



Information Technology Strategic Plan 2021-2023

Presented by

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Vice Chancellor for Information Technology/CIO

Strategic Plan 2021-2023

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Executive Summary



Core Technology Services (CTS) is the technical arm of the North Dakota University System (NDUS) and facilitates the development of the NDUS Information Technology Strategic Plan in collaboration with the information technology staff from NDUS institutions. This plan represents the strategic direction for all the institutions that make up the NDUS.

During these times of rapid digitization, global pandemics, and enhanced customer expectations, it is critical that a clear strategic plan is developed across all eleven NDUS institutions. This document identifies four goals that align with the NDUS Strategic Plan and five key strategic themes that will guide the activities across all NDUS institutions in the short term while continuing to provide a solid technical foundation for the future.

The five key strategic themes identified in this document include academic services, information security, system functionality, service management, and infrastructure. Each of the projects and initiatives aligned with these themes are focused on supporting the business of higher education at NDUS institutions. There is an ongoing focus on serving the students, faculty, and staff by providing the best possible experience across the entire enterprise.

While the initiatives listed in this document may be for single or multiple institutions, a key part of executing the initiatives is leveraging appropriate opportunities for collaboration. Developing collaborative partnerships with multiple NDUS institutions, strategic vendors, and state resources has the potential to help us deliver more effective solutions than any individual entity could do on their own.

We look forward to the continued collaboration with stakeholders and strategic partners as we move forward to execute initiatives that align with our strategic themes and support the goals of the North Dakota University System.

A handwritten signature in blue ink, appearing to read 'Darin King', written in a cursive style.

Darin King

Goals

N.D.C.C. 15-10-44.c requires the State Board of Higher Education to manage and regulate information technology plans and services including the integration of higher education information technology planning and reporting with the board's strategic planning process.

The NDUS strategic goals listed in the document are as follows:

1. Deliver degrees that are best value in the nation.
2. Provide programs people want, where and when they need them.
3. Equip students for success.
4. Maximize the strengths of the unified system.

This NDUS Information Technology (IT) Strategic Plan aligns with and supports the strategic plan brought forward by the Chancellor and approved by the State Board of Higher Education. This section of the NDUS IT Strategic Plan lists the NDUS IT goals, their purpose, how they align to the NDUS Strategic Plan and the strategy objectives to meet those goals.





GOAL ONE

To support North Dakota University System infrastructure needs.

Purpose

This goal provides the foundation for Information Technology (IT) in support of NDUS business processes. Infrastructure integrates and links information technology systems and allows those systems to communicate with each other over a network. Infrastructure includes such things as security and access control for which guidelines must be developed and updated as needed. Enterprise Architecture provides a blueprint for establishing information technology policies, procedures, and guidelines to promote effective use of information technology.

Alignment with NDUS Strategic Plan

This goal aligns with and supports the NDUS Strategic Plan Goal – Maximize the strengths of the unified system.

Strategy Objectives

1. Offer reliable, cost-effective and appropriate network services for NDUS institutions.
2. Provide tools and technologies to help people more easily use networked resources and services while ensuring security and privacy of the information.
3. Provide tools and technology to enhance data and system security in order to reduce the impact of cyber threats.
4. Utilize the network infrastructure for the convergence of voice, data, and video along with other collaboration tools.
5. Enable libraries to provide easy access to licensed electronic information.
6. Provide leadership for IT enterprise architecture, IT planning, project management, and service management.
7. Provide linkage through STAGEnet, Internet2, and other national and international research and development networks.
8. Provide a centralized IT infrastructure where efficiency and effectiveness can be maximized to meet NDUS institutional needs.

GOAL TWO

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

Purpose

This goal is the essential core that supports business processes of the institutions and the North Dakota University System (NDUS). In order for 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.

Alignment with NDUS Strategic Plan

This goal aligns with and supports the NDUS Strategic Plan Goal – Deliver degrees that are the best value in the nation.

Strategy Objectives

1. Maintain critical core functions and implement upgrades and enhancements to the student management, financial/human resources management, data warehouse, library, administrative, and academic technology systems.
2. Identify and integrate appropriate NDUS CTS systems to create operational effectiveness and efficiencies.
3. Provide cybersecurity training and materials to faculty, staff and students to assist in the protection of critical systems and data.
4. Provide enterprise architecture administration, enterprise IT planning, procurement, and project management expertise.
5. Enhance educational experiences with new or repurposed resources that expand user services, technologies, and initiatives.
6. Maximize IT infrastructure to improve services to students, faculty, staff, and the citizens of the state.
7. Hire, train, and retain highly competent professional staff to meet the needs of NDUS services.
8. Provide centralized IT procurement services that allow multiple institutions to easily acquire software that meets their business needs.



