

2015-2017

North Dakota Statewide IT Plan

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North Dakota State Government

Information Technology (IT) Process

Every even numbered year, North Dakota state government agencies prepare their Information Technology (IT) Plans for the next biennium. The process for the 2015-2017 biennium began in April 2014 with the Information Technology Department's (ITD) planning analyst publishing a planning briefing. Updates to the planning process, ITD rates, and technology direction were addressed in the brief. The ITD planning analyst met with agencies from May through July to discuss their direction and any concerns the agencies had. IT Plans were due on August 16th and were submitted to ITD via an Agency Operations document and Project Worksheets. Each plan was reviewed as to the agency's technology direction, compliance to technology standards, and verified that the operational budget included in the IT Plan was consistent with previous operational budgets. In September, the State Information Technology Advisory Committee (SITAC) prioritized the large projects (over \$500,000) included in the IT plans. This Statewide IT Plan includes a summary of agency plans, along with summary information from K-12 education and the North Dakota University System.

SITAC Prioritized Projects

SITAC ranks projects requesting funds of more than \$500,000 each biennium. The projects are ranked by funding sources, including General, Special, and Federal funds. The prioritization of large projects assists legislators during the appropriation process.

General Funds

Department of Corrections and Rehabilitation

- Workforce Software: This is an agency wide solution to track time, employee attendance, scheduling, and operational staffing.
- Elite: This is a new system for management of community offenders to replace the functionality of Docstars.

North Dakota State Government



Overview

*Mike Ressler, Chief Information Officer
North Dakota Information Technology Department*

With the current oil boom and the strong agricultural economy, North Dakota has been called the land of opportunity. With this opportunity comes growth. The population has grown from 670,000 in 2010 to over 723,000 in 2013. The number of K-12 enrollments for 2013-14 is 101,656 students, up from 93,715 in 2009-10. The number of student headcount enrollments in the North Dakota University System has grown from 43,358 in 2010 to 45,088 in 2014.

With these kinds of increases, the need for government services has never been greater. Technology continues to play a critical role in delivering these services. This biennium, substantial investments have been made by K-12, Higher Education and State Government. Examples include a statewide rollout of the PowerSchool student administration system in every K-12 public school, the completion of a remodeled data center in Grand Forks for Higher Education, and various technology upgrades to agency business applications, such as Highway Patrol's electronic permitting system and the deployment of a statewide Health Information Network.

In State Government, we will continue to focus on the same four goals outlined in the 2013-2015 Statewide IT Plan: Access; Information; Reliability; and Efficiency.

Access will be enhanced as agencies invest in technologies to make their business applications available on mobile devices in a manner that is designed for these devices. Additional network bandwidth will continue to be provided to government agencies, state and local, as well as to educational facilities. An increase in vendor application hosting offerings will result in more data passing over the network. Additionally, an increase in the number of students using

computing devices in the classroom will require additional wireless access points and more bandwidth delivered to schools.

Information is generated from data, and we have more data available to us today than ever before. The State Longitudinal Data System (SLDS) is a collection of programs that will influence school administrators, teachers, parents and students in their quest for the best possible education-related outcomes. Workforce decisions will also be enhanced as this program matures with collaboration between Higher Education, employers and policy makers. Another program showing great results is the Health Information Exchange. According to a report by the National Centers for Disease Control, 82.9% of North Dakota's office-based physicians use a basic electronic health record system, the highest in



Mike Ressler, Chief Information Officer
North Dakota Information Technology Department

the country. This system allows doctors to access patient history, demographics, diagnoses, clinical notes, medications and allergies, test results and other information.

Reliability includes systems that deliver the information we expect from government in a secure manner that protects our citizens' personal information. In 2014, state chief information officers ranked cybersecurity as a primary concern. Cyber threats and the risks they pose have become increasingly pervasive. Today's media headlines are filled with many stories of private and public sector breaches costing all of us millions of dollars and damaging the trust and confidence they have in the systems/people storing their data.

Efficiency is an outcome we strive for as we make investments in people, process and systems. Investments in the development of

Human Service's Medicaid Management system and the Eligibility system, Secretary of State's Data Processing System, and the Job Service Unemployment system will result in efficiencies for the constituents using the system as well as the government employees delivering the service. As we explore vendor provided cloud services, we will migrate towards them when efficiencies can be obtained.

The following Information Technology plan outlines our accomplishments and identifies our initiatives and strategic direction as we move into the 2015-17 biennium.

Members of the Social Media Users Group (SMUG) listen to a presentation about the state digital communication in government. The SMUG is facilitated by ITD and gives public information officers and other state employees an opportunity to learn about digital communication best practices and share what their agencies are doing.



Goal One

Access: Expand North Dakota's services to reach citizens and businesses anytime, anywhere.

Initiatives

Department of Transportation – Mobile Vehicle Renewal

The Department of Transportation (DOT) is working with ITD to develop its second application designed specifically for mobile devices. The Vehicle Renewal application will be available in the Apple and Android software stores, and enables citizens to renew vehicle registration from mobile phones and tablets. This will be the first application developed using ITD's mobile-specific development tools, and paves the way for other agencies to utilize ITD's development offerings to create mobile applications for services that are consistent across ND state government. DOT's first mobile application, ND Roads, continues to be a popular and valuable application that is improving the safety and convenience of travelers in North Dakota.

North Dakota Parks and Recreation – Network Upgrade

North Dakota Parks and Recreation (NDPR) will be upgrading all state parks to a high speed network connection. The significant increases in bandwidth will allow visitors to utilize state of the art wireless network access throughout the park. It will also enable new remote options for NDPR support staff, decreasing the need to travel to the parks for computer and application support. Additionally, the high speed networks provide the infrastructure needed to make Voice-Over-Internet Protocol (VoIP) telephone systems an option at state parks, providing significant potential savings in long distance calling costs and improved communications efficiencies like real time Instant Messaging and Status.

North Dakota Parks and Recreation – Snowmobile Registration

NDPR will develop a computer program that allows the transfer of the Snowmobile Registration processing (in-state) from the DOT application to an Online Services Web Application. The program will allow for the real time purchase of out-of-state snowmobile permits online, and the management and fulfillment of the permits by the Parks and Recreation headquarters. The transfer of the out-of-state permit sales to this program will allow NDPR to close down another program, and provide a centralized contact for snowmobile enthusiasts to receive their snowmobile registrations, renewals, out-of-state permits, maps, safety information, rules and regulations and any other services they may need.

North Dakota Insurance Department – Boiler Inspection

The Insurance Department is developing a new Boiler Inspection application to replace an aging system. The new application will allow state inspectors to access the system remotely and upload inspection data. It will also enable inspectors to Email billing notices, service letters, certificates and other correspondence to the owner/user of the boiler instead of sending paper. It will enable use of the latest operating systems and devices, providing even more options in the field as new platforms emerge.

Accomplishments

Department of Commerce – Website Rewrite

The Department of Commerce (DOC) rewrote its Commerce, Tourism, ND Business, and Experience ND websites using responsive

design functionality, which allows end users to use the latest mobile devices. The new sites also incorporate social media elements such as Facebook, Twitter, and YouTube. The website redesign also included data synchronization between the web sites and the agency's internal Customer Relations Management solution which automates the data exchanges, and the site administration and maintenance are more streamlined and efficient. Search capabilities on the websites have also been greatly improved.

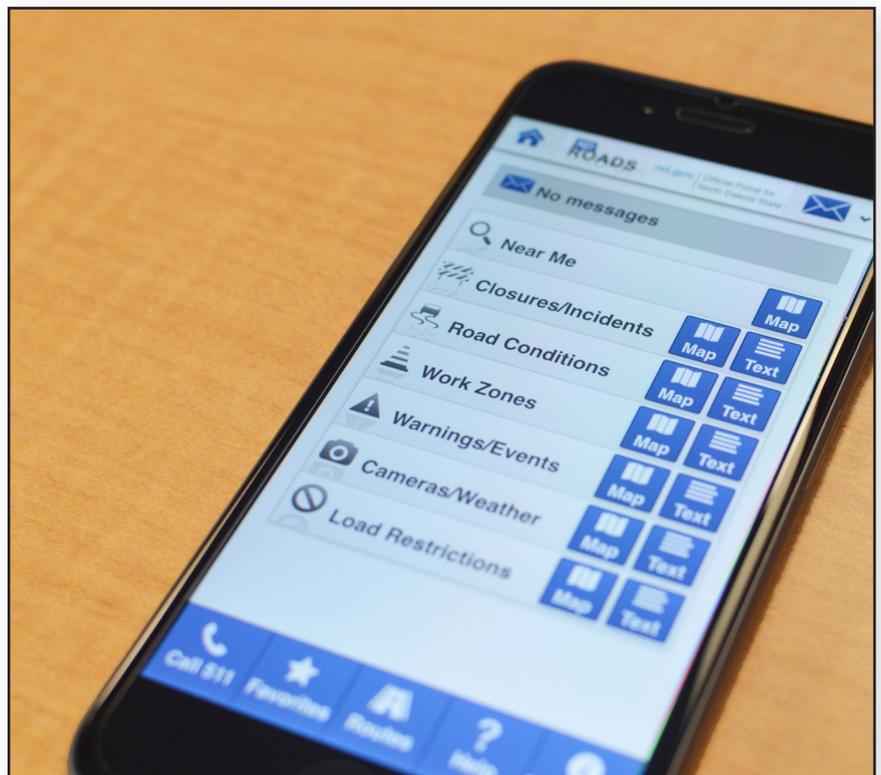
Department of Transportation - Commercial Driver RoadTest System

The DOT implemented a system to allow examiners to digitally complete road tests for commercial drivers. RoadTest has eliminated errors and omissions in the skills testing process with features that include GPS tracking and automated scoring. The new solution reduces the time and labor costs associated with re-keying data into enterprise systems and the cost of physically distributing copies of paper forms across the organization. Testing data is sent electronically and may be accessed immediately by system users. The web reporting tool included in RoadTest allows management to track the pass/fail rates by site down to the examiner level. RoadTest meets the requirements for Federal Motor Carrier Grant funding, and provides the opportunity for expansion into Non-Commercial tests in the future.

