

Digital Preservation Framework

University of Texas at San Antonio Libraries

April 2022

PURPOSE

The Digital Preservation Framework makes formal the University of Texas at San Antonio (UTSA) Libraries (Libraries) commitment to the long-term access and preservation of digital assets of continuing value that it has assumed responsibility for. The purpose of this document is to outline the Libraries' commitment to managing a sustainable, standards-compliant and transparent digital preservation program to ensure the successful stewardship of these digital assets.

The Libraries' digital assets must be subjected to the same criteria for curation as any other resources in the Libraries' permanent collections—this includes standards for selection, management, and preservation. This framework will enable digital preservation decisions by including relevant University records schedules and Libraries' collection policies that dictate the enduring value of specific content, balancing resources and determining the feasibility of providing designated preservation services.

Decisions regarding preservation needs and levels of preservation will be made for digital assets at the time of acquisition (see **Organizational Viability: Selection and Acquisition** section below for links to policies that inform these decisions and **Appendix A: Access Platforms & Preservation Guidelines** for examples of common digital assets stewarded by the Libraries). In general, the Libraries will retain primary preservation responsibility for all digital assets it has accepted stewardship of. Following the lifecycle model for digital stewardship, these decisions may be revisited over time as digital objects are re-appraised and preservation responsibilities are reconsidered.

Approaches to preservation may include preservation solutions managed locally and via partnerships with trusted vendors. Preservation activities may include any actions to preserve long-term access to the content, ensure the information is maintained as authentically as possible, and mitigate the effects of technology obsolescence.

STANDARDS COMPLIANCE

The Libraries will comply with existing standards and good practice of the digital preservation community. Digital preservation policies and strategies will be created in accordance with the principles outlined in the Open Archival Information System (OAIS) Reference Model (CCSDS 650.0.P-1.1 2009).

Furthermore, the Libraries will strive to achieve trust with stakeholders through greater transparency by following the tenets of the Trustworthy Repositories Audit & Certification (TRAC) Standard (ISO/DIS 16363).

Other relevant description and metadata standards from the Galleries, Libraries, Archives and Museum (GLAM) communities will be maintained for the associated metadata related to those digital objects.

ADMINISTRATIVE RESPONSIBILITY

To build the foundation for a comprehensive digital preservation program, in 2020, the Libraries Senior Leadership Council formed the Digital Stewardship Governance Group (DSGG). The DSGG was charged with developing a practical, shared vision of digital stewardship for Libraries content from creation through preservation. The charge states that the DSGG will advance this shared vision by creating standards-based policies, procedures, and workflows that ensure digital objects are well-managed throughout the digital stewardship lifecycle and that best practices are adhered to Libraries-wide. Acknowledging that digital preservation is a shared responsibility, the Digital Stewardship Governance Group is made up of stakeholders from across functions and units in the Libraries who create or interact with digital content. See **Appendix C** for the DSGG Charge.

The Libraries has acknowledged its commitment to the digital preservation program by including digital stewardship and preservation as a strategic investment in the Libraries Strategic Plan. The Libraries strategic investments include dedicated digital preservation and stewardship staff and funds to acquire the necessary hardware, software, and storage space to manage and preserve digital content.

Mandate

UTSA has mandated that the UTSA University Archives, an administrative unit within UTSA Libraries Special Collections, is the official repository for UTSA records of enduring historical value. The [UTSA Handbook of Operating Procedures \(HOP\) section 9.21](#) defines the requirement of all university departments to transfer records of enduring historical value to the University Archives, and the duty of the University Archives to preserve and provide access to these records in compliance with appropriate laws and regulations, particularly the Texas Government Code, Chapters 441 and 552, and the Texas Administrative Code Title 13, Part 1, Chapter 6. University records are selected for preservation in accordance with the [University Records Retention Schedule](#), which outlines retention periods based on state and federal recordkeeping requirements, operational needs, and historical value.

Objectives

This framework codifies UTSA Libraries' digital preservation program. Some objectives of this program include:

- Ensuring long-term access to digital assets that are determined to be of value to the University and Libraries.
- Ensuring the preservation of core University records and historical information designated as archival by UTSA's records retention schedule and state or federal laws.
- Protecting the Libraries' investments in digital collections.
- Demonstrating organizational commitment to sustainable funding.
- Seeking to comply with digital preservation community standards by developing methods that are suitable for our collections and resources.
- Investigating the risks for loss due to technology variables, such as format obsolescence or proprietary software.
- Evaluating digital assets and assessing what level of preservation is warranted, and which preservation actions should be performed on them.
- Determining what types and levels of quality are needed for metadata and other contextual information.

