State Historical Society of North Dakota
State Archives Digital Preservation Policy Framework
Created May 2015
Revised June 2017

A. Purpose

This document was created to formalize the North Dakota State Archives' commitment to ensuring long-term viability of electronic records created by state and local government entities of North Dakota, in compliance with archival standards through constant monitoring of emerging best practices and issues related to digital repositories. The State Archives is the official custodian of archival resources of the state, including historical records of state agencies and local political subdivisions. The State Archives is committed to maintaining accessibility to records of state government determined to be of permanent value. Development of a comprehensive digital preservation program will ensure the state's digital records remain trustworthy and usable over time. The purpose of the digital preservation policy framework is to mitigate risks, which can result in loss of access to those records, to ensure continuity of government, and to promote the right of citizens to access their records.

This document governs the establishment and operation of North Dakota's State Archives Digital Repository (SADR). The repository will ensure the accessibility, usability, and authenticity of the digital assets created by North Dakota state and local governments entities that have permanent historical value based on North Dakota's Records Management Program.

This policy recognizes that a successful digital archives repository will require ongoing monitoring and commitment from the State Archives and the Information Technology Department (ITD).

B. Audience

The intended audience of this policy includes employees of North Dakota's state and local government entities, State Archives, and Information Technology Department.

C. Mandates

The State Archives has a legal mandate in the North Dakota Century Code to select, preserve, and make accessible the permanent records of state agencies and local political subdivisions.

Key statutes that govern the activities of the North Dakota State Archives defined in the North Dakota Century Code:

- 44-04-18 Access to public records - Electronically stored information
- 44-04-18.10 Disclosure of public records
- 46-03.1-06 Preservation and security of legal material in official electronic record
- 54-46-05 Duties of agency heads
- 54-46-02 Definition of a record
- 54-46-03 State records administrators
- 54-59-02 Information technology department - Responsibility - Public policy
- 54-59-05 Powers and duties of ITD
- 54-59-09 Information technology standards
- 55-02.1-01 Archival resources defined
- 55-02.1-03 Duties of state archivist
- 55-02.1-05 Depositories of archival resources
- 55-02.1-07 Safeguarding of restricted records

- 55-02.1-08 Availability of archival resources to the public
- 54-46-08.1. Preservation of records found to be archival resources

D. Objectives

The objective of SADR is to ensure the preservation and accessibility of permanent historical records created by the state and local governments of North Dakota. To accomplish this objective, the North Dakota State Archives must collaborate with state and local government agencies to advise and develop procedures for the care and preservation of the digital assets.

The primary objectives of the digital preservation program are to:

- Preserve digital assets created or digitized by state and local government agencies.
- Continually migrate files into recommended formats for long-term preservation and access.
- Set and maintain processes that support both a Trusted Digital Repository (ISO 16363) and an Open Archival Information System (OAIS) reference model (ISO 14721).
- Establish processes and procedures to meet archival standards pertaining to provenance, authenticity, and integrity.
- Ensure long-term secure storage for records preserved in SADR, including confidential and restricted records.
- Grant access to digital assets preserved by the State Archives
- Provide guidelines, information, technical assistance, and training for state agencies and local political subdivisions on the maintenance and transfer of electronic records.
- Track technology changes for obsolescent and emerging software, hardware, and preservation tools.
- Follow industry standards for new developments in best practices for preserving government electronic records.

E. Scope

The North Dakota State Archives' digital preservation strategy will focus on ensuring permanent state and local government historical digital assets and corresponding metadata will remain useable over time. A digital asset may be born-digital or a digital surrogate. The records preserved by the State Archives are designated permanent and historical based on the North Dakota's Records Management Program. Examples of digital records include word processing documents, images, audio and video files, digital publications, and other organizational records.

F. Selection and Acquisition

In accordance with section 54-46-08.1 of the North Dakota Century Code, the State Archivist shall review any records determined to be subject to final disposition under section 54-46-08. Any records found to be of permanent value for research, reference, or other use appropriate to document the organization, function, policies, and transactions of government must be transferred to the North Dakota State Archives for preservation as archival resources.