North Dakota Highway Patrol – Electronic Permitting

The North Dakota Highway Patrol (NDHP) implemented a new Electronic Permitting solution that combines all NDHP permitting into one system and integrates with an enhanced automated routing system. 95% of all permits are now being obtained through

the web based system, which is also usable on mobile devices. The ePermits system includes an interface between the NDHP and the permit application maintained by Association of Oil and Gas county consortium, which allows a consumer to transfer their basic permit data to the county consortium ePermit system. Efficiencies gained with the new system include a 50% reduction in workload for the DOT's Bridge division, and a 60% reduction in the number of permits written in the field by NDHP field troopers. The Information Technology Council of North Dakota awarded The ND Highway Patrol the "IT Champion Award" in 2014 for its development, use and delivery of technology to North Dakota's citizens.



Mobile apps, such as the ND Roads app pictured above, give the public easy and on-the-go access to government services.

Goal Two

Information: Deliver solutions that empower decision makers.

Initiatives

North Dakota Department of Corrections & Rehabilitation – Workforce Software

The North Dakota Department of Corrections & Rehabilitation (DOCR) will implement Workforce Software across the agency. The information technology solution currently being used to track time, employee attendance, scheduling, and operational staffing is manually intensive. Due to the nature of the DOCR's 24 hours per day, 7 day per week operational mission, and wide array of departments, divisions, and units, the current system is impractical and inefficient. The Workforce Software solution will increase operational efficiency, decrease inaccuracy in time/labor submissions and pay, control overtime costs through longer-term scheduling, and allow management to make meaningful decisions based on data for staffing.

North Dakota Parks and Recreation – Biotics Update

NDPR is migrating its Biotics application, a map based online conservation planning and environmental review tool. The new system is an online environment which allows for much greater access to the database than individual desktop applications. This decreases the amount of time spent updating individual instances of the databases when software is updated, and allows

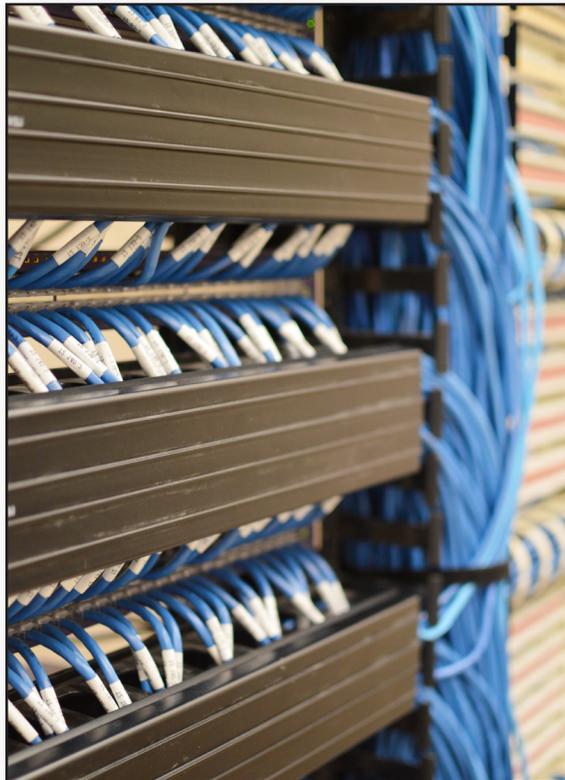
users access to the database from anywhere with an internet connection. The system provides better interoperability and data sharing with partner systems through the use of open data and technology standards, offers near real-time data synchronization among NatureServe network programs, and the ArcGIS Server-based mapping platform allows users to overlay Biotics data with map services available on the Internet.

Accomplishments

Department of Public Instruction – eTranscripts

One of the goals established by the K-12 Domain of ND SLDS was to establish an electronic system that enables school districts to transfer student transcript information to post-secondary institutions or ND school districts. Adding the electronic transcript capabilities has enabled school districts to exchange student

information among each other as students transfer, facilitating higher data quality and continuation of key student services, especially for mobile student populations. The project included the development of a single, standard print format through the eTranscript system. The electronic process has also made better use of resources and has reduced errors.



Job Service North Dakota– Workforce Data Quality Initiative

The Workforce Data Quality Initiative (WDQI) grant project provided resources that helped merge data from two distinct systems (workforce data and education) into a single unified data repository. This provided an additional module to the larger SLDS environment. Additionally, this strengthened the data familiarity and relationships amongst data owners. Work accomplished during the grant process enabled master person index creation. This has allowed better job seeker identification for purposes of attributing demographic detail to them from other internal databases. This will allow reports to be available to Job Service North Dakota (JSND) local office staff in working with job seekers as they come into their offices. The demographic trends of job seekers, and the tracking of their economic outcomes, will be valuable as scarce resources are allocated. Information can also be shared with the Department of Commerce as they work to attract out-of-state job seekers with their different programs and initiatives. Also, due to the groundwork done with this project, a college graduate outcome/accountability report for the Department of Commerce and the ND University System can now be pursued by the SLDS research subcommittee.

Department of Human Services – CHIPRA NDVerify

The Department of Human Services (DHS) developed new technology to provide statewide outreach, enrollment and retention of clients receiving/participating in Medicaid, Children’s Health Insurance Program (CHIP), Supplemental Nutrition Assistance Program (SNAP) and/or Temporary Assistance for Needy Families (TANF) benefits. The primary objective was to create a single, web-based portal application that provides eligibility workers with intelligent, filtered, well organized information from many different sources for the purpose of determining

eligibility for medical and economic assistance programs. The simplified process has led to a higher retention of recipients in their associated programs. Over time the NDVerify tool will be integrated into the eligibility replacement system, where it will become an integral component of eligibility determination.

Information Technology Department - ND Health Information Network

ITD completed the full initial implementation of the North Dakota Health Information Network (NDHIN). By the end of Quarter 1, 2014, 94% of community pharmacies were receiving electronic prescribing transactions. Reference labs now have two ways to exchange lab requests and results; through Direct and query based services using health language 7 transactions. For the period beginning September 1 and ending December 31, 2013, 56.5 percent of all practice-based immunization transactions were electronically reported to the North Dakota Immunization Information System (NDIIS) each week. The NDIIS also has a process in place for providers to refer smokers to the North Dakota Tobacco Quitline and providers are using the new process.



Goal Three

Reliability: Meet changing business needs by delivering secure and effective technology services while safeguarding citizen privacy.

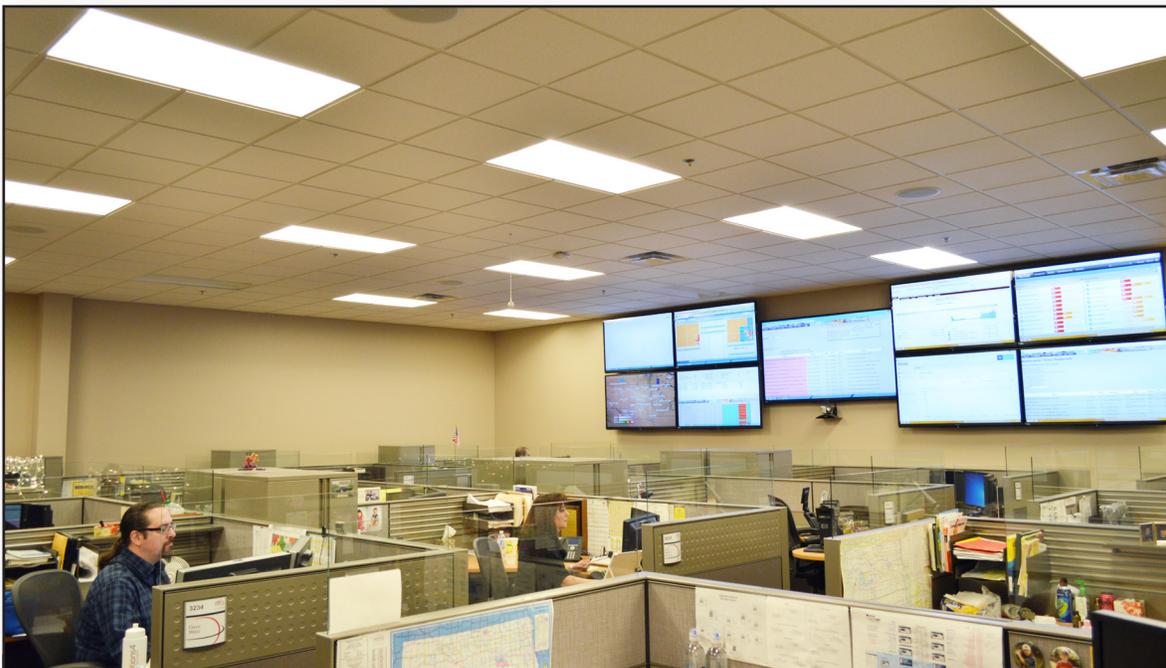
Initiatives

Information Technology Department – Network Security

With growing security needs, ITD will enhance STAGenet security and reliability by continuing to integrate next generation firewall technology throughout the enterprise. The technology provides integrated intrusion detection, intrusion prevention, application layer policy enforcement, the ability to map traffic to users and groups, and adaptability to the modern threat landscape. ITD will also deploy Virtual Private Network solutions coupled with Multi-Factor Authentication to better support an increasingly diverse group of authorized users connecting remotely. This includes more advanced and reliable remote control tools to allow support personnel to assist users in geographically separate locations.

