# Northland Pioneer College

# Strategic Technology Plan

# 2019 – 2022

Northland Pioneer College

EXPANDING MINDS • TRANSFORMING LIVES℠

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# I. Overview, Mission, and Vision

## Overview

Northland Pioneer College's Strategic Technology Plan is intended to provide an overall framework for the strategic implementation of technology within the college. The purpose of the plan is to align the application of technology to the college's Mission, Vision, and Strategic Plan. It is a planned roadmap for all major technology initiatives undertaken by the college for a three-year period.

This plan is divided into three sections: First is the vision and mission of the college and the Information Services (IS) Department; the second section outlines the goals and objectives; and the third section lists the strategic initiatives that will be undertaken by the college to meet the goals and objectives, with initiative overviews, benefits, resource requirements, and timelines.

## College Vision Statement

Northland Pioneer College provides a learner-centered environment, responds to community needs through effective and innovative service to our students, and fosters professional growth and collegial collaboration.

## College Mission Statement

Northland Pioneer College provides, supports and promotes lifelong learning.

## Information Services Department Mission Statement

The Information Services (IS) Department' mission is to develop, deliver and support efficient, secure, reliable, and effective technology solutions for the College.

The department will do this via strategic focus, college-wide collaboration, effective communication, excellent customer service, continuous improvement, and fiscal awareness.

# II. Strategic Goals and Objectives

The following are the Information Services (IS) Department's strategic goals and objectives to fulfill the College's mission and vision.

## Support Instruction and Learning

IS will provide reliable and effective technology solutions to support instruction and learning.

## Serve Students and Employees

IS will maintain and enhance student and employee support and operational services, which includes enabling proper access to necessary systems.

## Communicate, Collaborate, and Innovate

IS will communicate and collaborate with College partners in the use of technology solutions, allowing the College to innovate and ensure high-quality, innovative educational programs and services.

## Enhance Information Security

IS will enhance information security processes to facilitate compliance and information integrity.

## Match Staffing Resources with Workload

The IS department will match staffing levels with workloads. IS will define, assess, plan, implement, then monitor and enhanced staffing and pay structure to enable to the department to attract, grow, and retain department employees. This is necessary to ensure the department can fulfill its objectives.

## III. Strategic Initiatives

The following strategic initiatives will be undertaken in order to achieve the objectives in the next three years. The initiatives have originated from various sources. Some have come from the various participatory governance and advisory groups within the College, and other initiatives have originated from the Information Services Department.



The sections on the following pages provide overviews of the initiatives, with a listing of benefits, estimated resource requirements, and projected timelines.

## Accreditation

The Higher Learning Commission (HLC) accredits Northland Pioneer College. The HLC will visit NPC in Fall, 2019, to conduct its 10-year accreditation assessment.

**HLC Requirement 3.D-4** states: The institution provides to students & instructors the infrastructure & resources necessary to support effective teaching & learning (technological infrastructure, scientific laboratories, libraries, performance spaces, clinical practice sites, museum collections, as appropriate to the institution's offerings).

To meet the needs of our approximately 22,000 square-miles service area, NPC established a technologically enhanced infrastructure, including the resources necessary to instruct the student population across a diverse range of courses. Instructors and students are supported in their technological environment through the NPC Support Center and the NPC e-Resources webpage.

IS will work with College partners to provide information related to this requirement. Also, IS will continue to collaborate with College partners to sustain and enhance student and instructor technology resources.

**HLC Requirement 5.A-1** states: The institution has the fiscal and human resources and physical and technological infrastructure sufficient to support its operations wherever and however its programs are delivered.

IS provides approximately 24 staff maintaining over 1200 desktops, two data centers, call/support center, and an infrastructure with a complex and redundant Wide Area Network (WAN) and extensive Internet Service Provider (ISP) service to support delivery of services across two counties covering approximately 22,000 square-miles. Campuses are equipped with classroom technology to support collaborative instruction. NPC's virtualized server infrastructure includes 141 virtual servers and 37 physical servers.

As outlined in the Policy 1138, NPC Procedure 2208 provides guidance and direction of the College's Disaster Recovery and Business Continuity Plan to address any disaster that impacts the ability to offer information technology services and data recovery necessary for College operations.

NPC developed a 3-year technology forecast budget dedicated to improving its existing technology infrastructure. In collaboration with faculty and staff, IS updates and maintains the comprehensive college technology plan. The technology plan supports the NPC mission and vision statement through Strategic Planning and Accreditation Steering Committee (SPASC) priorities.

