 - Digital signage
 - Cloud services
- Research and recommend operational procedures to ensure the continued effectiveness of shared services.
- Participate in the planning for future improvements and upgrades.

Development

This year, Endpoint completed a multi-year transition of SharePoint from on-premises to online. This change saves internal server resources while ensuring that the system is up to date. Additionally, Endpoint has assisted with numerous application development projects, including a database for the NDUS Financial Aid's Indian Scholarship program and the Recruiting Solutions website integrations for the institutions.

Reorganization

To better utilize the skills available within CTS, two Systems Engineers were moved out of the Endpoint Services team and into a new Full Stack Development team in the Enterprise Services department. To accommodate staff needs in Endpoint Services, an IT Support Apprentice position was created to provide desktop support to CTS and System Office staff.

As part of the reorganization, a position was created for an Endpoint Services Lead; this position supervises two Endpoint positions. Making this change, the Assistant Director of Endpoint Services will serve as an institution liaison and allow for collaboration with all institutions.

Roadmap

Next year will be another busy year, as staff will have an option to return to the office, work hybrid, or work fully remote. The Endpoint team will be prepared to make necessary modifications to support staffing needs. System Office staff will be fully supported by Endpoint Services in agreement with the North Dakota Information Technology (NDIT) team; this transition took place in July 2021.

With the creation of the Endpoint sub-council and the addition of the institution liaison duties, greater collaboration will assist in sharing information and services between all institutions.

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 in providing network services via STAGEnet (North Dakota's Statewide Technology Access for Government and Education Network) to institutions.

Ongoing information security and continual service improvement assessments resulted in recent upgrades to the latest network design for the NDUS Data Center. The upgrades consist of 100G backbone services, firewalled environments, load balancing, and redundancy to ensure uptime.

Partnership with NDIT

In partnership with NDIT, Network Services began reviewing all institutions for redundancy in fiber to ensure reliability of the NDUS STAGEnet network. This year, fiber redundancy to DSU was started while projects were completed for VCSU and MiSU. This assessment will continue until all institutions have been reviewed. CTS collaborated again with NDIT to manage the firewall infrastructure and NDUS statewide backbone for all 11 institutions.

Institution Partnerships

Network Services provides centralized DNS/DHCP and IP address management for the NDUS while allowing for role-based access controls for institutions. This year, the team added additional DNS appliances to MaSU and DSU to augment existing services and provide better failover and redundancy to the services for more efficient management. Four institutions are now utilizing centralized DNS/DHCP and IP management with a local service.

The Network Services team is working through the network steering committee to review the current VPN solutions to combine and streamline the service for the NDUS. At the request of institutions, Network Services has begun a project to provide centralized authentication services. These centralized services will include authentication for wired and wireless devices, guest portal, and onboarding assistance for institutions.

Providing these centralized services to institutions gives CTS and CTS Security greater visibility, provides enterprise-level solutions, cuts costs through combined agreements, and lessens the burden on institution IT staff.

Working in partnership with NDSU and UND, Network Services is implementing a High-Performance Computing Science DMZ, enabling UND and NDSU to participate in collaborative research more effectively across the globe, focusing particularly on expanding research and collaboration in the Great Plains region.

Network Services manages firewall rules and IDS/IPS configurations on behalf of all of the NDUS institutions. This allows for centralized policy deployment to maintain a standard and reliable service to the institutions. Network Services completed the deployments of Infoblox DNS/DCHP at MaSU and DSU this year. Six of the 11 institutions are now on this technology.



UND Network Support

CTS supports the UND institution network, consisting of approximately 15,000 wired connections and over 20,000 unique wireless devices connected per semester, as shown in Figure 7. The majority of iOS devices include iPhones and iPads, in addition to Mac OS X devices. These two operating systems make up over 81% of authenticated devices on the UND institution wireless as shown in Figure 8. During peak periods, over 12,000 devices are connected to the wireless network.

This year, Network Services worked closely with UND to upgrade access switches and wireless access points in eight locations as part of a planned upgrade. This year's upgrade brings the UND Network to current standards and almost finished with deferred maintenance. This enables UND to replace equipment on a routine basis, keeping the institution current with network standards. CTS continues to implement tools purchased through an enterprise agreement, allowing CTS and UND staff better network visibility for more streamlined troubleshooting and monitoring of resources.

To provide a better teaching and learning experience, Network Services completed upgrades to 30 switches for classrooms and recording studios.

Network Services refreshed equipment and infrastructure as well as increased redundancy to the firewalls at four medical education sites across the state.

Cloud Infrastructure

To prepare for the future cloud environment and ensure that it is set up and managed as an enterprise environment, Network Services worked to provide key components such as firewalls, DNS servers and other cloud networking solutions. This work was substantial and required network service staff to acquire new skills as well as partner with others across the organization. This new environment has been utilized for authentication redundancy.

Roadmap

The Network Services roadmap includes continuing to automate systems and services to ease the burden of manual work on staff, continue to provide additional self-service options for UND and Endpoint Services help desks, increase security across the Data Center and the UND institution, and work on disaster recovery/business continuity solutions. UND Core Network and wireless controller upgrade planning has started and will be completed by January 2022.

Figure 7. Connections per Semester



Figure 8. Wireless Device Operating Systems





System Administration

The System Administration team is responsible for enterprise-level hardware and operating system administration. Additionally, 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.