North Dakota Court System – Second Data Center

State Courts will establish a remote disaster recovery site based in the Fargo area which will be capable of supporting the Court's mission critical operations until actions can be taken to restore the main production site and return to normal operations. Fargo was picked for the remote site to ensure ample distance between the primary and secondary production sites, thus mitigating the chances of an environmental disaster affecting both sites. The backup site will be capable of receiving and storing an up-to-date copy of production data and providing, within hours, replacement functionality for the primary IT infrastructure.



The ITD Network Operations Center (NOC) houses the Service Desk and allows for constant monitoring of network status.

Accomplishments

Department of Emergency Services – Disaster Grants Management System

The DES has replaced a paper based Disaster Grants Management system with a fully electronic solution. The new system is accessible via the web, providing 100% access to those requesting grant support. It reduced the number of times data must be manually entered by 300%, and reduced transcription errors from the old system. The system also includes managed reporting functionality that did not previously exist to gather, sort and present historical data.

Information Technology Department – Multi-Factor Authentication

ITD collaborated with multiple agencies to develop a Multi-Factor Authentication (MFA) solution, completing the pilot in 2014 and offering MFA as a service for all agencies. The enterprise solution is platform neutral, supporting typical desktop and laptop computing platforms regardless of the operating system, and supporting modern mobile devices, which are traditionally more difficult to secure. MFA provides agencies with the option of requiring a one-time-use password, delivered in real time, in addition to a personal identification number, and the typical username and password authentication requirements. This not only ensures more secure authentication for access to sensitive applications and data, it meets the requirements often established by federal agencies for funding and access to federal data.

of Emergency Services (DES), Division of State Radio, to substantially upgrade the Law Enforcement Records Management System (LERMS). CJIS has transitioned 18 law enforcement agencies and 5 correctional facilities to the system, and six additional correctional facilities and approximately 35-40 additional law enforcement agencies will also move to the upgraded system in 2015. The upgraded system adds a jail management system, a property and evidence module, and greatly enhanced master name index and searching functionalities, which will empower data-sharing among agencies on the system.



Multi-factor authentication enhances security by requiring users to utilize something they know (e.g. PIN) and something they have (e.g. one-time-use-password obtained through an MFA token).

Department of Emergency Services – Statewide RMS

This project was a joint effort between the North Dakota Criminal Justice Information Sharing Program (CJIS) and the Department

Goal Four

Efficiency: Pursue streamlined business processes and innovative partnerships that improve North Dakota's government service.

Initiatives

The North Dakota Department of Corrections & Rehabilitation – Elite

The DOCR maintains two offender data tracking applications – iTag for inmates and Docstars for community offenders under the supervision of Parole & Probation. The iTag vendor, Syscon, now offers an updated version, Elite, which also has a community module. The DCOR will move the Docstars data and users to a customized version of the community module of Elite. This solution will eliminate the duplication of data entry and provide a single source database for users to access information, including maintenance and data collection, while providing enhanced case management among DOCR divisions. The new system provides integrated word processing capabilities, will minimize data storage requirements, and will eliminate the need to utilize resources to rebuild Docstars.

ND Department of Agriculture – Business Analysis

The Department of Agriculture will conduct a Business Analysis focusing on the agency's data and application infrastructure. Using an independent evaluation and recommendation, the main goal will be to identify and model the data and application infrastructures of the department and improve the sharing of information across the divisions. The agency hopes to consolidate applications, improve emergency response time, and develop a common resource to support all data and applications.

ND Highway Patrol – ePermit Enhancement

The HP will be enhancing its permitting application to allow users to store various

options for vehicle configurations. The enhancements will allow users to store power units, trailers, dollies, etc. and use the different components to build a vehicle configuration that will be used to create their permit. HP employees will then be able to update the user profiles with vehicle configurations. Other benefits include advanced customer usability, and streamlining the permitting process by removing repetitive data entry.

North Dakota Court System – Juvenile CMS

State Courts will replace its existing Juvenile Case Management System (CMS), which has been in production since 1997, with Odyssey Supervision. With the elimination of the existing system, court officers will no longer be required to enter data, search for cases and people, and monitor performance in two separate systems. This will free up valuable time that can be spent with clients. Implementation of Odyssey Supervision will facilitate the elimination of paper files, which will in turn provide huge productivity improvements. Supervision will provide functional capabilities not possible with the current system, thereby replacing human effort with machine effort. These capabilities include management of treatment court cases, computation of performance metrics, and development and refinement of treatment strategies. The new system will reduce time spent in record-keeping activities for court officers and support staff.

Accomplishments

Department of Public Instruction – Food and Nutrition Program (NDFoods)

The purpose of this project was to replace the existing Child Nutrition and Food Distribution

programs (CNFD) within the Department of Public Instruction (DPI) and all CFND program sponsors. The new enhanced application is more user friendly and easier to maintain by program administrators. The NDFoods rewrite streamlined business processes, provides accurate and timely information, improves communications, speeds claims for reimbursement, allow for data collection and analysis, and reduces paperwork. The new system includes robust and dynamic search capabilities as well as reporting functions that are much more usable by CFND administrators.

Information Technology Department – New Building

ITD moved into a new building, located at 4201 Normandy Street, Bismarck. Now all ITD employees in the city are located in one building, rather than four separate locations. This has resulted in less travel, lower operating costs for rental space, and greater efficiencies in daily communications between employees. The new facility also offers storage and configuration workspace for equipment. ITD's data center remains at the state capital to take advantage of the facilities already in place.

Department of Health – ND Immunization Information System Interoperability

The DOH increased interoperability between the NDIIS and various Electronic Health Record (EHR) systems throughout the state. Due to the previous lack of integration between individual EHR systems and the previous NDIIS, most providers were required to enter immunization data twice. Interoperability between the NDIIS and EHRs at provider practices has improved the completeness of immunization histories available to clinicians and public health by ensuring that all vaccine doses administered are in the NDIIS. Interoperability also ensures that doses are entered in the NDIIS in a timely manner. Data collected during

Q4 2013 indicates the participating providers in total submitted an average of 76,375 messages per month. Using an average wage of \$28 and a 60 to 90 second per immunization model, participating providers have saved between \$35,896 and \$53,463 per month or \$430,752 to \$641,550 per year across the state. Based on the final actual cost, the investment return will be realized in 11 to 16.5 months. As additional providers come on-board, these savings to providers will continue to grow.

North Dakota Department of Health's Women Infants and Children (WIC) Electronic Benefits Transfer (EBT) – Phase 1 Feasibility Study

The DoH completed Phase 1 of this project as mandated by the USDA/FNS to implement an EBT as the delivery method of food benefits by October 1, 2020. Phase 1 resulted in an Implementation Advanced Planning Document (IAPD), which is the requesting vehicle for FNS EBT funding. While authoring the IAPD, it became evident that DoH WIC would be best served to cooperatively work with another state or consortium of states to implement EBT.



Consolidating ITD employees to a single location has helped increase efficiency by lessening travel time for meetings and enabling easier collaboration.

State IT Projects

Completed Projects

July 1, 2005 - November 30, 2014

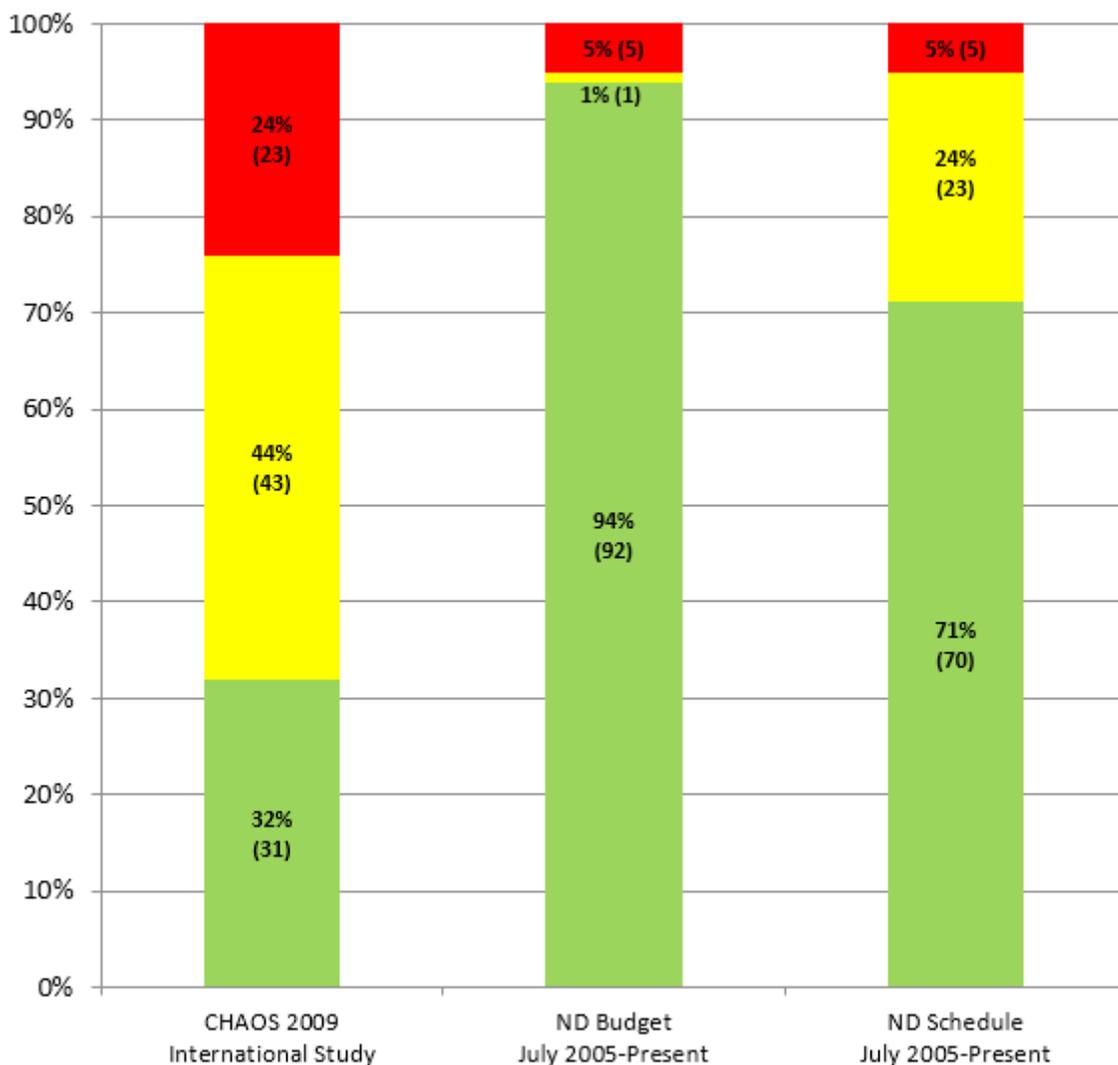
Below is a graph comparing budget and schedule thresholds for ND State Government IT projects completed since July of 2005 against industry averages as determined by The Standish Group CHAOS report from 2009. Overall, the graph illustrates that ND State government exceeds industry averages by a large margin when it comes to the success of IT projects.