GOAL THREE

To improve and enhance North Dakota University System student learning and users' focus.

Purpose

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

Alignment with NDUS Strategic Plan

This goal aligns with and supports the NDUS Strategic Plan Goal – Equip students for success.

Strategy Objectives

1. Leverage the IT infrastructure to create an environment for enhancing learning.
2. Evaluate enhancements to the Online Dakota Information Network's (ODIN) library systems and services to improve functionality that supports the evolving needs of users.
3. Continually improve standards, policies, procedures, and services that facilitate seamless, integrated learning.
4. Collaborate with NDUS institutions to identify business needs and respond to their expectations in a timely manner.
5. Continue to gather feedback from the NDUS user community on services provided by NDUS CTS.
6. Provide effective, efficient, and highly available IT help desk capabilities while ensuring self-help resources extend support services.

GOAL FOUR

To improve and enhance North Dakota University System collaborative efforts.

Purpose

Provide a seamless experience for students taking classes at multiple NDUS institutions. By working together and with the State, K-12, and other constituents, the NDUS is able to bring new technologies to North Dakota and find efficiencies in supporting existing ones.

Alignment with NDUS Strategic Plan

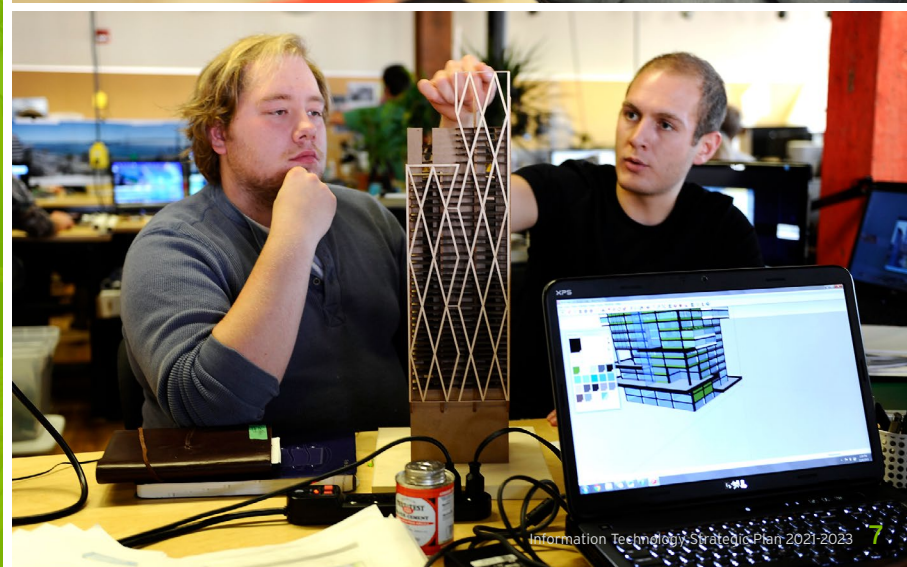
This goal aligns with and supports the NDUS Strategic Plan Goal – Provide programs people want, where and when they need them.

Strategy Objectives

1. Optimize helpdesk services within the NDUS community.
2. Continually improve communications with all stakeholders.
3. Collaborate with NDUS institutions, K 12, state/local governments, and libraries to identify and deploy appropriate administrative, learning, and research support systems.
4. Identify where converged services are appropriate and work with the NDUS institutions to deploy the services to enhance collaboration.
5. Enable collaboration among learners by providing easy, efficient, and reliable access to learning resources anytime and anywhere.
6. Leverage educational resources and IT systems to minimize barriers between institutions, libraries, and other sources of learning.
7. Expand virtual and digital holdings available within the Online Dakota Information Network (ODIN) libraries.
8. Promote Internet2 and research-level infrastructure.
9. Continue the integration of video, audio, and data collaborations in cross platform environments.
10. Collaborate with business and industry to identify opportunities for innovations that enhance NDUS CTS systems and services.
11. Facilitate collaboration through identity management and middleware services.

Strategic Plan

The North Dakota University System's Core Technology Services and the CIO council collaborated to identify five major areas that influence the quality of the student, faculty, and staff experience: Academic Services, Information Security, System Functionality, IT Services Management, and Infrastructure. These areas create a service framework comprised of several system-wide and campus initiatives benefitting NDUS stakeholders and, when applicable, will be at the forefront of a continued effort to comply with the State Board of Higher Education's (SBHE) digital accessibility policy. The following sections illustrate a handful of these initiatives, which will build upon the NDUS's current service foundation and support the NDUS IT goals within the upcoming biennium:





Academic Services

Academic Services develops and provides technologies, learning spaces, classroom support and services that enhance teaching, learning and research within the North Dakota University System. The NDUS recognizes these services are critical in creating a positive learning and teaching experience for faculty and students. As education has shifted to an online community of learning and teaching, it is essential that service awareness becomes important for students, providing academic and administrative services to support their needs.