To ensure system stability, it is critical that CTS provides ample resource capacity to support all systems. Utilizing hyper-converged infrastructure (HCI), CTS can provide capacity savings in a cost-effective manner over traditional architecture (Figure 9). The System Administration team has continued to evolve the existing 11 node HCI virtualization cluster; the next step includes performing a hardware refresh to further streamline the existing system while simultaneously increasing capacity and performance.

Figure 10 indicates that by using deduplication and compression, the team has been able to reduce backup needs by 64%. This also shows the current snapshot amounts based on that number that is stored on-prem and in archival.

This system backs up to an encrypted converged data management backup system in the data center and stores off-site archival copies to an S3 compatible remote disk system. This system provides both on-prem encryption of the data in transit and at rest. The data stored on the backup system is also immutable, meaning backups cannot be tampered with once taken.

Over the last year, while working with the backup provider and the CTS Security team, the System Administration team has deployed Rubrik Sonar to allow the Security team to work towards data classification and monitoring of backups to look for confidential data that should not belong.

Public Cloud

The System Administration team continues to evolve the enterprise cloud environment. This environment is being prepared to provide for CTS's future needs. The first major project this cloud environment was used for was authentication redundancy, which was completed in June 2021.

The team has expanded the backup strategy to also include the backup of Azure resources utilizing Rubrik Polaris to allow similar protection of resources as the team has on-prem in the data center.

UND Advanced Computing Administration

The System Administration and Network Services teams worked with UND on the Advanced Computational (ACA) systems to create a local cloud environment.

The teams are working with NDIT and NDSU to create a 100g Science DMZ, a secure computer subnetwork designed to address performance limits that might occur during high volume data transfers. This system will allow for faster resource sharing between UND and NDSU, enabling improved system utilization and collaboration between institutions.

This year, the team implemented an off-site backup system at NDSU; this system will provide backups for ACA that are physically separated. This partnership with NDSU in locating UND equipment in their data center will also utilize the 100G Science DMZ.

Figure 9. Capacity Savings

Storage Summary	🌣 Physical 🗸
338.63 TiB Total Space	View Details
140.99 TIB	
7 Storage Containers	
468	7
VMs on Datastores	Storage containers are mounted on 11 hosts.
Capacity Optimization	
1	1.33 : 1 Data Reduction
Data Reduction Savings	45.67 TIB

Figure 10. Backup Needs



System Administration for NDUS

The System Administration team is involved with many projects for NDUS and some of the institutions, as they are one of the starting points for server and application creation and hosting. The team also assists with projects such as solutions provided for single sign-on for on-prem and cloud-based vendors. The team is responsible for Microsoft Active Directory support, providing storage or assisting in finding solutions for entities within CTS and throughout NDUS, providing SMTP email services to institutions outside of Office 365 based solutions, and providing system monitoring and alerting via the enterprise monitoring solution.

Data Center

CTS continually researches new products and services for the next generation Data Center to determine which will support CTS in meeting the needs of the institutions, the strategic plan, and the mission of the organization. Products researched must be efficient, adaptable, follow industry best practices, help provide data protection, have high availability, and be cost-effective.

Roadmap

The System Administration team is continually looking for ways to improve security, automate processes and improve reliability. Over the next year, the team will implement further automation and security services.

Notification System

To provide timely information to users, status.ndus is utilized for all planned and unplanned outage notifications. This system allows users to opt-in to notifications via text message or email. This system is managed by a functional team with members across CTS. The team conducted a survey of users with 155 users participating (Figure 11). In this survey, 148 respondents were happy with this solution, noting outage notifications are timely and contain more information regarding the outage within the notification. One user commented, "I like that I can get the notifications on my phone as well as my computer. It is helpful that they provide an approximate time frame. I think it has been a good addition."

The functional team is working to automate processes to make it easier for CTS staff to provide the information needed. This year, the team worked to feed the information in status.ndus to a maintenance calendar which will remove duplicate entry from staff scheduling outages.

lease rank your experience with Status.NDUS.	
148	★★★★☆
Responses	4.16 Average Rating



Enterprise Solutions (ES)

The Enterprise Solutions department includes ConnectND, Enterprise Services and the Online Dakota Information Network (ODIN).

Enterprise Solutions supports the three pillars of ConnectND, North Dakota's implementation of Oracle's PeopleSoft, which includes Human Capital Management, Financial Management and Campus Connection, along with dozens of ancillary systems for the eleven institutions in the NDUS. The three systems use similar technical and functional tools and processes to ensure business continuity.

Enterprise Services is responsible for administration of enterprise-class information technology solutions including a Help Desk that provides 24/7 support. Enterprise Services maintains a Service Level Agreement for applications administration with the University of North Dakota.

ODIN supports a consortium of libraries serving academic, public, school, and special libraries across North Dakota with two shared library management systems (Alma & Polaris).

A governance committee and/or multiple user groups support each of the ConnectND pillars, Blackboard, Document Imaging, ODIN and the NDUS Help Desk. These groups are integral for communication and collaborative decision-making.