ORGANIZATIONAL VIABILITY

The Libraries recognizes that the digital preservation function must be present in its planning and operations, and throughout the management stages of the digital content lifecycle.

Scope

The digital preservation program maintains responsibilities for identifying, securing and providing the means to preserve and provide long-term access to digital assets the Libraries has acquired, created, or accepted from the University. Not all digital assets will be preserved due to resource constraints. Collection development policies will assist with identifying materials of higher enduring value and selecting those for priority.

The program assigns levels of preservation for digital assets, based on the feasibility and effort of taking preservation actions on the assets. This includes digital asset types and common file formats associated with these. The levels of preservation will be periodically evaluated to keep up-to-date as new formats emerge and are considered in the Libraries collections, and as new technology and resource constraints are lifted.

The appraisal and selection process applies to both new and existing digital assets. It includes digital objects that originated as digital (born-digital) and those that were created via conversion from analog to digital form (digitized). The digital preservation program will review existing content for preservation as resources allow and as priorities dictate.

Operating Principles

UTSA Libraries will use the following principles to guide the development, implementation and management of its digital preservation program:

- **Access:** The primary goal of all preservation activities is to maintain long-term access to digital assets selected for preservation.
- **Authenticity:** Archival requirements of provenance, chain of custody, authenticity and integrity will be met for digital assets.
- **Collaboration:** Collaboration within the Libraries and with external partners will be investigated and pursued to ensure that complex preservation needs are met.
- **Intellectual Property and Copyright:** Following Libraries policies, digital preservation actions will be in accordance with applicable intellectual property ownership and rights laws.
- **Standards and Practices:** The preservation program will strive to comply with well-established standards shared by the digital preservation community, including alignment with the Trustworthy Repositories Audit & Certification (TRAC) and Open Archival Information Systems (OAIS) reference model standards. Staff will stay well-informed of new technology and actions and participate in the development of evolving digital preservation standards.
- **Sustainability:** The Libraries will define a sustainability plan for the digital preservation program that is cost-effective, transparent, and sufficient for all digital preservation efforts.
- **Technology:** Storage management technologies, both in-house and vendor-provided, will be utilized to support digital preservation efforts, ensuring that all hardware, software and storage media used for digital resources is managed securely, enabling reliable access over time.
- **Training:** As digital preservation technology changes rapidly, the Libraries will support training and development for staff members responsible for digital preservation actions to keep up with

evolving issues and developments in the community. Additionally, staff will contribute to outreach by raising awareness about digital preservation issues and educating stakeholders, including faculty, students, other University staff, and the broader community the Libraries serves.

- Transparency: Policies and procedures regarding digital preservation will be consistently documented and made available to all stakeholders and the public. Additionally, digital resources will have preservation actions documented and embedded into the metadata record produced and stored with the resources in the digital preservation storage system.

Roles and Responsibilities

Within UTSA Libraries, digital preservation program activities are administered by the Head of Digital Preservation and Stewardship. The DSGG, co-chaired by the Head of Digital Preservation and Stewardship, creates and endorses high level policies guiding the digital preservation program and provides oversight by reviewing plans and contributing feedback from representative units. The Senior Leadership Council receives monthly updates from the DSGG Chairs and approves any recommendations that require programmatic changes and/or financial support. Beyond the staff directly involved in the daily work of digital preservation, members of the DSGG who create or interact with digital content have responsibilities in the digital preservation lifecycle. These roles are further defined here: **Appendix B: Roles and Responsibilities.**

Selection and Acquisition

The Libraries' digital assets are subject to the same umbrella criteria for curation, selection, management, and access and preservation as other resources in its collections. The University retention schedule and collection development policies created and maintained by the Libraries sets forth criteria for acquiring and providing access to digital content. For a listing of common document types included in UTSA Libraries common access platforms and their designated preservation paths, see **Appendix A: Access Platforms & Preservation Guidelines.**

- [UTSA Records Retention Schedule](#)
- [Libraries: Selecting Materials for the General Collections](#)
- [Runner Research Press Policies](#)
- [Special Collections: Manuscript Collection Development Policy](#)
- Access Platforms & Preservation Guidelines

Access and Use

Stewardship and preservation of digital assets is central to ensuring long-term access. Without this, essential University records and cultural heritage materials would be lost to format obsolescence, lack of contextual information to make sense of the content, file degradation or general loss from negligence.