Column one represents the results of the CHAOS 2009 International Study, column two represents the budget variance threshold of ND IT projects, and column three represents the schedule variance threshold of ND IT projects.

Green = Within Threshold

Yellow = Beyond Threshold But Obtained Strategic Objectives

Red = Terminated or Did Not Obtain Strategic Objectives



North Dakota K-12 Education



Overview

*Jody French, Director
Educational Technology Council*

K-12 Connected: Increasing Capability by Supporting Collaboration” is the theme for the work of the North Dakota Educational Technology Council (ND ETC) for 2015-17. The ND ETC has statutory responsibility to coordinate educational technology initiatives that promote efficient, effective and equitable technical and online learning services for all elementary and secondary schools in the state. The ND ETC meets that responsibility by providing leadership for several key technology and online learning initiatives in the state and by providing policy and performance governance for the North Dakota Center for Distance Education (ND CDE) and EduTech.

The North Dakota Access for Government and Education Network (STAGEnet) provides a robust, high speed and reliable Internet connection to schools that allows teachers to enhance instructional methods and promote 21st Century skills like communication, collaboration, critical thinking and creativity. STAGEnet also provides the necessary infrastructure for extended student learning opportunities through the use of interactive video classrooms and online courses.

EduTech successfully implemented Office 365 on a statewide basis in Fall 2014. Office 365 is a communication and collaboration package that includes email, calendaring, cloud storage, collaboration spaces, and online document editing using Office Web Apps. The launch of Office 365 required building a K-12 Active Directory including Forefront Identity Management tools and a customer portal. This large project also provides a reliable, efficient process for K-12 customers to securely access other K-12 systems such as those provided by the ND Department of Public Instruction.

EduTech completed implementation of PowerSchool as the legislatively mandated common student information system in all public schools during the 2012-13 school year. EduTech continues to support daily and advanced features of PowerSchool and related data systems. EduTech provides web hosting, blogging, social networking and Internet filtering in order to equitably deliver services to educators and students in North Dakota K-12 schools. Through Edutech North Dakota educators have face to face, online and one to one professional development opportunities to develop skills to maximize their teaching through use of technology. EduTech help desk staff provide technology support to K-12 schools and serves as a gateway for K-12 schools when



Jody French, Director
Educational Technology Council

they need technical support for state provided services. By centrally providing technology services, all schools have the core tools in place to use technology effectively and efficiently

The North Dakota Center for Distance Education (ND CDE) plays a key role in providing curriculum and instructional equity for North Dakota's students, particularly those students who are educated in North Dakota's smallest K-12 schools. This role has been dramatically improved and enhanced over the past three years through the planning, development and implementation of Phase 1 of a multi-phase reorganization effort. Results of Phase 1 include a drastic reduction (by 2/3) in the cost of courses, increased ND enrollments (300% 2011-2014), improved quality and increased selection of electives and advanced courses for students, and formation of partnerships with online curriculum providers resulting in increased performance by students taking advantage of ND CDE's services and performance. The result is that ND CDE has positioned itself as a high value, full service distance education provider for all North Dakota schools.

ND CDE has begun Phase 2 of its reorganization. Phase 2 focuses on increasing the "net" learning gained by each student. Highly competent online teachers will apply

SLDS data, ND CDE's learning management data and enhanced communication capability between student and teacher to personalize learning for each student. ND CDE will also seek to improve and enhance their blended learning capabilities.

In the next biennium the ND ETC plans to centralize its grants programs to a single initiative that focuses on using technology to transform education. Additional funds have been requested to improve wireless infrastructure, increase student access to internet connected devices and expand instructional coaching for educators. The goals of the project are to:

- support new and existing 1:1 initiatives (computer for every student) and Bring Your Own Device (BYOD) initiatives
- build on Google for Education and Office 365 implementations that are in nearly every school.
- ensure school commitment by requiring 50/50 matching funds and an obligation to instructional coaching for teachers
- provide bid pricing for devices by taking advantage of pricing through the ND Education Service Cooperative (NDESC).

All of the initiatives undertaken by the ND ETC, ND CDE and EduTech are in line with ETC's five Results Policies. As a result of our efforts:

- 1.** North Dakota educational technology systems will continuously improve educational opportunities for students.
- 2.** Technology systems to enhance educational opportunities will be more efficient, effective, and coordinated on a statewide basis.
- 3.** Distance education systems will be in place to deliver a comprehensive curriculum to North Dakota students.
- 4.** Professional development related to the use of educational technology will be available to school administrators and teachers to meet changing education needs.
- 5.** Policies and practices to sustain the integrity, stability, and security of the educational technology systems will be maintained and promoted.

- tie to the benefits of the E-rate Modernization Order that offer additional discounts for local area network improvements including wireless access

In the next biennium EduTech will continue to support use of PowerSchool for daily operations, use of advanced features and state reporting. The North Dakota Data Steward and EduTech staff members will play a critical role in the continued development and use of the ND SLDS to promote effective use of data by schools. EduTech will improve the productivity and communication tools within Microsoft Office 365 allowing students and educators the opportunity to connect to their online work anytime, anywhere. Professional development will be enhanced and more easily available in blended and online formats where educators can receive professional learning where and when they need it.

In the next biennium the ND CDE will complete Phase 2 of its reorganization. ND CDE's reorganization has leveraged a process-based approach to systems management to assure continual performance improvement will enable it to continue to drive down the cost of online courses, while continuously improving course and teaching quality.

The ND CDE will continue to partner with ND schools to provide extensive curriculum opportunities for students including required academic, elective, advanced placement, and credit recovery courses. New partnerships will include ND CDE's work with NDUS, Pearson, and ND DPI to provide senior year Math and English remediation to ND students. It will include working with ND's energy industry to provide hands on STEM curriculum in all schools regardless of size and location. It will include working with ND DPI and all ND schools to develop and maintain a clearinghouse

of online course performance in order to assist schools make sound digital decisions. Finally, ND CDE will increase the help it provides to ND school teachers, administrators and paraprofessionals as applicable and appropriate.

The directors of ND ETC, ND CDE, and EduTech will continue to work with a number of state-level partners and local school districts to create efficiencies, avoid duplication and ensure



The Office 365 Launch Planning Team, featured here, helped make North Dakota one of the first states in the country to move all K-12 schools to Microsoft Office 365 and Active Directory.

that North Dakota's K-12 technology systems serve K-12 students and educators. These partners include the North Dakota Information Technology Department (ND ITD) North Dakota Department of Public Instruction (ND DPI), the North Dakota Department of Career and Technical Education (ND CTE), Regional Education Agencies (ND REA), Interactive Video Consortia and Career/Technical Education Consortia.

Goal One

North Dakota educational technology systems will continuously improve educational opportunities for students.

Goal Description

Statewide K-12 educational technology initiatives are focused on improving the learning opportunities for and the achievement of students. New classroom technologies make teaching and learning more engaging and effective. School based information systems save time and provide important student information to teachers and administrators. Online delivery of courses and other digital curriculum content make more learning opportunities available to all students.

Objectives

1. Make funding available to schools, enabling them to move toward using more technology-rich teaching and learning environments.
2. Provide PowerSchool training and support to ensure every school is successful in using PowerSchool for daily operations, state reporting and use of the Statewide Longitudinal Data System and e-Transcript.
3. Provide students learning experiences that embrace social media, cloud computing and Science, Technology, Engineering and Math (STEM).
4. Continue to develop and enhance the capabilities of the ND CDE to ensure equitable access by North Dakota students to high quality, low cost online courses.

Initiatives

ND ETC requests funding in its 2015-17 budget to provide all public schools with opportunities to receive grant funding that focus on student access to internet connected devices to improve learning.