Three Pillars of ConnectND				
Human Capital Management	Financial Systems	Campus Connection		
 Core HR Payroll for NA Benefits Administrator Time & Labor Absence Management Recruiting Solutions Candidate Gateway Talent Acquisition Management Budgeting Onboarding Commitment Accounting Contract Pay Savings Management Flexible Spending Accounts Company Director/Org Chart ePerformance 	 Banking Budgeting Grants Supplier Management Travel & Expense Purchasing General Ledger Asset Management Pcard/SUA Accounts Payable Commitment Control Cash Management Project Costing Billing Proposal Management Accounts Receivable Treasury Lease Administration Contract Management 	 Student Finance Financial Aid Campus Community Admissions Student Records Student Academic Advisement 3rd Party Systems of Campus Connection Ad Astra Class Scheduling Anthology Application College Scheduler Degree Map Planning Facilities Management Follett Bookstore Maxient Student Conduct National Student Loan Data System Parchment Transcript Services Parking (T2) Scholarship Management Starfish Student Success Target X Application System The Housing Director Touchnet Payment System 		

PeopleSoft Automation Systems

Improving technical and functional processes through automation



Campus Access Control Officers (CACO) Forms

Electronic requests for additions, changes and deletions for user security



Electronic Forms

Builds dynamic, workflow-enabled, PeopleSoft based self-service forms

Maintenance Module



Allows for collaboration and management of the patching process

Modification Search Tool



Quick visibility to all system

PeopleSoft Test Framework





Phire Migration Software

Controls and manages development changes

Web Services



Automates delivery of web-based files to external applications

Online Dakota Information Network

The Online Dakota Information Network (ODIN) system provides library management services for 60+ libraries across North Dakota, including all 11 institutions of the NDUS. The remaining ODIN libraries are dispersed across North Dakota at private higher education institutions, K-12 schools, local public libraries, and special libraries. An ODIN website redesign was launched in July of 2021 at www.odin.nodak.edu/.

Higher education library users search Primo VE, a discovery application allowing searches for both print and electronic library resources simultaneously. Primo VE is connected to a library services platform called Alma by Ex Libris, which provides management functions including inventory control, circulation control, course reserves, acquisitions/serials control and a resource-sharing function. Dickinson State University implemented Leganto, which streamlines access to print/electronic course materials and reduces costs by leveraging library collections, expertise, and services with Blackboard. Additional higher education libraries are currently considering the Leganto option. Non-higher education libraries use an integrated library system known as Polaris by Innovative Interfaces, Inc. and have their own discovery interface. Both systems interact with each other and continue to evolve, as both were implemented within the last two years: Alma on July 29, 2020 and Polaris on December 11, 2019. An Interlibrary Loan bridge is on the horizon enabling ODIN member libraries to work with other non-member libraries interactively.

ODIN participates in a shared electronic resources package, negotiated by Minitex and customized for North Dakota. These E-Resources continue to enhance the education, economic development, and overall quality of life for citizens of North Dakota. E-Resources serve the full spectrum of library users from preschoolers to post-secondary institutions, to lifelong learners in public and special libraries, and provide a robust digital environment. ODIN provides authentication services for an E-Resources package of 60+ licensed, full-text E-Resources and similar online materials for over 300 North Dakota libraries. ODIN is currently working on a redesign of its authentication methods. Database providers include ProQuest, EBSCO, Gale, Capstone and Britannica and monthly usage statistics are posted on the ODIN website.

The COVID-19 pandemic changed how many ODIN libraries operate by providing enhanced & safe plans to assist users in obtaining library materials. Library staff continue to use online resources, curbside services, and appointments to do what they can to assist users.

ODIN analyzes and researches new technologies, some suggested by member libraries, on a continual basis to determine the products and technologies that will best meet the needs of ODIN libraries and their users. ODIN looks for efficiency, security, data protection, cost effectiveness and enhancement features to the missions and strategic plans of member libraries.



Human Capital Management (HCM)

Human Capital Management (HCM) is the PeopleSoft solution that serves as a global foundation for Human Resources data. The system supports all institutions with day-to-day operational data and functionality for nearly every aspect of the system's 8,600+ employees.

The HCM team provides administration of the NDUS's semi-monthly payroll for all 11 institutions including the System Office & Core Technology Services, applies system patching, provides Workforce Safety and Insurance (WSI) annual workers compensation reports, processes W-2s & 1095Cs and assists institutions with troubleshooting HR transactions. Manager Self-Service (MSS) and Employee Self Service (ESS) ensure workflows for transactions process efficiently. The HCM team provides leadership in application management by offering training to institutions and serving as active participants in the HR user group & Human Resource Council.

Recruiting Solutions

Recruiting Solutions, deployed in 2020, provides a Candidate Gateway and a Talent Acquisition Manager module. Both modules streamline the recruiting process for candidates, hiring managers and recruiters. Since implementation, CTS has completed 90 development requests received from the NDUS institutions, including customized reports, flexibility in recruitment resume templates, as well as bio demo modifications to reduce data entry errors and more. Outside of development requests, CTS has supported institutions by adding offer and correspondence letter templates, the ability to have multiple position numbers of the same job family on a single job opening, and the option to post a job opening to social media with a single click. Integrations to a texting service and background check vendor were also added post-deployment.

Future enhancements include updates to email templates, improving workflow for the job offer acceptance process, single-tier screening for student hires and a knowledge base for job applicants. CTS provides direct support to job applicants using the Candidate Gateway through the Help Desk ticketing system.

e-Performance

e-Performance implementation launched in August 2021 and serves as a self-service performance evaluation management system for managers, employees and HR administrators. These individuals may collaborate on performance evaluations and goals, review performance history, and monitor and manage the overall performance process. Workflow notifications keep all participants up to date throughout the performance cycle. The project is expected to be completed in February 2022.

Recruiting Solutions





uConfirm Interface

The interface with uConfirm verifies employee data for lenders, preemployment screening, property managers and social service agencies. This third-party application removes the effort from HR offices for confirming employment for mortgages, rentals, etc. Over 250 uConfirm requests are automatically processed each month resulting in efficiencies for all involved parties.