G. Operating Principles

The digital preservation policy framework will comply with the prevailing standards and practices of the digital preservation community regarding authentication of, preservation and security of, and public access to electronic records. The State Archives will develop policies and manage its digital repository in compliance with the Open Archival Information System (OAIS) Reference Model (ISO 14721) and Trusted Digital Repository standards (ISO 16343). Industry standards for record creation, including accepted file

formats, will be disseminated to records creators. The State Archives will use the PREMIS Data Dictionary for core preservation metadata and the Dublin Core schema for descriptive metadata needed to support the long-term preservation of digital materials.

H. Strategies for Preservation

Data will be verified, using checksums and other tools, to preserve the integrity and authenticity of records. Data will be migrated from external media, such as CDs and DVDs. All digital assets, born-digital and digital surrogates, will be integrated into a long-term storage system maintained, secured, and backed up by ITD.

a. Authenticity

From the moment the permanent records are transferred and ingested into the SADR, the State Archives will assume protective procedures to prevent, discover, and correct loss of data. The provenance, chain of custody, fixity, and metadata will be essential in order to evaluate authenticity. At the moment of ingest into SADR, a unique hash will be assigned. If any changes, either malicious or accidental, are made to a record, SADR will be able to identify that a file was changed.

b. Metadata

All types (descriptive, preservation, administrative, structural, and technical) metadata are essential to a successful digital preservation program. Metadata assures that staff and patrons of the future will be able to understand digital assets.

If the creating agency does not attach descriptive metadata at the time of record creation, the record may not be retrievable in the future. The State Archives will educate state and local agencies on proper metadata creation and management.

The Dublin Core schema, which consists of 15 elements, will be used to capture basic descriptive metadata. The PREMIS Data Dictionary for Preservation Metadata will be used to support the preservation metadata of digital assets.

c. Storage and Security

North Dakota's ITD will manage the hardware, software, and storage media components of the State Archives Digital Repository. At this time, records will be stored on a server, residing at ITD and backed up daily. A mirror site will also be managed in a different geographic location.

d. Preservation Management

A series of actions that will need to be performed on ingest into SADR include a virus scan, assignment of fixity hash, metadata harvest, and file format review. After ingest, possible preservation actions may include: audits, ongoing file format review, migration, and metadata addition. The necessary steps in preservation management will depend on the creator and asset.

e. Access

Preservation of historic government records is of no use unless continuity of access is assured. With the digital preservation strategy of migration, the North Dakota State Archives will maintain the means of accessing a useable presentation copy of the record. Migration of digital assets will create a new presentation copy of the original document. Some information may be lost during migration. However, the original document and bit stream will also be preserved for the future.

The North Dakota State Archives will maintain information regarding rights and permissions that govern the access to records. Sensitive and confidential information will require appropriate restrictions for access and use.

I. Roles and Responsibilities/Collaborators

Creating, maintaining, preserving, and providing access to records over time requires the cooperation of the records creators, records management, state archives, and information technology professionals. A Digital Preservation Team, with representatives from each of these four areas, will work together to support digital preservation and develop a sustainable, reliable digital preservation repository.
The Digital Preservation Working Group will be involved in new technology systems development to facilitate early involvement by those responsible for digital preservation. The Digital Preservation Working Group will consist of members from the State Archives, ITD Records Management, and ITD Enterprise Services. This group will work to establish digital preservation standards and strategies.

The North Dakota State Archives division of the State Historical Society of North Dakota will serve as the lead division for digital preservation of North Dakota state and local government records with historical value. The Information Technology Department will assist the North Dakota State Archives with maintenance of hardware, software, and secure storage for the State Archives Digital Repository.

J. Policy Review

The digital preservation policy framework will be reviewed annually by the Digital Preservation Working Group. Updates to the digital preservation policy framework will be distributed to state agency records coordinators.