EduTech and the ND ETC will focus on providing efficient PowerSchool training and support for all schools that includes use of the ND SLDS and e-Transcript. Schools with EduTech support will complete the process of mapping state course codes to local course numbers to improve the admissions process to ND and neighboring colleges and universities. K-12 students and parents will see the benefit in the e-Transcripts process.

EduTech will be developing processes and procedures to allow schools to store documents within PowerSchool. Having storage capability will allow districts to scan and upload student information, such as birth certificates and medical records. Each district will have an allotted space on the PowerSchool server to store this information.

EduTech will collaborate with vendors to explore the potential to add a Special Education module that integrates with PowerSchool. The Special Education Module provides easy access to information so educators can more easily manage information for students with disabilities.

EduTech will deliver new Office 365 applications along with training as the applications become available from Microsoft. EduTech Information Technology Specialists will also continue their efforts in providing tools and training for Geographic Information Systems (GIS), 3-D printing and other maker technologies.

The ND CDE requests funding in its 2015-17 budget to continue to reduce the cost of courses for the increased numbers of students taking advantage of ND CDE's services, provide the necessary funding to develop quality, locally appropriate solutions for North Dakota schools and personalized learning opportunities for

ND students. The additional funding will provide increased and extensive curriculum opportunities for all North Dakota students. The opportunities will be made possible through enhanced curriculum partnerships, expanded cloud computing, and ND CDE's increased attention to, and presence in, ND schools. Particular attention will be focused on very small schools, students that find themselves in unique circumstances not well-served by traditional schools and on schools dramatically impacted by the growth in the western half of the state.

blogging and EduSites. EduTech has partnered with a local technology company to bring a three dimensional printer to schools in North Dakota to provide students and their instructors live demonstrations of this prototyping and manufacturing technology.

EduTech, in collaboration with Kat Perkins, are delivering a positive social media tour to North Dakota schools during the 2014-2015 school year. Themes of the tour includes Finding your Passion, Going after your Dreams, Bullying/ Manners and Making a Positive Impact in the World.



The Legislative Technology Showcase gives school teams an opportunity to showcase successful education technology uses.

Accomplishments

The ND ETC awarded Classroom Transformation grants to six schools for projects designed to continuously improve the way teachers and students use technology, curriculum resources, and achievement data to meet learning outcomes through individualized instruction. These projects focused on redesigning instruction to be more inquiry based, collaborative and differentiated. Each project included extensive professional development for teachers, student learning devices (iPads, laptops, netbooks) and related peripherals.

K-12 students and staff have access to a variety of on-line productivity and collaboration tools at no cost to schools including Office 365,

The ND CDE was recently named by an independent education consortia as one of the 50 best online schools in America. ND CDE owes that recognition to a group of highly competent employees who have executed a complete systems redesign that has resulted in a highly efficient and integrated system that includes a student information system, learning management system, online store and enrollment/business management system. An example of the result of the changes is a 70% increase in enrollment processing efficiency and the elimination of one FTE. The net result is lower course pricing without reducing the quality of the services provided.

Goal Two

Technology systems to enhance educational opportunities will be more efficient, effective, and coordinated on a statewide basis.

Goal description

In order to maximize local, state and federal investments in school technology systems, statewide coordination and leadership are required. Purchasing and supporting key applications and infrastructure at the state level creates efficiencies statewide.

Objectives

1. Continue the progress of the North Dakota global K-12 directory designed to more efficiently deliver IT services across the state by offering students and educators a single user name and password to access services provided by EduTech, DPI and other online service providers.
2. Further develop customer centric service systems and procedures that will help North Dakota administrators, teachers and student efficiently access inclusive support services.
3. Provide hands on STEM learning opportunities that provide a continual and sustainable presence in all schools who seeks to support this type of learning.
4. Promote a broad vision of online distance education to K-12 and other stakeholders using existing and emerging technologies. Collaborate with willing partners of all types – local, governmental, regional, private and for-profit to fulfill the distance education needs of all ND K-12 students.

Initiatives

The ND ETC and EduTech will expand the use of the global K-12 directory that provides access by a single user name and password to include

additional new and existing state services. These organizations will also continue to provide training to school and district assessment coordinators for the on-line North Dakota State Assessment (NDSA) in the areas of technology readiness and test delivery coordination.

The ND ETC and EduTech, in partnership with NDDPI, are in progress of providing a central helpdesk for K-12 data support services. EduTech is the single point of contact and trouble tickets are assigned and responded to by the appropriate EduTech or DPI staff person. EduTech provides a variety of support systems to serve K-12 education and accepts support requests via several vectors, including email, telephone calls, support tickets through the iSupport system. Support requests are addressed via chat, telephone calls, self-service and email.

The ND CDE will continue to collaborate with schools to provide high quality online classes using North Dakota teachers and best-in-class curriculum from established partners. Contact time between ND CDE teachers and their ND students will be increased by the application of cutting edge technology and improved online teaching capability. Opportunities for school collaboration will be increased by ND CDE's increased use of onsite school visits. A special emphasis will be placed on helping small schools and schools impacted by rapid growth in western North Dakota. An installation of a blended, learning lab at its site in Fargo will serve as the hub for the distribution of hands on, STEM learning for ND students and professional development for ND teachers.

Accomplishments

The ND ETC and EduTech led the Statewide Technology Readiness Project which prepares schools for delivery of the ND State Assessment online in Spring 2015. The statewide team provided schools with online tools and resources, webinars, face to face sessions and LAN assessments to ensure their school was ready for online testing. The ND ETC provided competitive grant funds to schools to improve local area networks and to increase the number of devices available for student online testing.

The ND ETC approved 180 school technology plans for 2013-2016 that directly support the existing State Educational Technology Plan. The ND ETC facilitated the renewal of the statewide

ViewPoint contract. ViewPoint is a product that provides individual districts with detailed data to internal stakeholders.

The ND ETC and ITD continue to monitor and upgrade available bandwidth for North Dakota schools. Schools with high bandwidth usage were upgraded during Summer 2014 to ensure adequate connectivity to support increased educational usage. Now most schools will have a minimum connection of 20MB. Schools with more than 200 students receive 50MB; schools with more than 500 students receive 100MB and schools with more than 1500 students receive 200MB.

ND CDE's integrated digital infrastructure is now complete. It is comprised of an online store and website that is credit card capable, integrated with GP Microsoft for money management, PeopleSoft for people management and payroll, Genius Systems for student information and records, BrainHoney for Learning Management, including grading, data collection, student teacher interface, courses from 14 online providers and customized links where required. The entire system is now cloud-based.



Kat Perkins performing at a school as part of EduTech's Positive Social Media Tour. The tour kicked off in Fargo and provided students an opportunity to learn about how to use social media in a positive manner. An important part of the tour was providing small schools and rural communities with an educational opportunity that is often only available to larger communities.



Goal Three

Distance education systems will be in place to deliver a comprehensive curriculum to North Dakota students.

Goal Description

Distance learning is an important option for providing North Dakota students with a comprehensive curriculum, including specialized high school courses as well as advanced placement, dual-credit courses. The use of web-based and video delivery is increasing in K-12 schools, and the online high school courses available through the ND Center for Distance Education are an vital asset to K-12 education in the state.

Objectives

1. Continue to research the specific needs of ND schools by continually seeking information from them and their stakeholders by all communication venues, including face-to-face visits.
2. Implement strategies to leverage ND CDE's capabilities and capacities to connect K-12 schools to high-value digital education resources outside the state.
3. Expand the partnership between ND CDE and ND schools to better align and integrate all ND CDE programs and services with district needs.
4. Support the ITV consortiums to continue their delivery of courses across the state.
5. Develop value-added services to ensure commercially produced online curriculum meets the needs of K-12 learners in the state.

Initiatives

ND ETC supports ITV consortiums with communication tools and regular meetings to

ensure collaboration and support services are available.

Educators, with EduTech support, will engage students in educational outreach opportunities to impact their learning by exploring and building partnerships with state and regional education networks such as colleges and universities, schools, libraries, museums and other educational agencies. Content provider programs such as Live Surgical Suites, The Evolution of American Ideas and programs from the National Park Service will offer students experiences to learn in a "live" environment using video conferencing technology. Classrooms will participate in global collaborations such as Read around the Planet and be connected to global experts via EduTech's guidance.

The ND CDE will seek additional general funds to address the burgeoning need for its services in North Dakota. In the past three years the enrollment of ND students into ND CDE courses increased 300%. This has put a strain on ND CDE human resources and has shifted the balance of employees to a manageable mix of 2/3 full-time, 1/3 part-time to an unmanageable 1/3 full-time, 2/3 part-time mix. In addition, ND CDE will complete its reorganization and continue to improve its performance. ND CDE will continue to provide an extensive number of advanced and elective online courses at the best cost possible. ND CDE will provide courses to prepare seniors for higher education with math and English remediation. Staff members will prepare energy courses to middle and high school students and will establish partnerships with more content providers to offer high quality and a broad range of courses.

In addition, the ND CDE will play a key role in college and workforce readiness by increasing the number and quality of credits attained by high school students and decreasing the number of students requiring college remediation. ND CDE will provide a high quality online experience to students in academic, technical, career and advanced learning courses that may not currently be available in small rural schools.



The increased opportunities provided by the ND CDE for personalized student learning will enable all ND students to achieve the necessary knowledge and skills required of a 21st Century high school graduate.

Accomplishments

The ND ETC provided funds for six ITV consortiums to replace obsolete video codecs and monitors. These improved video classrooms are used every day to deliver classes to students across the state.

Students in all grade levels statewide participated in many different learning global learning activities using video conferencing technology. These activities included observing live surgical procedures and interacting with Humanities Scholar Clay Jenkinson presenting in the persona of Theodore Roosevelt.