Total Rewards

Total Rewards statements are issued annually to provide employees an overview of earnings, employer paid taxes and fringe benefits. Modifications were made to the Total Rewards page to improve the quality of information and for aesthetic purposes. The updated version better communicates the employer-paid compensation, taxes, retirement, and fringe benefits.

The pie chart on the Total Rewards page was upgraded to display as a three-dimensional chart (Figure 12). The pie chart allows the user to visualize the percentage of their total rewards associated with each of the four employer-paid classifications: compensation, employee benefits, retirement, and taxes. Users can hover their pointer over any portion of the pie chart to display the dollar value and percentage of each item in Total Rewards.

Payroll Tax Compliance Software/Service

CTS and institution representatives are currently in the evaluation stage of the RFP procurement process for a payroll tax compliance software or service.

The purpose of a payroll tax compliance software or service is to provide a streamlined solution to institutions to facilitate compliance with federal, state, and local payroll tax obligations. The current manual process has become time-consuming and burdensome for institutions as the NDUS workforce has expanded across the country.

Once implemented, the solution will dramatically reduce the amount of time payroll offices are expending on filing payroll tax returns. In addition, the software or service will guide users through the maze of state and local regulations across the United States. The software or service will also provide guidance and reminders for tax deposits, thereby reducing potential liability for late payments and subsequent penalties.

Data Retention

The HCM team is preparing for data retention on W-2 and paystub data. These records will be archived based on data retention schedules. As an added benefit, archiving data from the production server will increase performance.

Figure 12. Total Rewards Example

Summary

This is your Total Rewards statement for the statement period. As you review the statement, you will see that your benefits costs are a shared partnership between you and your employer.

All amounts are shown in US Dollar currency.

View Summary Chart



This is the Summary section of your statement where you will find earnings and benefits summary amounts.

Item	Employer Paid	Employee Paid
Compensation	45,662.870000	0.000000
Employee Benefits	17,164.980000	2,750.000000
Retirement	5,598.220000	8,844.940000
Federal and State Taxes	3,335.190000	3,275.190000
Summary Total	71,761.260000	14,870.130000

Financial Management

State of ND e-Procurement Study

CTS continued to collaborate with the State of ND for the second year on the e-Procurement study by researching the needs for a statewide e-procurement solution. The recent legislative session provided funding for the State and NDUS to proceed with an e-Procurement implementation, which will be a multiple-year project. CTS will be starting with the Supplier Contract module which will allow the NDUS to create and maintain contracts and track contract spending. Future modules include an online marketplace (similar to Amazon-like shopping), and the replacement of the current OMB sourcing management solution for management of solicitations.

Travel Authorization

Travel authorizations manage the pre-trip approval of estimated travel costs. Travel authorizations are budget-checked, which means the estimated travel costs are taken from the budget before travel, not after. When submitting travel reimbursement, an employee can copy the travel authorization into their expense report. Similar to expense reports, travel authorizations use a workflow to streamline the approval process.

Cash Advances

Cash Advances are payments made in advance to employees for travel-related expenses incurred during business travel. Institutions can easily monitor advances by utilizing a Reconcile Cash Advance Report in FIN. They may also use the report to reconcile a cash advance and compare the cash advance against a submitted expense report to reimburse the employee correctly. Institutions can forward any unused portion from the cash advance due back to the institution.

FIN2025 Process

This important process, which creates all electronic payments in PeopleSoft, was improved to take advantage of PeopleSoft-delivered functionality resulting in less technical maintenance and greatly improving the electronic file process. Functionality was added to allow the ability to change addenda line requirements that different suppliers may require in order to process ACH payments, which reduces the number of paper checks we issue.

GASB 84 & 87

The implementation of the Government Accounting Standards Board (GASB) standards 84 and 87 have been researched this past year by CTS, System Office and institution representatives.

For the GASB 84 project, institutions had to review all of their fund classifications and move items into different fund ranges to comply with this standard. The NDUS will have two new financial statements to report fiduciary activity. GASB 87 relates to managing and maintaining leases; it has initiated the implementation of the Lease Administration module in PeopleSoft, along with a third-party software, to fill a requirement gap. Deployment will begin this fall. A workgroup representing CTS, System Office and institution representatives collaborated with the State of ND on the research of a solution and will continue collaboration through implementation.

Travel & Expense Enhancements

Work is in process to expand the Travel & Expense functionality to bring PCard transactions in via My Wallet, allowing employees to more efficiently submit and process their monthly PCard transactions by using default PeopleSoft functionality and existing workflows.

Supplier Portal

The Supplier Portal, implemented in 2020, is being enhanced with a feature that allows institutions the ability to invite new suppliers to submit an online registration. The FIN team implemented approval workflows, which greatly reduces data inconsistencies while streamlining the new registration and change request processes. Work on the Supplier Change Request process will be live by the end of this calendar year.



Student Data Privacy Project

The Student Data Privacy List, built to meet the requirements of the Student Data Privacy and Security Bill of Rights policy (SBHE 503.2), was completed this year and made available for all NDUS students. The Student Data Privacy website provides students a description and benefits of each IT system managed by CTS, along with information on how fifteen personal identifiable information (PII) elements are collected, stored, and shared.

To view the Student Data Privacy list, see: https://ndus.edu/ndus-privacy-policy/

Campus Connection

Campus Connection is the system of record for more than 46,000 active students within the NDUS. The **Campus Connection team supports** all 11 institutions with day-to-day operational data and functionality for all aspects of the student learning cycle, including Financial Aid, Admissions, Student Records, Academic Advisement, and Student Financials. In addition, the Campus Connection system integrates with 40 additional university data systems, including: Housing, Parking, Facilities Management, and scheduling (Ad Astra) (Figure 13). Lastly, the **Campus Connection team supports** Blackboard Learn, Starfish, and other systems related to student success and intervention initiatives. While each module supports its functionality, the total environment seamlessly tracks student progress, registration, graduation, and overall success.