K. Related Documents

- National/international standards
    - ISO 16363 Trusted Digital Repository
    - ISO 14721:2012 Open Archival Information System (OAIS)
    - PREMIS Data Dictionary (November 2015)
- Supporting Documentation
    - State Historical Society of North Dakota Collecting Policy
    - State Historical Society of North Dakota Disaster Plan
    - Digital Archives Study (2012)
    - State of North Dakota Records Management Program (https://www.nd.gov/itd/services/records-management-program)

Appendix A: Definitions/Glossary

Access: The OAIS entity that contains the services and functions that make the archival information holdings and related services visible to Consumers.

Archival Information Package (AIP): An Information Package, consisting of the content information and the associated Preservation Description Information (PDI), which is preserved within an ISO 14721 (OAIS) based digital repository.

Authenticity: The degree to which a person (or system) regards an object as what it is purported to be.

Born Digital: Refers to materials that originate in digital form. Born-digital information is distinguished from information that was created in another format and digitized through scanning or digital photography, creating a digital surrogate.

Digital Asset: Digital content that includes graphic images, audio or video clips, images of text pages, and electronic transcriptions of text. Digital assets can be born-digital or digital surrogates.

Digital Surrogate: Digital item created through digitization or scanning.

Digitization: The process of transforming analog material into digital form. Also referred to as scanning.

Digital Preservation: The active management of electronic content over time to ensure the readability, usability, integrity, and accessibility of electronic records across technology generations.

Digital Repository: A computer system used for the storage and distribution of electronic content under varying circumstances and time periods.

Dissemination Information Package (DIP): The Information Package, derived from one or more AIPs, received by the Consumer in response to a request to the ISO 14721 (OAIS) based digital repository.

Electronic Records: Records that are in machine-readable form. Electronic records may be any combination of text, data, graphics, images, video or audio information that is created, maintained, modified or transmitted in digital form by a computer or related system.

Fixity Information: The information that documents the authentication mechanisms and provides authentication keys to ensure that the Content Information object has not been altered in an undocumented manner. Checksums can be used as a method to record and track the fixity value of a digital object.

Information Package: The content information and associated Preservation Description Information that documents the preservation of the Content Information. The Information Package has associated Packaging Information used to delimit and identify the Content Information and Preservation Description Information.

Ingest: The OAIS activity that accepts Submission Information Packages from Producers, prepares Archival Information Packages for storage, and ensures that Archival Information Packages and their

supporting Descriptive Information become established within to the ISO 14721 (OAIS) based digital repository.

Life Cycle: The different stages in a record's existence, from creation to final disposition.

Long Term: A period of time long enough for there to be concern about the impact of changing technologies including support for new media and file formats, and a changing user community, on the information being held in the repository, which may extend into the indefinite future. Usually referred to periods greater than ten years.

Metadata: Information that describes other data. Types of metadata include administrative, descriptive, preservation, and structural. Data that must be captured along with electronic records to enable them to be understood and verified, as well as support their management and use. Includes data dictionary, logical and physical models, diagrams and other systems and software details.

Migration: The transfer of electronic information so that it remains compatible with current technology storage and retrieval methodologies.

Open Archival Information System (OAIS): An archive, consisting of an organization of people and systems that has accepted the responsibility to preserve information and make it available for a Designated Community. It meets a set of responsibilities, as defined in 3.1 of the ISO 14721:2012 standard that allows an OAIS archive to be distinguished from other uses of the term "archive." The term "Open" in OAIS is used to imply that this Recommendation and future related Recommendations and standards are developed in open forums, and it does not imply that access to the archive is unrestricted.

Permanent Record: Retention of any document with a long-lasting administrative, historical, audit, or legal value. Permanent retention dates are subject to approval from the Records Management Task Force.

Submission Information Package (SIP): An Information Package that is delivered by the Producer to the OAIS for use in the construction of one or more AIPS.