**HLC Requirement 5.D-1** states: The institution develops and documents evidence of performance in its operations.

In 2017, IS implemented a new ticketing system to create, track, and monitor support tickets submitted by users (administrative staff, faculty, and students. IS generates regular reports from the ticketing system and reviews trends and identify opportunities for improvement.

IS works with Sentinel Technologies to manage NPC institutional data security and quality. Sentinel Technologies routinely provides reports to IS for performance monitoring purposes.

**Benefits**: Compliance with all accreditation standards and sustainable technology infrastructure.

**Resources**: IS and College partners.

**Timeline**: Accreditation efforts are ongoing.

## Jenzabar Systems Review

NPC uses Jenzabar CX as its Student Information System (SIS) and Enterprise Resource Planning (ERP) platform. NPC pays for 22 modules in the Jenzabar CX system, which includes the student online portal, Jenzabar Internet Campus Solution (JICS).

NPC has also purchased and implemented other software systems that are integrated with the Jenzabar platform, and requests for additional, third-party software to integrate with Jenzabar continue. Examples include Starfish, Campus Logic, and PowerFAIDS.

Since being implemented at NPC, the technology foundation of the Jenzabar platform has not kept pace with modern software and data systems. Over the next 3 years, NPC will define, assess, plan, and implement either enhancing the current Jenzabar system, or migrating to a new ERP platform. The goal is to reduce maintenance, development, and integration costs for NPC systems.

According to an EDUCAUSE study released in 2012, a number of other companies have released competing commercial products, such as PeopleSoft, WorkDay, and Banner.

The upfront costs for licensing and conversion to any other ERP or SIS system will be very expensive, so switching to an alternative would be challenging. A review of alternatives will

allow for a comparison with the Jenzabar products to determine the best long-term solutions for the College.

**Benefits**: Improved core systems. Data integrity. User ability to extract data. Reduced cost. Reduced resources required for maintenance.

**Resources**: Approximately 2 to 3 Million Dollars. Representation from every core NPC department. Enough staff to run any alternative ERP system concurrently until implementation.

**Timeline**: Approximately 2 to 3 years, optimistically.

## Capital Construction Project Support

NPC plans to build on the White Mountain Campus in Show Low, AZ, which the project has begun.

IS provides multiple services related to the construction of new facilities. Services are coordinated with the College under the direction of the Facilities Department, which will include an outside vendor for architectural planning and construction. In support, IS will:

- Interview stakeholders to determine long-term technology needs in the new design.
- Review bid submissions.
- Meet with the Facilities Department, architects, contractors and subcontractors to review and discuss details of the infrastructure.
- Review work completed in conjunction with contract administration.
- Work with Purchasing to order equipment.
- Work with installers in the new facilities regarding network, computers, phones, Audio/Visual equipment, etc.

**Benefits**: Ensure collaboration for successful capital improvements.

**Resources**: All College

**Timeline**: Now through 2022, optimistically.

## Distance Learning Modality

Integration of static and mobile technologies in the classroom is needed for instruction, including the ability to integrate with video and audio systems.

Near the end of 2016, Northland Pioneer College obtained a Native American Non-Tribal Serving Institution (NANTSI) grant to develop a distance education platform to deliver college level coursework to high schools in the region. IS designed a successful Cisco platform offering telepresence to distant high school environments. This technology and design addressed concerns identified within the existing NPC instructional and learning environments and presented as a long-term solution for the college needs.

During fiscal year 2017-2018 – Video classrooms were the first iteration of distance learning modalities. A grant was utilized during this timeframe to develop the new design utilizing Cisco technology and touch panel designs. The integration of an improved learning management system (LMS) Moodle has provided common minimal requirements and engagement standards. Reduced bandwidth consumption in tandem with the improved network infrastructure provides a robust and reliable experience.

During fiscal year 2018-2019 – Audio and Model classrooms were the second area of the plan to develop the new telepresence design utilizing Cisco technology and touch panel designs. Interactivity and design continue to be a focal effort. The College chose to not proceed with expanding the Cisco classroom environments in the Summer of 2019. The College will use Bridget software for the near future, as Omnijoin will be end-of-support in Fall of 2019.

During fiscal year 2019-2020 – The College will work together to identify, plan, and implement a reliable distance learning platform that is standard in its application and use.

**Benefits**: Improved student and faculty experience.

**Resources**: IS, Instruction, Students, Facilities Department. Funds to purchase.

**Timeline**: Now through Fall 2020.

## Disaster Recovery and Business Continuity

The main College data center is located at Painted Desert Campus in Holbrook, AZ. The second data center is located at White Mountain Campus in Show Low, AZ. The College has systems and a Disaster Recovery Plan designed for an event that would disable the entire data center, with the ability to recover and relocate all production systems within 24 to 72 hours.