COVID-19

The Campus Connection team had a turbulent year supporting the everchanging landscape of the students and staff during COVID 19. The team dealt with the same challenges all North Dakotans had to, including a fully remote working environment, family isolation, and learning to adapt to new technologies. The Campus

Figure 13. Campus Connection Integrations



Connection system houses discrete details about the daily activities of students, faculty, and staff. When the North Dakota Department of Health (DoH) needed assistance with COVID-19 support and contact tracing, they turned to CTS for assistance. CTS continues to provide access and reporting which has dramatically reduced the contact tracing time and improved the overall abilities of the ND DoH's processes. The Campus Connection team was able to seamlessly support the Blackboard team on the migration to a fully online format to continue supporting distance learning for NDUS.

Information and Data Executive Governance

CTS has formed the Information and Data Executive Governance (IDEG) Steering Committee. The mission of IDEG is to take the lead role in the creation, implementation, and oversight of NDUS-wide information and data management goals, standards, practices, and processes aligned with the goals of the organization. Additionally, IDEG provides expert advice and support concerning all aspects of information and data governance including data ownership, protection, privacy, and quality, information usage, classification, and retention. Lastly, the IDEG Steering Committee promotes data governance at an executive and senior management level.

Campus Connection Experience

During the last half of 2020 and into 2021, the Campus Connection team upgraded the foundation software called People Tools, spending over 1,100 hours during the process. The People Tools software allows the continued development of end-user functionality as well as improved security benefits. The team also implemented the PeopleSoft Test Framework; this project will help speed up the routine testing during patches and functionality releases. Additionally, the Campus Connection team spent time developing internal efficiencies related to workflow and programmer development. The Campus Connection team continues to provide online, computerbased query training to assist support staff with complex reporting out of the PeopleSoft environments.

TouchNet transition to Nelnet

Recently, the current NDUS payment vendor, TouchNet, came up for review; after completing the RFP process, NDUS will be changing vendors to Nelnet over the course of the next 12 months. Nelnet will become the vendor utilized for all payments within the NDUS. It will include single sign-on capabilities with easy access for parents and students making electronic payments. The software will also connect with third-party vendors, including Anthology, The Housing Director, Target X, and the Parking system.

Gideon Taylor Electronic Forms (GT eForms) Project

CTS will be discontinuing its use of the TransForm electronic form solution, and as such an RFP was conducted and awarded to GT eForms. The Campus Connection team will be developing and migrating the 100+ forms into the PeopleSoft system. While maintaining the current process is the priority, the new software allows increased functionality and expansion to non-PeopleSoft systems.

Statewide Longitudinal Data System (SLDS)

The SLDS provides K-20 longitudinal data reporting. It is a collaborative effort involving the NDUS, the Department of Public Instruction, the Department of Commerce, Job Service North Dakota, and the North Dakota Information Technology Department. Current projects through the SLDS are the Financial Aid Scholarship Management System and the Reverse Transfer initiative, which provides avenues for degree completion and students' graduation rates. Additional data, overview, and research are located at: https://www.slds.nd.gov/.

Other Campus Connection Initiatives

- Participated in the annual Bank of North Dakota Application Fee Waiver event; over 2,500 North Dakota students completed free applications to NDUS institutions during this event.
- Expansion of class scheduling software using Ad Astra "Monitor" to track real-time classroom utilization.
- Added enhancements to Integrated Postsecondary Education Data System (IPEDS) reporting to streamline and automate processes and build consistency in reporting efforts.



Enterprise Services (ES)

Enterprise Services (ES) is the department responsible for the design, development, implementation, training, course development, support/help desk, maintenance, and administration of enterprise-class information technology solutions, while providing IT leadership, vision, and planning in current and emerging technologies that expand and enhance teaching and learning and business operations across the North Dakota University System (NDUS). The department supports enterprise-level software applications including a document imaging system, eSignature platform, secure managed file transfer, learning management systems, O365, Video Conferencing, Web solutions, mobile applications, as well as numerous integrations. Enterprise Services is comprised of teams that are highly integrated to provide complete solutions to serve the needs of NDUS constituents.

Learning Management System

Blackboard (Bb) delivers a single, systemwide instance Learning Management System (LMS) to create a unified user experience across the NDUS's 11 institutions and System Office. Bb Learn is a software application used for course delivery and includes administration, documentation, tracking, reporting, and grading. Bb Learn integrates with PeopleSoft to populate enrollment and grading information. Institutions use the LMS for online classes; however, there has been increased usage supporting face-to-face classes. Most institutions strongly encourage faculty to utilize the LMS and some have mandated faculty to post their syllabi in Learn as a minimum requirement. Over the Fall, Summer, and Spring 2020-21 semesters, Bb Learn was integral to delivering face-to-face courses online.

ES completed phase 1 of the Analytics for Learn (A4L) project. A4L provides student performance reporting by extracting data from Blackboard Learn and bringing it into an analytics framework where it is combined with data from Campus Connection and other data sources as reports dictate. The first phase included reporting capabilities for 3 institutions as well as the System Office. ES is working on phase 2, which will look at bringing on additional institutions. NDUS is looking at tools and functionality to improve and enhance reporting, proctoring, communication, and assessment capabilities. A planned switch in January 2022 to Blackboard's Ultra Base Navigation will provide faculty and staff an updated and more intuitive user interface experience for navigating in Blackboard. Once Ultra Base Navigation is live, institutions will have the choice to update their course environments to a new Ultra course view. The Ultra course view provides a more modern and intuitive view of the course material and information. The team is also working on increasing existing security. Blackboard will require multifactor authentication for use by individuals with elevated user accounts as well as integration with the NDUS SSO portal.