Access to preserved digital assets is provided using the most appropriate technology available at the time of selection for preservation. Preservation actions are carried out with future access in mind and will center on preserving the content of the digital object. For objects with essential content, file

conversion will occur to ensure greater format stability and enduring accessibility. Original files are kept for objects that may require maintaining functionality, and efforts to retain the original look and feel (via emulation or similar tools) will be considered on a case-by-case basis.

The Libraries' preservation workflow complies with access restrictions as defined in all relevant laws, regulations, licenses, and deposit agreements.

Challenges and Risks

The Libraries recognizes significant challenges in implementing a digital preservation program that is both effective and can endure over time, including:

- **Rapid growth and evolution:** Technology that enables the variety of digital resource formats and dissemination platforms changes rapidly. Establishing a program that can be responsive to these changes is a challenge.
- **Content creator partnerships:** The digital preservation program administrator must invest significant time and effort in working with content creators/providers in order to understand and employ appropriate provisions for digital assets prior to deposit.
- **Sustainability:** Effective and affordable cost models is a pervasive issue in the GLAM and digital preservation communities. The scale of the digital preservation program is based on the University's and Libraries' commitment. The program must reflect reasonable expectations given available resources, i.e., the Libraries should not pledge more than can be delivered.
- **User expectations:** As technology and information-seeking methods change, the preservation program must be flexible and capable of redefining access methods and dissemination information packages (DIPs) that allow for delivery of information in ways that Libraries stakeholders expect.
- **Education and advocacy:** The Libraries is committed to raising awareness about digital stewardship issues to increase understanding of this shared responsibility among Libraries staff, other members of the University and the broader community of digital content creators and users that the Libraries serves.

FINANCIAL SUSTAINABILITY

Institutional Commitment

The Libraries has committed ongoing financial resources for the tools, services, software, and staff needed to sustain a digital preservation program. As stated in the [2021-2023 Libraries Strategic Plan](#), the Libraries has made strategic investments in digital preservation staff and funds to acquire the necessary technology to enable successful management of digital assets.

Cooperation and Collaboration

The Libraries will regularly seek external funding and collaborative partnerships to: Further develop digital preservation efforts.

- Share findings and key takeaways with the digital preservation community.
- Invest in training and other methods to increase digital preservation expertise.
- Increase the availability of digital content for use by our communities through cooperative efforts.

TECHNOLOGICAL SUPPORT LEVELS

The Libraries has established guidelines for levels of support for the preservation of digital assets. These levels are guided by numerous appraisal criteria, including uniqueness, risk of loss, and the feasibility of preservation. Digital preservation staff will work with Libraries staff and content experts who understand the enduring value of the digital assets to make these decisions.

The following levels are broadly defined:

- **Basic Preservation:** Reasonable effort will be made to ensure that these digital assets will be maintained in their original format, with a moderate level of available resources dedicated to maintenance and continued use. Digital preservation actions will include fixity, validation, geographic replication and others as developed.
- **Advanced Preservation:** All effort will be made to ensure long-term access for digital assets assigned to this level. A high level of available resources will be dedicated to maintaining original formats and migrating content or functionality to new formats to ensure the greatest availability for access. In addition to preservation actions performed in Basic Preservation, this level may also include migration, normalization and the development of resource-specific solutions.

The Libraries strives to meet the requirements as laid out by the National Digital Stewardship Alliance's (NDSA) levels of digital preservation, which focus on 5 aspects of preservation:

- Storage and Geographic Location
- File Fixity and Data Integrity
- Information Security
- Metadata
- File Formats

The Libraries will continually assess how it meets these aspects. See **Appendix E: UTSA Mapping to NDSA Levels Of Digital Preservation** for further explanation of these levels and the most recent self-assessment.

SYSTEM SECURITY

UTSA Libraries is responsible for safeguarding digital content from unauthorized access, and for ensuring the privacy and original intent of content creators. The Libraries' digital stewardship infrastructure follows UTSA's policies for its [Standard for Data Classification](#), in addition to all procedures and policies outlined in UTSA's [HOP 8.12 Information Resources Use and Security Policy](#).