The following initiatives align with the NDUS's goal #4 – To improve and enhance North Dakota University System collaborative efforts:

- Continue implementing a pre-award and post-award research software that will support principle investigators, grants and contracts staff, and research offices on the research campuses by easing the proposal process.
- Implement a course scheduling platform designed to centralize the schedule of classes while allowing departments to plan and update their courses in compliance with institutional and accreditation scheduling rules.
- Consider procuring and implementing conferencing and collaboration equipment to support conferencing, remote learning, and small group collaboration for all primary classroom spaces across campus.
- Increase online and on-campus educational opportunities that will lead to growth in course offerings.



Information Security

Information security is defined as a set of practices intended to keep data secure from unauthorized access or alterations during storage or transmission. These methods can include monitoring activities to identify system threats and vulnerabilities, in addition to evaluating and mitigating risks through prevention and response measures. The NDUS recognizes information security as being a top concern for every new project, upgrade, or enhancement, and continues to strengthen existing security infrastructure to stay ahead of potential risks that could affect systems utilized by the NDUS students, faculty, and staff.

The following initiatives align with the NDUS's goal #1 – To support North Dakota University System infrastructure needs:

- Expand existing vulnerability management practices to include credentialed scans for public and private campus networks, policy compliance scans for secure configurations, and web application scanning.
- Enhance and strengthen current centralized logging in order to provide intelligence for potential threats, facilitate quick responses, and offer analysis of the valuable log data generated by NDUS systems.
- Develop capabilities to quickly detect security events and respond and recover in a timely and effective manner.
- Establish security awareness and phishing assessment programs to educate faculty, staff, and students on security risks, including safeguarding NDUS data and resources, as well as how to better protect themselves from possible threats.
- Define and implement a process for protecting student's personally identifiable information (PII) from unauthorized access or disclosure to maintain compliance with the SBHE's recent passing of policy 503.2, Student Data Privacy Bill of Rights.



System Functionality

The NDUS supports a wide range of academic applications and business systems, ranging from the student, finance, and human resources systems to learning management tools, collaborative technologies, and communication systems. As new needs arise and technology improvements emerge in the marketplace, the NDUS works collaboratively in coupling nascent needs with promising solutions. The objective is to provide the best possible solution by assessing institutional functionality needs, capabilities of existing solutions, and/or solutions available in the market to ensure students, faculty, and staff get the most efficient and effective user experience.

The following initiatives align with the NDUS's goal #3 – To improve and enhance North Dakota University System student learning and users' focus:

- Refine current business processes that are constantly evolving and apply necessary improvements to add efficiency as recommended and prioritized by the user groups and approved by governance when necessary.
- Enable additional functionality of current systems and/or implement complimentary systems to maximize process efficiencies, user experience, data integrity, and data security.
- Implement automation of technical and functional systems to provide timely and appropriate services to stakeholders. It is imperative the NDUS continues to expand the capability and capacity in the area of automation.
- Decrease technical debt of existing systems by assessing and procuring solutions that are appropriate for current and future needs of stakeholders.



IT Service Management

Providing a supportive and service-oriented environment for the NDUS can have significant impacts on student experiences and success. Service Satisfaction is educating, training, collaborating, and providing the best customer service that is expected of us. It is the NDUS mission to collaborate with stakeholders and empathize with their day to day challenges and struggles. Identifying how they feel and the struggles they face helps to understand their needs.

The following initiatives align with the NDUS's goal #2 – To improve North Dakota University System information technology-enabled business processes and services while providing and managing resources:

- Implement an asset management system to more effectively manage and monitor asset movement throughout a campus and/or an organization.
- Build out a single sign on portal for systems that are used most often, eliminating the task of signing into multiple applications throughout the day.
- Continue to identify and consolidate systems and services that are utilized across all the NDUS institutions with consideration given to the creation of efficiencies, cost savings, and improved quality of service.