Blackboard Ally

Ally builds a more inclusive learning environment and improves the student experience by adapting course content to their specific needs. For example, Ally has the capability to convert certain documents from a written to an audio format. These features help students with disabilities, accommodates students with different learning styles, and make content more readily available. Over the past year, ES fully completed the implementation of Ally for all NDUS institutions.

VoiceThread

This web-based application allows participants to share conversations and make comments to presentations using a mix of video, text, and voice. Institutions are steadily adopting VoiceThread; From July 2020 to July 2021, NDUS students and instructors created 31,000 threaded discussions with approximately 11,000 hours of viewing time. VoiceThread can be used inside or outside the LMS.









YuJa Lecture Capture

Since its implementation in Summer 2019, YuJa has become a "must have" tool for instructors, especially during the COVID-19 pandemic. This software enables faculty, students, and staff to record presentations, lessons, training, lectures, proctored tests, and more. Institutions have amassed thousands of hours of lecture recordings in the system. During the entire pandemic, the YuJa video storage more than doubled with 32.5TB added just over the past fiscal year (Figure 14). This increase resulted in a need to expand the storage capacity and deploy a new policy for consistent clean-up efforts by ES and NDUS institutions; this practice will help slow the monthly growth, which can reach 5% at the start of each semester.

Several institutions utilize YuJa's Zoom integration, pulling their recorded Zoom sessions into YuJa to take advantage of lower storage costs. The addition of video streaming significantly reduces Blackboard's course size and overall system performance where video is paramount. YuJa can be used within the LMS or as a standalone tool.

Respondus LockDown Browser

As the name implies, LockDown Browser is a custom browser that increases test security in Blackboard. Students are unable to use features such as print, copy, or paste, navigate to another URL or open other applications during testing. LockDown Browser can also be used in tandem with YuJa for test proctoring. ES is currently piloting the use of Respondus Monitor, a proctoring solution that utilizes video and audio recording as students take tests.

Video Conferencing

ES currently supports two video conferencing platforms: Blackboard Collaborate Ultra and Microsoft Teams.

- Blackboard Collaborate Ultra is a desktop web conferencing platform which can operate within the LMS platform or as a standalone web conferencing tool. Instructors and students use Blackboard Collaborate Ultra within their Blackboard Learn course environment for teaching, learning, tutoring, and presentations. Blackboard Collaborate was crucial to connect students and faculty in a synchronous environment during the pandemic. The NDUS institutions also use Collaborate for instructor office hours, meetings, and public training webinars.
- Microsoft Teams is a unified communication and collaboration platform combining persistent workplace chat, video meetings, file storage, and application integration. ES provides training along with best practice insights to the NDUS institutions as they continue to adopt.

Qualtrics

Qualtrics is a survey software tool available to the NDUS institutions, CTS, and the System Office. Training and support are provided to CTS and System Office employees on demand. CTS uses Qualtrics surveys to assess the needs of the NDUS institutions and CTS employees.

Infobase

Infobase is an online training resource used by students, staff, and faculty at these institutions: BSC, DSU, LRSC, MaSU, MiSU, NDSCS, UND, CTS and the System Office. ES coordinates contract renewal and the integration of Infobase in Blackboard. ES recently worked with Infobase to align all the NDUS contracts with fiscal year.

Microsoft Office 365

Office 365 (0365) is a suite of productivity tools and applications offered by Microsoft via cloud services. All the NDUS institutions share a single Office 365 environment. Office 365 provides email, calendaring, and other productivity tools like Word, Excel, and OneDrive. It also continues to add new tools to the environment. As staff transitions to the new normal, CTS, the NDUS System Office and institutions have and will continue to heavily rely on the collaboration tools in Office 365 to maintain operations (Figure 15).

Figure 15. Email/Teams Usage

Email Usage		Teams Usage	
Messages received:	226,736,521	First Time Users:	23,962
Messages read:	640,625	One-on-One Call:	28,632
Messages sent:	501,006	Meeting Participants:	172,845
*Aug 2020 to July 2021			

ES will be working on the following items in O365 over the next fiscal year:

- Improve the deprovisioning processes
- Implement O365 voice for CTS
- Implement additional data privacy and security features

Secure File Transfer System

ES continues to provide configuration and administrative services for LiquidFiles (sendfiles) and MOVEit MFT (Managed File Transfer) Solution, offering secure exchange of critical business data and sensitive files both internally and externally. These systems ensure delivery to the intended recipients, document transfer activities with an audit trail, and enforced file retention policies. On average, the MOVEit system moves approximately 100,000 files a day, with users/ systems averaging uploads of over 14,000 files and downloads of over 15,000 files (Figure 16). The sendfiles system sent over 17,000 secure messages in FY20.

Data Analysis System

The Splunk team continues to expand its use of Splunk across various areas of CTS for log analysis, monitoring and alerting. The ES team continues to add systems for log indexing, including Blackboard, Campus Connection, and Office 365. ES added the Splunk Security Essentials application to the system to provide analysis and context to security-related data. ES also made infrastructure improvements during a consultant engagement for the installation of Security Essentials.