Trustworthy Digital Repository: A trustworthy digital repository is one whose mission is to provide long-term access to managed digital resources; that accepts responsibility for the long term maintenance of digital resources on behalf of its depositors and for the benefit of current and future users; that designs its system(s) in accordance with commonly accepted conventions and standards to ensure the ongoing management, access, and security of materials deposited within it; that establishes methodologies for system evaluation that meet community expectations of trustworthiness; that can be depended upon to carry out its long-term responsibilities to depositors and users openly and explicitly; and whose policies, practices, and performance can be audited and measured.

Appendix B: Open Archival Information System (OAIS) Model

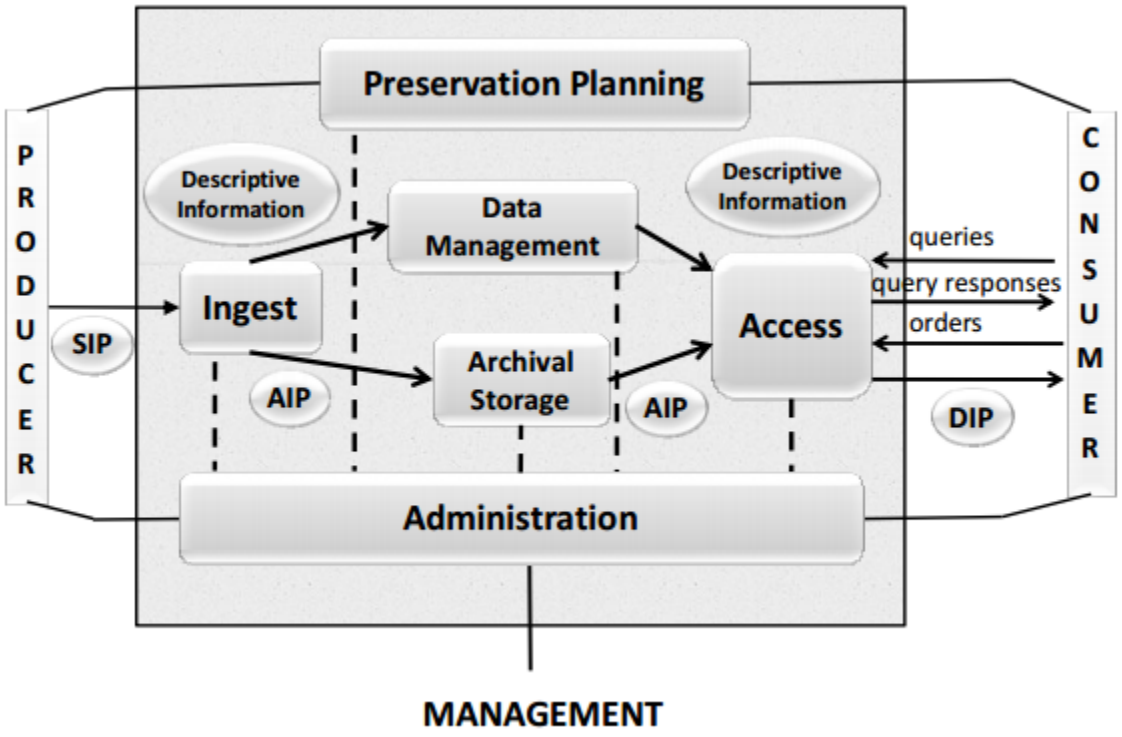

Figure 1: Consultative Committee for Space Data Systems. (June 2012). Reference model for an open archival information system (OAIS): Recommended practice CCSDS 650.0-M-2, Magenta book. Retrieved from https://public.ccsds.org/pubs/650x0m2.pdf

Appendix C: Approved File Formats

Documents	Microsoft Word and Excel, PDF, PDF/A, Plain Text (.txt), Rich Text (.rtf)
Photographs	JPEG, TIFF
Audio Files	WAV, MP3
Video Files	MP4, Apple ProRes, Contact staff for other formats
Other	Contact Archives staff