The ND CDE successfully reorganized and in the process significantly reduced the cost of courses by an average of 50% and as high as 67%, increased North Dakota enrollments by over

300% and increased the student completion rate to 95% from a low of less than 50% in 2009. They continue to develop partnerships with best-of-class content providers to ensure ND CDE teachers have the best curriculum and the time to focus on student learning. A series of technology upgrades, and the implementation of new technologies, has increased the number, length and quality of student to teacher, parent to teacher, and paraprofessional to teacher interactions. A key result is higher quality relationships between ND CDE's teachers and staff and ND CDE's stakeholders, including students. Research has clearly established that a quality relationship is the primary building block for all types of learning.

Goal Four

Professional development related to the use of educational technology will be available to school administrators and teachers to meet changing education needs.

Goal Description

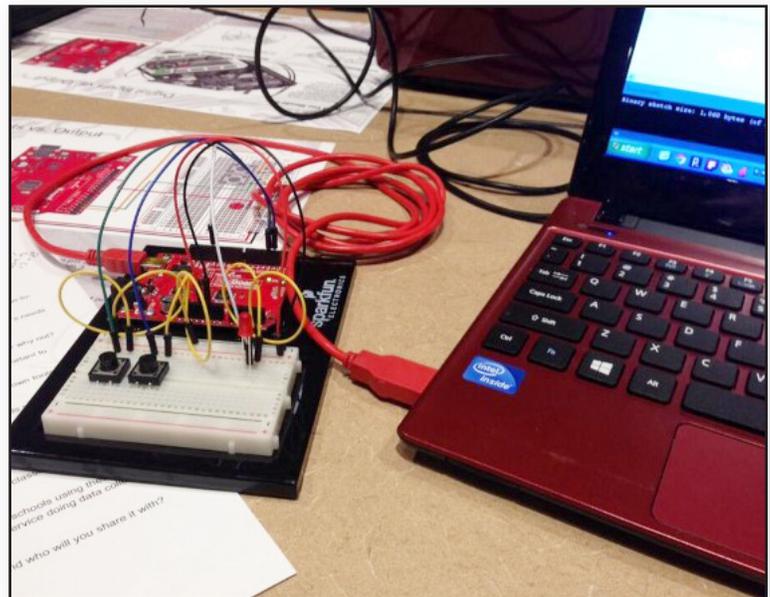
Professional development for teachers and administrators is critical to ensuring that the technology systems in place effectively serve student needs. Developing, coordinating and offering professional development at the state level is both cost effective and provides consistency across all districts without regard to size or location.

successfully use PowerSchool, the ND SLDS and e-Transcript.

New courses will be developed and offered by EduTech to provide convenient and timely professional development opportunities for educators. These courses will include traditional, blended and online course delivery and be focused on emerging instructional uses of technology to promote student learning.

Objectives

1. Provide professional development for teachers that model the use of interactive and collaborative teaching/learning methods made available with online resources.
2. Provide cohesive professional development and support for educator's use data systems including PowerSchool, ND SLDS and e-Transcript.
3. Provide education professionals – teachers, paraprofessionals, adjuncts, supervisors, with training to develop knowledge and skills needed in an online-supported, blended learning classroom.
4. Provide education leaders with accurate information about the performance of online course providers and the techniques necessary to manage those providers.



Instructional Technology Partners (INSTEP), a professional development program delivered by EduTech that is designed to support teachers as they move along on the continuum of technology integration, will be delivered to educators and administrators.

ND CDE teachers certified to national and international online teaching standards will provide training to North Dakota educators who facilitate distance education courses in their local districts or are seeking to improve their online teaching capability. An increasingly significant part of the ND CDE's role in North

Initiatives

ND ETC and EduTech staff will lead initiatives that provide administrators, teachers, counselors, students and parents with the background and knowledge they need to

Dakota's K-12 education system is to ensure the quality of online instruction statewide and to expand the type of delivery particularly in the areas of blended and project-based learning. To do so requires ND CDE to evaluate numerous providers of online education, find ways to increase the consumer awareness of ND schools to online products and services, and to marginalize the providers of inferior online education services and products by ND CDE's providing superior service and products. A collaborative effort of ND DPI and ND CDE will address the issues of quality online delivery by creating a clearinghouse of all online providers in North Dakota, which will provide comparative data of provider performance.

Accomplishments

The ND ETC and EduTech presented sessions on a variety of informational and technical topics to REA leaders, school administrator groups, ND ETC members, ND School Boards Association members and other education leaders. Both organizations are actively involved in Learning Forward at the state and national level. Learning Forward is a professional organization that advances educator effectiveness and student results through standards-based professional learning. Regular meetings and a state conference support ND educators.

EduTech expanded their social media efforts to include Facebook, Twitter and a YouTube channel. All social media channels are used daily to provide professional learning and technical support. Workshops are available to make effective use of these channels at the local level.

ND CDE provided informational sessions about emerging issues in distance education for REA leaders, school administrator groups, ND ETC members, ND School Boards Association members and other education leaders. ND CDE, in cooperation with the University of North Dakota and North Dakota State University, continue to provide two college-level, graduate credit courses for ND teachers that are delivered online by the ND CDE. ND CDE has formed an alliance with Education Departments of Valley City State University and North Dakota State University to provide practicums in online teaching. The practicums are the result of several years of planning.

The EduTech staff, shown here, provide information technology services and education technology professional development to K-12 educators in North Dakota.



Goal Five

Policies and practices to sustain the integrity, stability, and security of the educational technology systems will be maintained and promoted.

Goal description

School technology systems are mission-critical in schools. Uninterrupted network service and reliable local technology systems are crucial to teaching, learning and administrative processes in schools. State-level security and support systems provide an efficient and cost-effective way for schools to use high performance systems on a daily basis with a high degree of confidence and success.

Objectives

1. A Network based enterprise level security firewall will be in place to protect schools from cyber-attacks.
2. A new generation internet content filter is available to provide K-12 schools with mobile device filtering, allow for self-management and meets the requirements of Children's Internet Protection Act (CIPA).
3. Increase awareness of information security to K-12 schools by informing schools of potential risks and threats to network security and by providing training to build their understanding of network, data, and personally identifiable information best practices.

Initiatives

The North Dakota K-12 directory project launched in Fall 2014 provides consistent provisioning of statewide accounts for all K-12 administrators, teachers and students using existing data from PowerSchool. EduTech email and collaboration systems were updated to leverage the North Dakota K-12 directory.

Next Generation Firewalls deployed on STAGEnet deliver several types of protection to ND K-12 schools including protection from Internet threats including viruses and malware, application and protocol monitoring and provides reports on network usage.

A Cybersecurity conference in collaboration with the ND University system and state government will be available to guide schools in their IT security practices.

Accomplishments

Each school district is provided with network based Internet filtering at no cost to the school and has the capability to have an individual Internet Filtering Self-Management profile set up for school personnel by EduTech. The individual profile allows each school to configure their own Internet filtering preferences, such as categories of sites or individual sites to block or allow. School districts can also set their own Internet filter password that works exclusively within their district. This solution also provides mobile device filtering capabilities and is IP v.6 compliant. EduTech provided training and continues to offer support to schools that choose to use this flexible option for Internet filtering.

The ETC, ND CDE and EduTech maintained ADA compliant websites for their clients. EduTech services continued to be reliable and stable: reporting no unplanned downtime during a quarter, and has never exceeded the acceptable downtime limit of 0.5%. All customers receive periodic emails with security tips such as strong passwords and strategies to avoid phishing attempts.

North Dakota University System



Overview

Lisa Feldner, Vice Chancellor for Information Technology and Institutional Research

Several changes in Information Technology have occurred since release of the last Statewide IT plan. Additionally we see continued growth in not only the number of individuals served, greater expectations from end users of our services, and in the explosion of devices that need to be supported. We continue to implement new initiatives to become more effective and to consolidate systems/services where practical.

One change is that Randall Thursby retired as North Dakota University System (NDUS) CIO and has returned to his home state of Georgia. My name is Lisa Feldner, Vice Chancellor for Information Technology and Institutional Research. My employment background includes serving as Chief Information Officer for the State of North Dakota for the past seven years and prior to that I worked in K-12 as the technology director for Bismarck Public Schools. The state, North Dakota University System, and K-12 have a long history of working together on information technology initiatives and with my past experience, I look forward to leading the NDUS Information Technology Services division and IT initiatives that benefit all of higher education in North Dakota.

A second major change that occurred was the combining of most IT staff at the University of North Dakota with NDUS IT staff. This merger occurred in mid-December 2012, and brought together many of the staffs that in the past provided services to all of the NDUS but were employees of UND. Through merger of these staffs, we have increased the depth of the organization and increased competencies in providing enterprise services to all of the North Dakota University System.

Thanks to funding by the legislature, the NDUS was authorized to build a new IT office building

and remodel what had been a pre-stressed concrete constructed warehouse into a new data center to serve all of the NDUS.

The new IT Office building is located on the west edge of the University of North Dakota campus. This is a fantastic facility that brings staff previously located in seven different buildings in and around the UND campus under one roof. For some staff, this is the first time that they have had the opportunity to work with colleagues on a daily basis without first scheduling meeting time at another building. A certificate of occupancy was issued on August 13,



Dr. Lisa Feldner, Vice Chancellor for Information Technology and Institutional Research
North Dakota University System



The new University System's data center provides expanded hosting capabilities and room for growth.

2013 and staff moved into the new building by Thanksgiving.

A certificate of occupancy was issued on January 31, 2014 for the completion of renovated space that is now the new NDUS data center. NDUS built the data center to Tier 3 standards and it has been operational since spring 2014. We continue to move non-production environment IT equipment from the old data center to the new one and we expect this process to continue through most of 2014.