NPC data and communications currently have over 99% reliability, with minimal outages and zero disasters in the last 5 years, at least. IS will continue to maintain the technology-related Disaster Recovery Plan and conduct an annual test of the plan.

**Benefits**: Ensure recovery from disasters with minimal impact on learning.

**Resources**: IS, others in consultation.

**Timeline**: This is always ongoing.

## College Technology Infrastructure and Support

Most College applications are available and utilized by students, faculty, and staff on an around-the-clock basis. Due to budget constraints, there is no IS staffing on weekends or evenings at this time. Adding staff to provide continuous coverage is not currently feasible due to the high costs and low rates of scheduled courses outside of normal business hours.

The College launched the first phase of Single Sign On in Summer 2019. This will allow users (faculty and staff) to login to NPC systems using one login ID and password, with an online portal to rest the password. Initially, Jenzabar CX, MyNPC (JICS), Moodle (the College's Learning Management Solution), Starfish, and Campus Logic are included. After the initial launch, additional software will be identified, evaluated, and included in Single Sign On.

The College currently uses the Windows 7 Operating System (OS) on a majority of computers. Microsoft will end support for Windows 7 by 2020, which will prevent IS from obtaining support for users with the Windows 7 OS on their computers. During the Summer of 2019, IS deployed over half of the approximately 500 total computers that contain the Windows 10 OS.

An upgrade to the existing Microsoft Campus agreement will allow the College to take advantage of using Office 365 for both corporate and individual use. This would include the hosting of our Exchange email system at Microsoft. It will also provide online file storage via the OneDrive for Business cloud service.

Microsoft Azure will be implemented at NPC as well, during the 2019-2020 fiscal year. This will allow for better analytics, virtual computing, storage, and networking.

**Benefits**: Improved performance and for upgraded systems. Less IS support needed.

**Resources**: IS and technology users. Funding will vary for the 4 mentioned projects.

**Timeline**: Fall 2020 at the latest.

## Information Security

Information Security is a fundamental component of all technology-based solutions and services. A robust information security program is crucial to ensuring the confidentiality, integrity, and availability of all processes, systems, and the data that resides within them. IS has identified and documented policies, procedures, and resources as part of a developing security posture. Fundamental controls such as password complexity requirements, password longevity, encryption, and utilization of signed security certificates for browser-based data access are included within the institution's information security landscape. The evolution of our cyber-security design demands continued efforts to approach evolving environments. Careful consideration and risk analysis are required in the areas of cloud-based solutions, supported technology, and integration.

IS will engage with a vendor during 2019 to determine possible solutions to manage information security and align the security posture with audit and industry standards.

**Benefits**: Audit compliance. Information integrity. Disaster prevention.

**Resources**: IS and technology users. Funding will be required for a vendor-based solution.

**Timeline**: Fall 2020 at the latest.

## Information Services Staffing Resources

The Information Services Department is divided out into three divisions under the Chief Information Officer: Network Services; Technical Services; and Administrative Systems Support. IS currently has 24 full-time and 2 part-time positions. IS utilizes third-party vendors for project-technical support as needed, when internal resources are unavailable. The following are the staff resources inside of IS. See **Addendum A** for detailed responsibilities under each division.

**Current Staffing (August 2019)**

Director of Information Services & CIO (vacant)
Network Services
- Network and Systems Administrator (filled)
- Network Support Technician (filled)
- System Support Technician (filled)
- Network and Systems Engineer (filled)
- Desktop Support Engineer (filled)
- Systems Engineer (vacant)

Technical Services
- Coordinator of Technical Services (filled)
- 5 Computer Technicians (filled)

- 4 Support Center Operators 1 grant funded (filled)
- 1 Lead Support Operator (filled)
- 3 AV Technicians 1 grant funded (2 filled)

Administrative Systems Support

- Coordinator of Administrative Systems and Projects (filled)
- 3 Systems Analysts (2 filled)
- 1 Part time Systems Analyst (filled)

NPC executive staff notified IS in Spring of 2019 that IS, in conjunction with the Human Resources Department and executive staff, will assess IS staffing deficiencies prior to July 1st, 2020. 2 new positions were granted to IS in the Network Services Division, while 2 were taken away, in 2019.

**Benefits**: Successful learning delivery and business operations require IS resources, and as the College continues to innovate, the need for more IS human resources will grow. Matching staffing levels to workload requirements is necessary to continue to provide resources to better respond to the growing technology requirements of the College.