Disaster Recovery

The Libraries' digital preservation infrastructure is considered mission-critical, and is given appropriate levels of monitoring, response and recoverability. Digital content stored on UTSA's network is managed by UTSA University Technology Solutions and UTSA Libraries is assured of 30-day backups of all data stored at the University's data centers. Additionally, the Libraries' digital preservation infrastructure is built to include multiple redundancies, with at least three geographically-separated copies of digital assets available to aid in timely data recovery.

Authenticity

The active maintenance of authenticity and integrity of digital assets is ensured through regular fixity checks of files and their checksums. The digital preservation program conducts periodic audits of digital resources to ensure files match their original checksums, and through the Chronopolis preservation storage system, three network nodes are utilized to automatically monitor fixity checking of resources with copy errors and replace these with reliable copies.

PROCEDURAL ACCOUNTABILITY

Audit and Transparency

UTSA Libraries is committed to ensuring transparency and accountability of the digital preservation program's management and operations and will make all digital preservation policies publicly accessible on the Libraries' website. The DSGG will perform a self-assessment every two years, in which the Digital Preservation Framework will be reviewed, re-evaluated, and updated. Any recommendations for updates to the Framework will be approved by the Libraries Senior Leadership Council.

Policy Framework Administration

The digital preservation framework was completed in Spring 2022, and was approved and endorsed by the UTSA Libraries Senior Leadership Council in April 2022.

DEFINITIONS

The Digital Stewardship Governance Group utilizes the following list of definitions to aid in understanding certain terms and concepts used in this framework. Unless otherwise noted, definitions are used with attribution from University of Minnesota's Digital Preservation and Data Archiving [Glossary](#).

Access: The services and functions which make the archival information holdings and related services visible to Consumers and authorized users. This includes restricting access in some instances due to copyright, confidentiality, or statutory requirements.

Archival Information Package (AIP): An Information Package, consisting of the Content Information and the associated Preservation Description Information (PDI), which is preserved within an OAIS. (OAIS, p.1-7, Section 1.7.2)

Authenticity: A mechanical characteristic of any digital object that reflects the degree of trustworthiness in the object, in that the supportive metadata accompanying the object makes it clear that the possessed object is what it purports to be.

Bit-level preservation: A baseline preservation approach that ensures the integrity of digital objects and associated metadata over time in their original form, even as the physical storage media which houses them evolves and changes.

Chain of custody: A process used to maintain and document the chronological history of the handling, including the transfer of ownership, of any arbitrary digital file from its creation to a final state version. See also *Provenance Information*.

Checksum: An algorithmically-computed numeric value for a file or a set of files used to validate the state and content of the file for the purpose of detecting accidental errors that may have been introduced during its transmission or storage. The integrity of the data can be checked at any later time by re-computing the checksum and comparing it with the stored one. If the checksums match, the data was almost certainly not altered.

Digital asset/digital object: A broad term encompassing digital surrogates created as a result of converting analog material to digital form (digitization), and born digital, for which there has never been and is never intended to be an analog equivalent. (Digital Preservation Coalition *Digital Preservation Handbook Glossary* <https://www.dpconline.org/handbook/glossary>)

Dissemination Information Package (DIP): An Information Package, derived from one or more AIPs, and sent by Archives to the Consumer in response to a request to the OAIS. (OAIS Reference Model Terminology Section 1.7.2)

Fixity checking: The characteristic that indicates a digital object's bitstream remains unchanged over time. Information such as file names, file sizes, checksums, or other methods can be used to check fixity of a digital object. (*Working Definitions for the Levels of Digital Preservation version 2.0*)

GLAM: Acronym for Galleries, Libraries, Archives and Museums, specific elements of cultural heritage institutions.

Integrity: Internal consistency or lack of corruption in electronic data. See also *Checksum*.

Long-term: A period of time long enough for there to be concern about the impacts of changing technologies, including support for new media and data formats, and of a changing Designated Community, on the information being held in an OAIS. This period extends into the indefinite future.

Metadata: Structured information that describes the context, content and structure of a document and their management over time to allow users to find, manage, control, understand or preserve information over time.

Open Archival Information System (OAIS): The Open Archive Information System (OAIS) Reference Model, an ISO standard that formally expresses the roles (producer, management, consumer, and implicitly archives), functions (common services, ingest, archival storage, data management, administration, preservation planning, and access), and content (submission information package, archival information collection, archival information package, and dissemination information package) of an archive. It was approved as an ISO standard in 2003 and updated in 2012: ISO 14721:2012.

Preservation: The processes and operations in ensuring the technical and intellectual survival of objects through time.