A third major change that occurred was the hiring of Darin King as Deputy CIO who oversees and manages the daily operations of the NDUS information technology division. Prior to joining NDUS, Darin had been employed as Director of the North Dakota Educational Technology Council and previously worked as the Director of Technology with the Grand Forks Public School District. With Darin's leadership in managing the day-to-day operations, my time can now be used to concentrate on strategic IT issues and Institutional Research.

The fourth major change was the renaming of the organization. For several years the organization was called System Information Technology Services (SITS); however, with a change in its leadership, merging of UND's IT staff into NDUS's Information Technologies, and new IT facilities it was determined that a new

name was fitting. SITS was renamed Core Technology Services (CTS) which better reflects the functions and services provided to the NDUS institutions and the System Office.

Bringing together the staff that had been spread throughout and near the UND campus, merging of UND's and NDUS's IT staff, new leadership and new IT facilities will create an environment where unprecedented collaboration can take place, leading to our ability to provide IT services that are more timely, effective, and efficient to all the NDUS. These have all been strategic initiatives that positions CTS to better serve the students, faculty, staff, residents of North Dakota, and constituents around the world.



Darin King, Deputy CIO
North Dakota University System

Goal One

To support North Dakota University System infrastructure needs.

Purpose

This goal is the foundation for Information Technology (IT) in support of NDUS business processes. 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.

Strategy Objectives

1. Offer reliable, cost-effective and appropriate NDUS network services.
2. Provide tools and technologies to help people more easily use networked resources and services while ensuring security and privacy of the information.
3. Utilize the network infrastructure for the convergence of voice, data, and video along with other collaboration tools.
4. Enable libraries to provide easy access to licensed electronic information.
5. Provide leadership for IT enterprise architecture, project management, and service management.
6. Provide linkage through STAGEnet, Internet2, and other national and international research and development networks.

Proposed Initiatives

- Bismarck State College plans to investigate and implement a solution to alert faculty, staff and administrators early on when a student is failing so they can take action to retain the student. Some other NDUS institutions have already implemented a system.
- North Dakota State University continues to explore, promote, and coordinate the use of applications enabled by advanced networks such as Internet2 and the Northern Tier Network (NTN) in research, learning, and outreach for the NDUS institutions, the North Dakota K12 community and North Dakota's Tribal campuses.
- NDUS Core Technology Services seeks to procure and implement an enterprise work management system (WMS) that will provide a single solution for all business units in CTS. WMS will handle all work done by CTS staff, will manage all projects, and CTS will be able to generate the true cost of managing and maintaining systems using data from this work management system.
- NDUS Core Technology Services intends to expand the Lync Unified Communications proof of concept to a fully functional telephony capability for CTS, the System Office, and for other interested NDUS institutions. Unified Communications was one of the identified initiatives that had been included in the State Board of Higher Education's "Maximizing Results Through Efficiencies" plan approved at their January 19, 2012 meeting.

Accomplishments

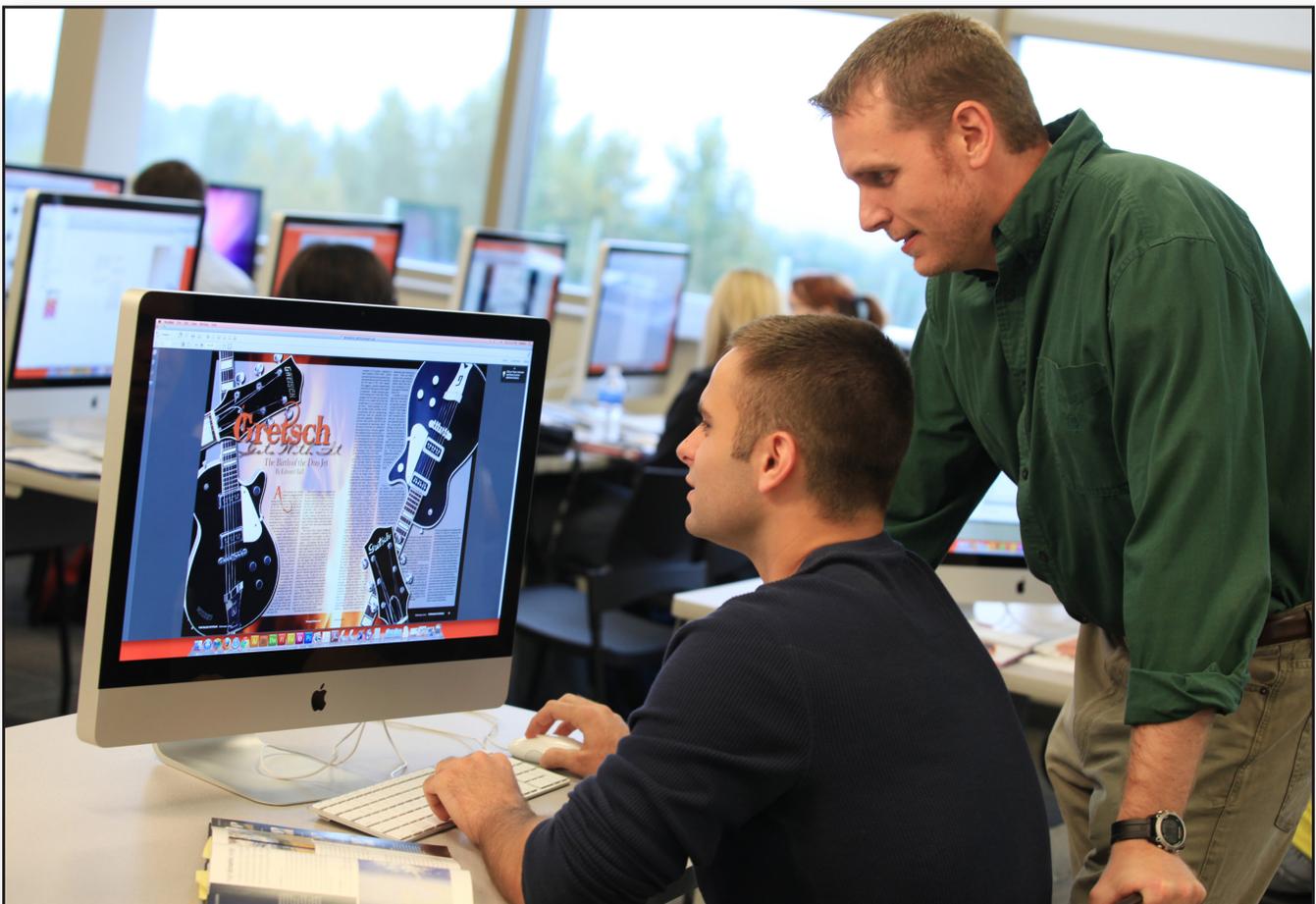
- Completed construction on a new Information Technologies office building

located on the edge of the University of North Dakota campus. This approximate 40,000sf office building houses over 100 Core Technology Services staff that previously were located in seven different buildings on or near the University of North Dakota campus. The city issued a Certificate of Occupancy on October 15, 2013 and most CTS staff had moved into the facility by Thanksgiving.

- Completed renovation of space that is now the NDUS Data Center. NDUS built this facility to Tier 3 standards and consists of approximately 10,000sf of space with 5,000sf of the space dedicated to the raised floor machine room and the remaining 5,000sf of space dedicated to the network operation center and supporting electrical/mechanical equipment rooms. As a tier 3 data center, major electrical and mechanical systems are redundant and CTS can remove any of these components from service for any reason without the need to shut down data

center systems. The city issued a Certificate of Occupancy on January 31, 2014 at which time the CTS staff could begin installation of data networking equipment into the facility. CTS had postponed the replacement of data hardware, where possible, so CTS could put new equipment in place in the new data center for production environment systems. CTS could then repurpose the old equipment to run non-production environment systems or retired it as appropriate, reducing the overall risk of moving the data center. CTS should complete this process by December 2014.

- A number of NDUS institutions have taken steps to increase efficiencies and/or performance of their campus network infrastructure by upgrading servers and other networking equipment, and expanded wireless coverage across their campus.
- NDUS Core Technology Services has implemented Microsoft's System Center Operations Manager (SCOM) and



Microsoft's System Center Configuration Manager (SCCM) applications. NDUS uses SCOM to assist with server and network equipment management and monitoring in the data center. NDUS uses SCCM to deliver OS updates, antivirus, and software applications to all the desktop computers managed by CTS, including the System Office and CTS staff. CTS staff have also been working with several campuses to set up and configure their SCCM environment.

- For mobile users, NDUS implemented a Service Set Identification (SSID) called NDUS-Systemwide across the campuses. This allows State Board of Higher Education members and any faculty, staff, and student to authenticate to the local campus wireless network using their NDUS Active Directory account.
- UND purchased a dashboarding software called iDashboards in May 2013. In

collaboration with UND's Institutional Research, CTS created a number of dashboards for UND's consumption. CTS also automated some of the data feeds to the software. CTS/UND demonstrated the software to other NDUS institutions and these campuses have now made inquiries on the possibility of using the software for their needs as well.

The National Energy Center of Excellence on the Bismarck State College campus overlooks the Missouri river. Technology allows students to study from any location at any time.



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 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.

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 enterprise project management, enterprise architecture administration, and enterprise IT planning.
4. Enhance educational experiences with new or re-purposed resources that expand user services, technologies, and initiatives.
5. Maximize IT infrastructure to improve services to students, faculty, staff, and the citizens of the state.
6. Hire, train, and retain highly competent professional staff to meet the needs of NDUS services.