Infrastructure

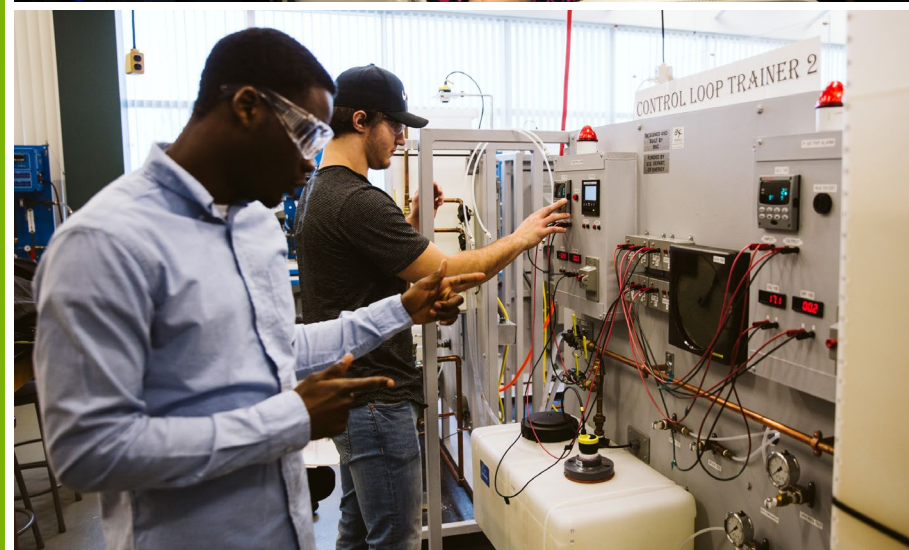
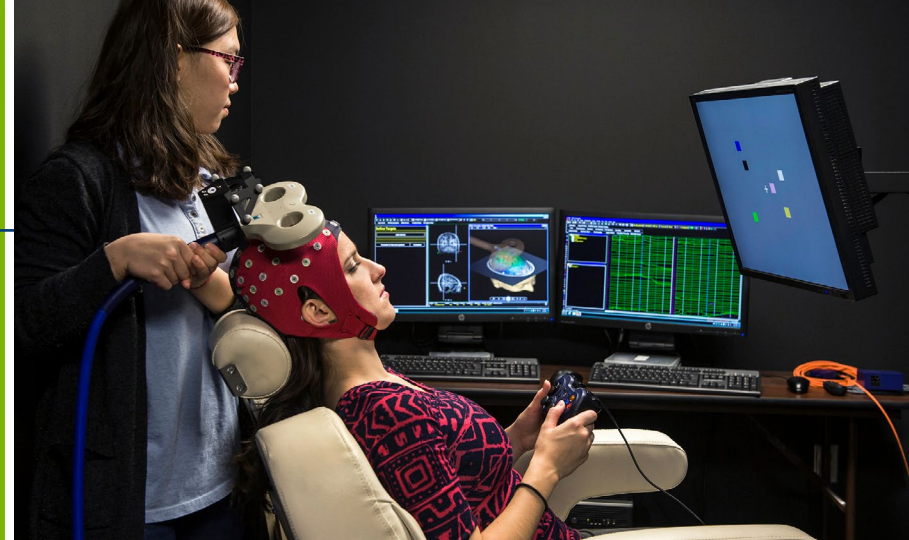
The NDUS's technology infrastructure serves as the core in delivering a positive learning and teaching experience for our faculty and students; continuous improvements are key in supporting up-to-date, secure educational environments. Staying current with network upgrades allows for students to learn or faculty to teach from any location, providing the opportunity for flexibility, availability, collaboration, and access. The expansion of security measures to further monitor and control network traffic as well as detect and deter malicious activity can keep the work of our students, faculty, and staff better protected. Implementing a solution to authenticate to cloud-hosted systems automatically in the event of a network outage will enable users to stay connected to a multitude of student and employee systems with little to no interruption.

The following initiatives align with the NDUS's goal #1 – To support North Dakota University System infrastructure needs:

- Upgrade campus network security appliances to ensure proper security auditing is met.
- Enable URL filtering on campus network intrusion and prevention systems (NIPS) and implement NIPS encryption monitoring and detection.
- Update campus wireless access points to meet the demands of increased usage of personal computing and mobile devices.
- Create secure subnetworks to support scientific and high-performance computing to allow for more efficient participation in collaborative research, both regionally and globally.
- Upgrade campus core network and building entrance switches.
- Implement a cloud-hosted solution to provide authentication redundancy to access cloud-based applications during on-premises network outages.
- Support Wide Area Network (WAN) services to campuses, in collaboration with North Dakota Information Technology (NDIT).

Summary

This plan outlines a series of strategic initiatives that will drive the NDUS roadmap during the next biennium. The focus on Academic Services, Information Security, IT Service Management, System Functionality, and Infrastructure is designed to support faculty, staff, students, and system office stakeholders. The NDUS plans to achieve these goals with outstanding teamwork, excellent customer service, collaboration, dedicated leadership, inspiration, and growing opportunities.



Summary