**Resources**: Should the assessment recommend more positions in IS and higher pay, funds will be needed outside of currently-budgeted IS funds.

**Timeline**: Staffing structure assessment and recommendation will be completed by January of 2020. Any recommended changes will start to occur on July 1, 2020 and continue.

## Operational Efficiency Improvements through Technology

The College has many paper-based processes that are inefficient and time-consuming, slowing the delivery of services in many areas. To address these issues, a document imaging and management system was purchased in 2016. The system, OnBase, is currently not being used. IS does not have enough technical staff to implement the system. At least one technical staff member is needed to implement such a system, and that one staff would solely work on implementing OnBase. Should the College continue with implementing OnBase, IS requires *at least* one additional staff to begin.

The College began utilizing Adobe eSign in 2017, which allows for workflow and signatures. The College currently has 30 licenses, which each one is used. The success and positive feedback shows the continued need for technological solutions that facilitate operational efficiency.

IS, in conjunction with executive staff and other College partners, will seek out new ways (not necessarily new technology) to improve effectiveness and efficiency in operations.

**Benefits**: Efforts will result in reduced paperwork and increased efficiency.

**Resources**: IS resources will vary by project; development efforts may be substantial for sophisticated workflow processes, specifically for OnBase.

**Timeline**: Projects will be ongoing.

## Security Camera System

In 2019, IS took over the Security Cameras project. IS is currently working on a Request for Proposal (RFP) to seek quotes on replacing the College's outdated security cameras, then installing additional cameras. This project is funded for fiscal years 2019 and 2020.

This will also bring the monitoring and support under the IS department, thus increasing workload and skillsets required. IS requires an additional (new) Network Technician on staff, in order for IS to successfully manage the security camera system project and program.

**Benefits**: Safer environment for students and employees. Easier evidence gathering.

**Resources**: IS, Facilities, Safety Manager. Funds are already budgeted.

**Timeline**: Replace current cameras and implement monitoring services by July 1, 2020.

## Training

As the technology environment continues to expand and evolve, professional development and technology training is essential for all employees. Personnel will be provided training which may include certifications and conference events to learn, collaborate, identify solutions and gain exposure to the existing and developing environments. All information services personnel are provided unlimited online-based training with a department subscription to an online training service. The department has certified tower climber(s) to support microwave technology inspections and perform tasks within reasonable and achievable timeframes. All staff positions are encouraged and recommended to pursue training and opportunities which improve skills, knowledge, and experience related to our technology environment and career.

The future of technology engagement relies on clearly identified requirements of application and development with proper training and clear-use expectations. Technical training becomes effective when the partnership of tools and applications are present. Understanding the pedagogy of instruction along with the commitment to understanding the technological capabilities is a key focus of the role and a critical relationship to IS.

**Benefits**: A highly-trained workforce with current skillsets. Smoother technology rollouts. Improved collaboration

**Resources**: Online training services will continue to be funded by the IS professional development budget.

**Timeline**:  Training efforts will be ongoing.

## Communication

Communication was identified as an essential service provided by the Information Services Department. A wide area of impact can be seen across business operations, academic environments and student engagement. The college recently launched a new Cisco telephone environment.

The new phone system offers a feature-rich environment with video capability. As the college continues to seek improvements in communication, IS has defined new tool sets such as Cisco Spark/Teams and WebEx to support greater, real-time business collaboration and on-demand collaboration. IS began researching cross platform/cross technology feature sets to enable consumer choice of technology for engagement. Over the next several years, we will have fully defined options to fit a changing environment within the existing infrastructure. E-mail is currently the largest communication traffic path within the college which may be viewed as a static, non-feature rich and aged experience, as is common with email platforms.

IS will continue to research and innovate regarding technology tools to aid in communication. IS is dedicated to open communication and collaboration throughout the College and community.

**Benefits**: Supporting better communication avenues. Collaboration. Efficiency in communication.

**Resources**: All College staff

**Timeline**: Ongoing

## Addendum A – IS Staffing Information Detail

The responsibilities of the 3 IS divisions are identified below, but not exhaustively.