Provenance information: The information that documents the history of the Content Information. This information tells the origin or source of the Content Information, any changes that may have taken place since it was originated, and who has had custody of it since it was originated. The Archive is responsible for creating and preserving Provenance Information from the point of Ingest; however, earlier Provenance Information should be provided by the Producer. Provenance Information adds to the evidence to support Authenticity.

Reference model: A framework for understanding significant relationships among the entities of some environment, and for the development of consistent standards or specifications supporting that environment. A reference model is based on a small number of unifying concepts and may be used as a basis for education and explaining standards to a non-specialist.

Submission Information Packet (SIP): An Information Package that is delivered by the Producer to the OAIS for use in the construction or update of one or more AIPs and/or the associated Descriptive Information

Standards: Rules typically developed, adopted, and promoted by large organizations that can advocate for their broad usage. Data standards enable the exchange of data while technology standards enable the delivery of data between systems.

Trusted digital repository: A trusted digital repository is one whose mission is to provide long-term access to managed digital objects to its designated community, now and into the future; that accepts responsibility for the long-term maintenance of digital objects 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.

Workflow: The tasks, procedural steps, organizations or people, required input and output information and tools needed for each step in a business process. A workflow approach to analyzing and managing a business process can be combined with an object-oriented programming approach, which tends to focus on documents, data, and databases.

REFERENCES

This framework follows a model template co-developed for the Digital Preservation Management workshop, created by internationally-recognized digital preservation experts Anne R. Kenney and Nancy Y. McGovern. The model was accessed from the Inter-university Consortium for Political and Social Research (ICPSR):

<http://www.icpsr.umich.edu/icpsrweb/content/datamanagement/preservation/policies/dpp-framework.html>

Portions of this framework were adapted and styled after Tufts University's Digital Preservation Framework, November 2019 (<https://dca.tufts.edu/digital-preservation-framework>) and University of Minnesota Libraries Digital Preservation Framework, August 2020 (<https://www.lib.umn.edu/about/dp/digital-preservation-framework>).

Other sources cited:

Open Archival Information System (OAIS) Reference Model (CCSDS 650.0.P-1.1 2009)

<https://www.dpconline.org/docs/technology-watch-reports/1359-dpctw14-02/file>

Trustworthy Repositories Audit & Certification (TRAC) Standard (ISO/DIS 16363)

<https://www.iso.org/standard/56510.html>

NDSA Levels of Preservation Version 2.0 <https://ndsa.org//publications/levels-of-digital-preservation/>

Digital Preservation Coalition *Digital Preservation Handbook Glossary*

<https://www.dpconline.org/handbook/glossary>

APPENDIX A: ACCESS PLATFORMS & PRESERVATION GUIDELINES

UTSA Scholarly and Historical Output: Access Platform Designations

The purpose of this document is to guide UTSA Libraries staff in selecting access platforms for the digital scholarly and historical output of the university that we collect, as well as to provide guidance on the preservation of those items. This document is meant for internal use only and decisions about access platforms may be subject to change depending on the specific circumstances.

Access to digital content can be provided using two public-facing platforms: Runner Research Press (DSpace) and UTSA's Digital Collections (CONTENTdm). Runner Research Press is an online, open access repository that collects the scholarly and creative output of the university. UTSA Digital Collections is the public access portal to the unique cultural and historical items held by UTSA Special Collections. Items collected in the Runner Research Press will be limited to scholarly and creative output of UTSA academic units or departments, while UTSA Digital Collections will provide online access to items solely from UTSA Special Collections.

The records of UTSA are public records and subject to mandatory retention requirements under state law. The UTSA Records Retention Schedule defines retention and disposition requirements for specific record types, including records that must be retained permanently or transferred to UTSA University Archives when no longer in active use. Records transferred from Runner Research Press to the University Archives at the extra-preservation level will comply with the archival transfer requirement.