Figure 16. MOVEit Average Daily Downloads and Uploads





Mass Communication Delivery Systems

The ES staff administers and maintains the day-to-day operations of the statewide Listserv system as well as the NDUS Blackboard Connect notification system. Currently, within the Listserv system, there are 3,597 lists, averaging over 34,600 emails a month to subscribers (Figure 17). The Blackboard Connect system has 43 unique sites across the 11 institutions and System Office. The NDUS uses Bb Connect to send targeted emails, phone calls, SMS (texting), as well as other message types. For FY20, institutions sent over 1,700 unique email messages and called an additional 3,300 phone numbers. UND operations has it configured with the National Oceanic and Atmospheric Administration (NOAA) for severe weather alerts.

UND SLA

CTS provides application administration for nearly 35 software applications hosted in the data center – On-Premises (OP) and in a cloud service – Software as a Service (SaaS). Software Application Administration Services include:

- Architectural design (OP)
- Application and Desktop Virtualization (OP)
- Installation and implementation (OP)
- Domain Management (OP/SaaS)
- 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

Within the last year, the document imaging team expanded their product and service offerings throughout the NDUS system. One expansion included working with Human Resource staff to develop an automated procedure using DocuSign to complete the Faculty Contracts and Position Description process; this new method reduced several steps and streamlined staff processing.

The team successfully refreshed the Retention Module within Perceptive Content for eight institutions and have begun retention implementation within Finance, Human Capital Management, Student Finance, and Financial Aid. Of the eight institutions, three are new onboards for the Retention Module. To date, 34 departments have requested implementation of the Retention Module with 15 departments having active policies running.

Figure 17. Listserv Messages Sent







Institutions continue to expand the usage of electronic forms. In FY21, there were an additional 27 forms created in TransForm, bringing the current number of forms available to 230. The total number of form submissions for the fiscal year was 99,204, an increase of 20,947 submissions over last year.

As the demand for electronic forms continues to increase, the NDUS DocuSign instance now supports four institutions, the System Office, and Core Technology Services. With the expansion of usage, additional security factors were enabled, including multi-factor identification, standardized group securities and usage regulations. Over the last fiscal year, 2,320 documents have been submitted, an increase of 1,424 submissions over FY20. Additionally, the integration between DocuSign and Perceptive Content continues to be in-demand as more areas are migrating to paperless processing and storage. Including the NDUS instance, the integration is also utilized by NDSU and UND, with both institutions operating their own DocuSign instance.

To continue our efforts in offering process efficiencies to the institutions, we are currently transitioning our electronic form solution from TransForm to GT eForms. GT eForms functions within PeopleSoft and allows for submission and processing to be completed within the office of record. The solution is available to staff, faculty, and students. The added functionality eliminates the need for third-party integrations that will push/pull live data directly to and from PeopleSoft. It allows the submitter to review form progress in real-time at each step of the submission process and allows for email notification outside of the submission process, eliminating additional manual processing demands on staff.

In addition to the completion of various projects, the team also conducted an audit of the Perceptive Content system, offering efficiencies and adjustments to create a consistent standard across all drawers.

Training and Course Development

ES provides training and course development consisting of planned and proactive services that address emerging issues and explore opportunities within the IT and the NDUS Environment.

CARES Act Funding

Through the Coronavirus Relief Fund, the CARES Act provided payments to the State of North Dakota for navigating the impact of the COVID-19 outbreak. The North Dakota University System was provided \$1,308,387 in Federal CARES Act funding. Of this funding, \$500,000 was earmarked for instructional support services. This money was shared by allocating \$220,000 for Labster and \$280,000 for Instructional Design (ID) Services and Training. Institutions were able to revamp courses and train faculty how to deliver their courses through online and hybrid environments.

Labster

During the pandemic, NDUS institutions needed an online instructional alternative for in-person lab courses. The NDUS spent \$220,000 of the CARES Act funding to acquire a system-wide, one-year contract for Labster, an online lab simulation tool in the areas of anatomy, physics, physiology, biology, and chemistry to name a few. Fifteen instructors initially incorporated Labster reaching 124 students; by the end of Spring 2021, that number had grown to 87 instructors reaching just over 5,000 science students.

Instructional Design Services and Training

ES led and managed the process of working with institutions and CTS procurement officers to identify and qualify vendors to provide instructional design and training services to onboard faculty more quickly in the new instructional environment. ES followed up with the institutions to ensure quality of services and intervene on issues or concerns raised.

Teams Training

In January 2020, at the very early stages of the pandemic, ES rolled out training for Microsoft Teams beginning with Core Technology Services followed by institutions. This helped prepare employees for remote work. In addition, institutions were introduced to methods for integrating Teams with Blackboard courses. Microsoft Teams has been invaluable for maintaining camaraderie, improving collaboration, and preserving high levels of communication in a remote work environment. Unlike some institutions who purchased comparable products like Zoom, there was no extra expense to use Teams.

ES also assisted the State Board of Higher Education in streaming their meetings using Teams Live Events. Live Events enables the Board to moderate questions from the public and record the meeting.

Course Development

NDUS Employee Training

Per the request of the Chancellor, ES developed a COVID-19 awareness training course in Blackboard for institutions to utilize locally. ES deployed this course in August 2020, prior to the start of fall semester.

ES develops/maintains annual and ongoing training for Theft and Fraud, Code of Conduct, Internal Controls, Data Privacy, Defensive Driving, and Purchasing Cards. NDUS utilize these training programs for full-time, benefited employees across all institutions and by specific groups of employees to ensure compliance in their fields.