Proposed Initiatives

- Bismarck State College and Lake Region State College are both looking at the purchase and implementation of CourseLeaf Catalog software. That is a NDUS supported application currently used by Minot State University, North Dakota State University and University of North Dakota.
- A number of NDUS institutions are intending to use the NDUS implementation of ImageNow for document imaging. CTS has started that process and the planning for implementation and migration of documents for other NDUS institutions are underway. NDUS selected ImageNow as the centrally implemented software because five campuses were already using ImageNow and, by using it as the centrally implemented application, it allows CTS to streamline the migration process more efficiently.
- With the growing needs of online presence, Minot State University has submitted a Procedure 1901.3 approval request. The NDUS CIO has approved the request. MiSU along with Blackboard Provisioning Service are proceeding with the migration planning to have Blackboard provide managed hosting of MiSU's Blackboard learning management system.
- NDUS plans to implement the Absence Management module within PeopleSoft. This is an automated solution to request employee leave and manage the approval process. Absence Management also provides an automated process for documenting when employees actually take the leave and feeds that information into the Payroll module in PeopleSoft in a timely manner.



- NDUS also plans to implement the Time & Labor module in PeopleSoft as an automated solution for obtaining hours worked by employees, an automated process approving hours worked, an automated process to feed that information into Payroll for North America in PeopleSoft in a timely manner, and an automated solution to replace Kronos time keeping application.

Accomplishments

- The hiring of Dr. Lisa Feldner as NDUS's Vice-Chancellor for Information Technology and Institutional Research. Randall Thursby, who served as NDUS Chief Information Officer, retired and returned to his home state of Georgia. Lisa was the Chief Information Officer for the State of North Dakota for the past seven years and prior to that worked in K-12 as the technology director for Bismarck Public Schools.
- Hired Darin King as CTS Deputy Chief Information Officer. Darin was the Director of the North Dakota Educational Technology Council and prior to that was Director of Technology with the Grand Forks Public School District. Darin is responsible for the day-to-day operations of CTS.
- Information technology staffs that were part of the University of North Dakota's Information Technology Systems and Services (ITSS) division were merged with Core Technology Services. This gave CTS a

greater depth of technology expertise, experience and ability to provide the best possible level of services to all of NDUS.

- With the hiring of new leadership, new IT facilities, and merging of the University of North Dakota Information Technology staff, CTS leadership felt the organization needed a name change. For the past several years the NDUS IT group was known as System Information Technology Services but with the changes to the organization, CTS leadership believes the new name of Core Technology Services better describes the systems and services that are provided to all of the NDUS.
- Minot State University along with CTS staff worked successfully to design, pilot, and implement synchronized userid and passwords across the systems. MiSU's CIO stated that this was a winner from the beginning and shows where technology works best by allowing two systems with similar functionality to share common data. With this initiative, MiSU's faculty, staff and students are able to use one password to authenticate to both NDUS and MiSU's services where three passwords were required previously.
- The State Board of Higher Education introduced a centralized document imaging initiative in 2012 as an approach to maximize information technology efficiencies within the NDUS. Five of the NDUS institutions were using the product ImageNow for this purpose. UND's information will be the first to migrate over to the centralized system followed by campuses that had not been using a document imaging software. Once these have been set up, the remaining campuses that will move to the centralized environment will be scheduled. CTS expects the process of migrating all institutions to take two years to complete.

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 for learning through boundless access to information, educational, and research resources both inside and outside the classroom for all types of students from undergraduates to life-long learners.

NDUS encourages and supports an operational environment in which 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.

Strategy Objectives

1. Leverage the IT infrastructure to create an environment for enhancing learning.
2. Enable collaboration among learners by providing easy, efficient, and reliable access to learning resources anytime and anywhere.
3. Evaluate enhancements to the Online Dakota Information Network's (ODIN) library systems and services to improve functionality that supports the evolving needs of users.
4. Continually improve standards, policies, procedures, and services that facilitate seamless, integrated learning.
5. Identify users' characteristics and respond to their expectations and needs.
6. Develop and implement a system-wide customer relationship management system in support of users' needs.
7. Continue to gather feedback from the NDUS user community on services provided by NDUS CTS.



The rapid growth of mobile devices has spurred innovation in higher education and expanded the range of IT services required to meet the needs of students and educators.

Proposed Initiatives

- Bismarck State College intends to implement a student laptop initiative consisting of

purchasing laptop computers and docking stations for each seat in the English and the Creative Arts classrooms. All students taking English classes in the new Communications and Creative Arts Center will be able to use technology during class time to work independently or in groups.

- Lake Region State College would like to integrate Campus Solutions data with dashboard software and provide needed data in graphical format. In addition to Campus Solutions data, LRSC would tie other data sources to this dashboard software.
- The North Dakota State College of Science intends to implement an NDSCS Online Portal that will bring information for current students into a single interface providing links to existing resources. Once launched for NDSCS students, the campus will extend the portal for use by NDSCS employees.
- NDUS Core Technology Services is in the planning phase to migrate each of the campus student email tenants into the central NDUS staff/faculty tenant.
- Bomgar for University use. Bomgar is an application that allows user support staff the ability to take control of a user's computer and see what the user sees on their computer screen. This aids in resolving issues a student is experiencing with their computer. The University of North Dakota has Bomgar deployed and is very enthusiastic and supportive of its functionality/flexibility. This would expand the usage of Bomgar to the remaining ten NDUS institutions that want to use the product.

Accomplishments

- Textbook cost is always a concern and the Bismarck State College Bookstore now offers approximately 250 eBook titles that a student may purchase using financial aid. Other campuses are looking at this too as a way to reduce costs for students.
- Classrooms are changing and no longer are there a one size fits all. Digital displays are

replacing the traditional ceiling mounted projectors and drop down video projection screens. Mobile devices including iPads, etc. allow faculty to deliver content and engage with students in the classroom. Minot State University currently has five 'Hyflex' classrooms, primarily in the Colleges of Business and in Special Education that bring distant students into the live face-to-face classroom through use of the Internet and Blackboard Collaborate. This allows students, both near and far, to interact with their instructor and with each other.

- ODIN Library Services completed installation of Primo, a discovery tool that provides for integrated searching of library resources in a single search. This makes information searching easier for all of the owned/licensed library materials.
- NDUS purchased and implemented Tegrity, a lecture capture/recording solution. Lake Region State College (LRSC) implemented Tegrity into their Pearson Learning Studio (an online learning tool) application during the Fall 2012 semester and has built it into every online course and on-campus course that uses an online component. During the 2012-13 academic year LRSC had 800 recordings for a total of 144 hours. They were viewed 2,436 times for a total viewing time of 126 hours. During the 2013-14 academic year, there had been 630 recordings with 275-recorded hours. These were viewed 3,618 times with a total viewing time of 282 hours. This is an approximate 190% increase in recorded hours and 150% increase in student viewing.

Goal Four

To improve and enhance North Dakota University System collaborative efforts.

Purpose

By working together with the State, K-12, and other constituents, the NDUS is able to bring new technologies to North Dakota and support existing ones.

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 appropriate administrative, learning, research support systems and converged services where appropriate.
4. Leverage educational resources and IT systems to minimize barriers between institutions, libraries, and other sources of learning.
5. Expand virtual and digital holdings available within the Online Dakota Information Network (ODIN) libraries.
6. Promote Internet2 and research-level infrastructure.
7. Continue the integration of video, audio, and data collaborations in cross-platform environments.
8. Collaborate with business and industry to identify opportunities for innovations that enhance NDUS CTS systems and services.

Proposed Initiatives

- BSC is planning to provide their Lineworker Campus with a high-speed network connection directly to the main campus

with equipment needed on the remote end (equipment on the main campus is already in place) via leased fiber.

- Lake Region State College intends to implement a business intelligence initiative for their Dakota Precision Agriculture Center. This requires storage and transfer of large data sets that students will need to access and faculty will need to share with other researchers.
- NDUS CTS plans to reduce the manual processing and management of grant administration and compliance, changing to an electronic process where appropriate. This initiative contains numerous solutions within the grant administration process, such as expanding the application Visual Compliance to all of the NDUS, allowing universities to perform required background checks for staff and visitors involved in research. NDSU and UND currently have limited licensing and one project in this initiative would be for an enterprise/ System license. Also included is looking for programs that would automate pre and post award processes.

Accomplishments

- All NDUS institutions are using the NDUS Help Desk ServiceNow management system. RightAnswers, a knowledge management tool, is integrated into ServiceNow.
- NDUS provided technologies are in position to support student collaboration. Four institutions are using a single instance of Moodle (learning management system), which includes collaborative tools for lecture capture (Tegrity), web conferencing (Blackboard web conferencing), and instant messaging (Blackboard IM).

Websites and Additional Information

Advanced Learning Technologies	alt.ndus.edu
Broadband Mapping.	broadband.nd.gov
Educational Technology Council (ETC)	www.ndetc.k12.nd.us
EduTech.	www.edutech.nodak.edu
Enterprise Architecture	www.nd.gov/itd/services/enterprise-architecture
Information Technology Department (ITD)	www.nd.gov/itd
North Dakota Center for Distance Learning	www.ndcde.org
North Dakota Criminal Justice Information Sharing Portal (CJIS)	www.nd.gov/cjis
North Dakota Geographic Information Hub (GIS)	www.nd.gov/gis
North Dakota Portal.	www.nd.gov
North Dakota University System (NDUS)	www.ndus.edu
Online Dakota Information Network (ODIN).	www.odin.nodak.edu
STAGEnet	www.stagenet.nd.gov
Statewide Longitudinal Data System	www.slds.project.nd.gov
Statewide Information Technology Plan	www.nd.gov/itd/service-info/statewide-it-plans