**Network Services**

- Systems architecture
    - Support Contract maintenance and administration
    - Network and Systems monitoring and alerting
        - NMS
        - Syslog
    - Server Infrastructure
        - Physical Servers
        - Virtual Servers
        - Virtualization infrastructure
        - Storage
            - Primary
            - Secondary
            - Tertiary
            - Tape
        - Business Continuity
            - Backup and recovery
            - Disaster planning and recovery
            - Equipment life cycle planning and implementation
                - Operating Systems
                - UPS
                - Servers
                - Cabling
    - Systems Security
        - Physical Security
            - Access control
        - Server security
            - OS Firewalls
            - Anti-virus
            - HIDS
            - Access control
    - Data Security
        - Access control
    - Patch management
        - OS
        - Hardware Firmware
        - 3rd party
    - Application Administration

        - Database environment
        - Email
        - DR and backup
        - Storage
        - Virtualization
        - NMS
        - AV
        - Imaging
        - Patching
        - Access control
- Network architecture
    - Design
        - Routing
        - Switching
        - WAN
        - LAN
        - Wireless
        - Security
            - Access control Device (TACACS, Radius)
            - Access control Physical Security
            - Asset security and protection
            - L1 Security
            - L2 Security
            - L3 Security
            - L4 Security
            - L7 Security
    - Monitoring
    - Inventory control
    - WAN Management
        - Tower and tower site maintenance
        - Microwave equipment configuration, maintenance, and administration
        - Microwave license administration
        - Routing equipment configuration, maintenance, and administration
        - Security Camera configuration, maintenance, and administration
        - Site environmental monitoring configuration, maintenance, and administration
        - Site backup power design, implementation, configuration, maintenance, and administration
    - LAN
        - Switch configuration, maintenance, and administration
        - Wireless Access Point configuration, maintenance, and administration
        - IS Security Camera configuration, maintenance, and administration
    - Telephony
        - Call Routing
        - POTs and T1 configuration, administration, and management

        - Voicemail
        - 911
        - Auto Attendant
        - Device template setup and configuration
        - Feature configuration and deployment
    - Data Center
        - Top of the rack switching
        - Storage switch network
    - Edge
        - Router configuration, administration, and management
        - Firewall configuration, administration, and management
        - Email Security appliance configuration, administration, and management
        - IPS configuration, administration, and management
        - NIDS configuration, administration, and management
        - Copyright infringement policing
    - Security
        - Security applications configuration and maintenance
            - Umbrella, AMP, ISE, Stealthwatch, Plixer
        - Security appliances configuration
            - CopySense, ESA, Firewall ACL, Firepower, VPN
        - Site security
            - Cameras, door, and gate locks
        - Network Device security
            - Access control via TACACS

**Technical Services**

- Desktop, laptop, and mobile device support
    - T2 support
    - End user support and troubleshooting
    - Application troubleshooting
    - Device troubleshooting
    - Imaging
    - Anti-virus administration
    - MDM use and administration
    - End user guide creation
    - Equipment life cycling
    - Equipment dispositioning
    - Inventory control
- Testing Application support
    - HESI, TABE, Accuplacer
- Support Center
    - T1 support
    - AV support, operations, and scheduling
    - Account control
    - Process control

    - Trouble ticket creation and management
    - Inventory control
    - End user guide creation
    - Adds, moves, and changes in AD
    - Adds, moves, and changes for phones
- Audio/Visual Distance learning
- Inventory control
- Network support

**Administrative System Support**

- Manage department budget (reconcile, develop, capital planning, etc.)

- Administer and understand programs/screens/reports, etc. that each department uses, and understand what happens in the backend of systems when a user does something within the modules.

- Enterprise Resource Planning (ERP) Administration
    - Accounting - Financial
    - Accounts Payable - Financial
    - Accounts Receivable - Financial
    - Degree Audit – Student Services
    - Budget - Financial
    - Commons - Everyone
    - Financial Aid – Student Services
    - HR/Payroll - Financial
    - Purchases - Financial
    - Requisition - Financial
    - Registration/Admission – Student Services
    - Student Billing - Financial
    - Student – Student Services
    - Utility - Everyone

Work with Network Services to have 3rd party application servers built

3rd party application installation and configuration

3rd party application integration into Jenzabar

Work with SSO vendor to setup and configure SAML authentication to 3rd party SaaS applications

- Administer and/or support the following:
    - JICS (Jenzabar Internet Campus Solution, or “MyNPC”)
    - Moodle (Learning Management System)

- Google (Student email accounts)
- Active Directory (AD)
- Starfish
- Campus Logic
- Bank Mobil
- Nelnet
- ASBSN – file to the state nursing
- Rave
- Adobe Sign
- CBT Nuggets

- Understand the setup for new users from Menu access and JICS and what security/permissions are required
- Terminate users and what steps need to be done
- Problem solving errors that are received from end users. For example, identify if the system locked up because someone left an ID open and then opened it again, is it because an update was done and so things need to be reinstalled, it is an end user problem? Could be many things that need to be investigated.

## Addendum B – Technology Plan Revision History

1.0 – For SPASC review for first approval.