Ongoing Institutional Training

ES provides training to institutions by request including, but not limited to, Blackboard Learn, Blackboard Collaborate, Ally, VoiceThread, YuJa, Respondus Lockdown Browser, and all Office 365 products such as Word, Excel, PowerPoint, OneNote, OneDrive, Teams, Yammer, and more. UND currently has a work agreement with ES to deliver 18 Excel courses.

PeopleSoft

ES developed Basic PeopleSoft Query Training to train institution employees how to create and edit queries in PeopleSoft. Previously, this training was only available in person. ES deployed courses for the HCM, FIN, and the Campus Connection teams. These teams also requested a specialized course called NDUS Associate Dev Test to assess job candidates' knowledge of writing queries.

Vendor Training

ES works with Blackboard's Training and Professional Development team to provide the latest training courses and materials to the institutions.

ES continually works with all vendors to ensure institutions receive training updates. ES communicates upcoming changes to software and systems during monthly ND BUG (Blackboard User Group) meetings along with notifications sent through email. ES arranges for vendor product demonstrations and training to ensure institution administrators have an opportunity to interact with the vendor, ask questions, and communicate product desires.

Other notable training efforts:

- As new technologies are rolled out, ES develops training resources and documentation which institutions can reuse or make derivatives of, and brand as their own. Training resources include, but are not limited to, face-to-face training sessions, webinars, training documents, tutorials, consultations, vendor presentations, and infographic materials. This year, training efforts focused on: Blackboard Learn end user and administrator training, Blackboard Learn Digital Teaching and Learning Series certification, Blackboard Ally, Microsoft Forms, Microsoft Teams, YuJa, and VoiceThread. ES also developed a NDUS repository site for all institutions to find and access COVID-19 information for transitioning courses to online delivery.
- ES prepared the NDUS COVID-19 Team's site and made it available publicly for institutions and all users to join. The site contains training resources to prepare institution faculty and staff for transition during the pandemic. Channels included Blackboard Learn, Blackboard Collaborate, IVN, Pexip, MeetMe, Office 365, Teams, VoiceThread, YuJa, along with a private channel for CTS employees only.
- In response to the COVID-19 pandemic, CTS held a monthly "Showcase" webinar series from June 2020 through July 2021. During these seminars, faculty shared their experiences and best practices adopting NDUS academic technologies into their new online pedagogy.

Help Desk

The top two goals of help desk services over the past year have been 1) continuous improvement in customer service and 2) increased productivity efficiencies. A continued primary help desk focus for the coming year is to deliver stronger selfservice capabilities. Referred to as Tier O help desk services, self-service help desk support typically provides immediate solutions to problems, resulting in improved user experience with NDUS technologies. A software application called RightAnswers will continue to operate the Tier O environment. ES provides Tier O, Tier 1, and Tier 2 help desk services for the NDUS (Figure 18). Supported systems and applications include:

- NDUS Account IDs and passwords
- Password changes
- ConnectND applications, including Campus Connection, Financials, and HCM
- Bb Learn
- Bb Collaborate Ultra
- SharePoint
- Office 365
- Teams
- 'How To' support for Exchange Email and Calendar

NDUS Help Desk 20-21 Summary

Call Data

- Received 10,371
- Answered 9,820
- Abandoned 551
- Abandon Rate 5.3%

An overall abandon rate of 5% is great; anything under 10% is considered good. In the last year, the average abandon time has dropped by 20% to 2 minutes and 5 seconds, with the average call being answered in 55 seconds (Figure 19).

The Tier 1 Help Desk provides 24 hours a day, 7 days a week support. Over the last three years, there has been a 50% drop in calls to the NDUS Help Desk, with a 27% drop last year. This can be attributed to improvement to the services that are provided, self-service password recovery, and improved knowledge management.

Figure 18. NDUS Help Desk Services





Tickets

Last year, there was a total of 20,459 tickets created by the NDUS Help Desk; this is down by 15% from the previous year. Tickets closed on first contact by the NDUS Help Desk is still above 80% at almost 17,000 tickets. The remaining tickets were assigned to Tier 2 for additional troubleshooting or to an institution help desk.

Survey

On a scale of 0 to 5, with 0 being low and 5 being high, the overall satisfaction score of the NDUS Help Desk is still around 4.5. Last year, there were just under 400 surveys completed, with the following average results:

- Competency 4.64
- Customer Service 4.66
- Timeliness of the Resolution 4.37
- Overall Satisfaction 4.49

Contact Source

In the last year, there has been an overall decrease in contact; contact via email did increase by 7.3%, while all other contacts were down 20% to 40% (Figure 20).

Self-Service Knowledge

Last year, the NDUS Help Desk switched over to a self-service knowledge portal, allowing users to search for answers to their questions. There were over 103,000 visits to the NDUS Help Desk page; 75% of the visits were to claim an NDUS account or request EMPLID assistance. There were an additional 16,300 unique searches performed; the top 5 were:

- Application Status
- Campus Connection
- Email
- Blackboard
- How to create an NDUS account

Through CTS efforts in continuous service improvement, ES has adjusted how services are provided in the effort to reduce customer confusion and frustration, resulting in fewer contacts to the NDUS Help Desk.



Figure 20. Contact Source



NDUS System Service Cost Evaluation

NDUS System Services Spend-per Student per Year \$426.94

NDUS System Services Spend by Institution (Student FTE)



NDUS Support for System Services



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



*ODIN costs do not reflect costs related to K12/Public/Special Library System

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.

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.

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 using 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.

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

By working together with the State, K-12, and other constituents, the NDUS can 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.