Runner Research Press = UTSA's scholarly output, academic work

Extra Preservation (committed to long-term access)

- Center/Institute research reports
- College/Departmental publications
- Committee meeting documents (agendas, minutes, reports)
- Doctoral dissertations
- Journals (UTSA-sponsored)
- Master's theses
- Raw data files associated with dissertations/theses (as needed)
- Research reports (UTSA-sponsored)
- Senior theses
- Special academic projects (Faculty/Administration-sponsored)

Basic Preservation (file copying, no guarantee of long-term access)

- Books (press books, book chapters)
- Conference presentations, papers, transcripts
- Journal articles
- Preprints
- Working papers

Digital Collections (CONTENTdm) = Historical collections, primary sources, visual collections

Extra Preservation (committed to long-term access)

- Maps (historical, collections)
- Oral History A/V and transcripts
- Newspapers (*Paisano* student newspaper)
- Alumni publications (*Sombrilla* magazine)
- Photographs (image collections, historical collections)
- UTSA Faculty Papers and associated material (archival collections)
- UTSA newsletters
- Scrapbooks (student/faculty/administrative organizations)

Web Archives Program (Internet Archive)

Extra Preservation (committed to long-term access)

- Special project websites/online exhibits (UTSA Libraries sponsored)
- UTSA course catalogs
- UTSA websites & linked material

APPENDIX B: ROLES & RESPONSIBILITIES

Responsibilities of each group of stakeholders involved in the digital preservation lifecycle.

Senior Leadership Council

The SLC is responsible for approving policies and providing adequate resources (technology, organization, resources) to ensure the success of UTSA Libraries' digital preservation program.

Digital Stewardship Governance Group (DSGG)

The DSGG is responsible for reviewing, re-evaluating, and updating the Digital Preservation Framework every two years. Individual responsibilities of DSGG members are outlined in the DSGG Charge (see Appendix C: UTSA Libraries Digital Stewardship Governance Group Charge).

Special Collections Digital Archivist

The Digital Archivist is responsible for leading the creation, implementation, and ongoing execution of policies, procedures, and workflows to preserve the born-digital and digitized collections of the UTSA Libraries. The Digital Archivist serves as the chair of the DSGG.

Content Creators

UTSA Libraries will work closely with content creators to ensure the original intent of their work is captured and represented as faithfully as possible in the digital preservation lifecycle.

Collaborators

The Libraries will collaborate with others (such as content creators, vendors, partners, users etc.) to ensure that digital assets are preserved and made available to the best extent possible, utilizing solid professional practice.

APPENDIX C: UTSA LIBRARIES DIGITAL STEWARDSHIP GOVERNANCE GROUP CHARGE

Charge: To develop a practical, shared vision of digital stewardship for libraries and museum content, from creation through preservation, that will ensure we have well-managed digital objects and a roadmap to guide us in advancing that shared vision.

The committee achieves this by:

- Creating workflow for the creation of digitized content from the ITC and Art Collection, including audiovisual content.
- Adapting digital preservation standards, best practices, and tools for local use, relevant to stakeholder needs.
- Defining when Libraries content should go into the Digital Repository (Runner Research Press), into Special Collections' Digital Collections portal for online access, or into an online custom exhibit.
- Defining when and how Digital Repository content should be integrated into University Archives holdings, as appropriate.
- Creating workflow for processing Libraries' and Special Collections' digital content using digital preservation tools, including Archivemata and Texas Digital Library's Digital Preservation Services storage options.
- Creating a Digital Curation and Preservation Framework document that will unify preservation goals, requirements and resources for the Libraries.

Scope: This committee will focus on developing a Libraries and Museum-wide understanding of digital stewardship and will work to ensure best practices are adhered to through the creation of policies, procedures, and workflow.

Decision Making: The team has the authority to create policies, procedures, and workflows based upon best practices and standards, feedback from relevant stakeholders, and availability of monetary and staff resources. Recommendations for the purchase of tools or services needed to support our framework require SLC approval.

Communication:

- Chair will provide regular updates at Senior Leadership Council (SLC) and Leadership Council (LC) meetings
- Members will provide regular updates to their respective departments.
- Minutes of team meetings will be posted on Basecamp within one week of the meeting.
- The team may provide updates to and solicit feedback from other teams or all staff on matters with wide-ranging impact.
- The chair will bring high-level updates, major recommendations, recommendations associated with monetary costs or significant staff time, and issues that are unresolvable within the team to SLC for review and action.

Membership:

Assistant Vice Provost for Special Collections
Special Collections Head of Digital Preservation and Stewardship (Chair)
Art Curator
Collections Management Archivist
Head of Libraries Systems
Institute of Texan Cultures Exhibition Coordinator
Multimedia Specialist
RES Humanities Librarian
RES Engineering Librarian
RES Music Librarian
Scholarly Communications Librarian
Senior Systems Administrator
UTSA DAMS Manager
Web Developer

Terms: All members are Ex-Officio

Roles and Responsibilities:

The **chair** is responsible for:

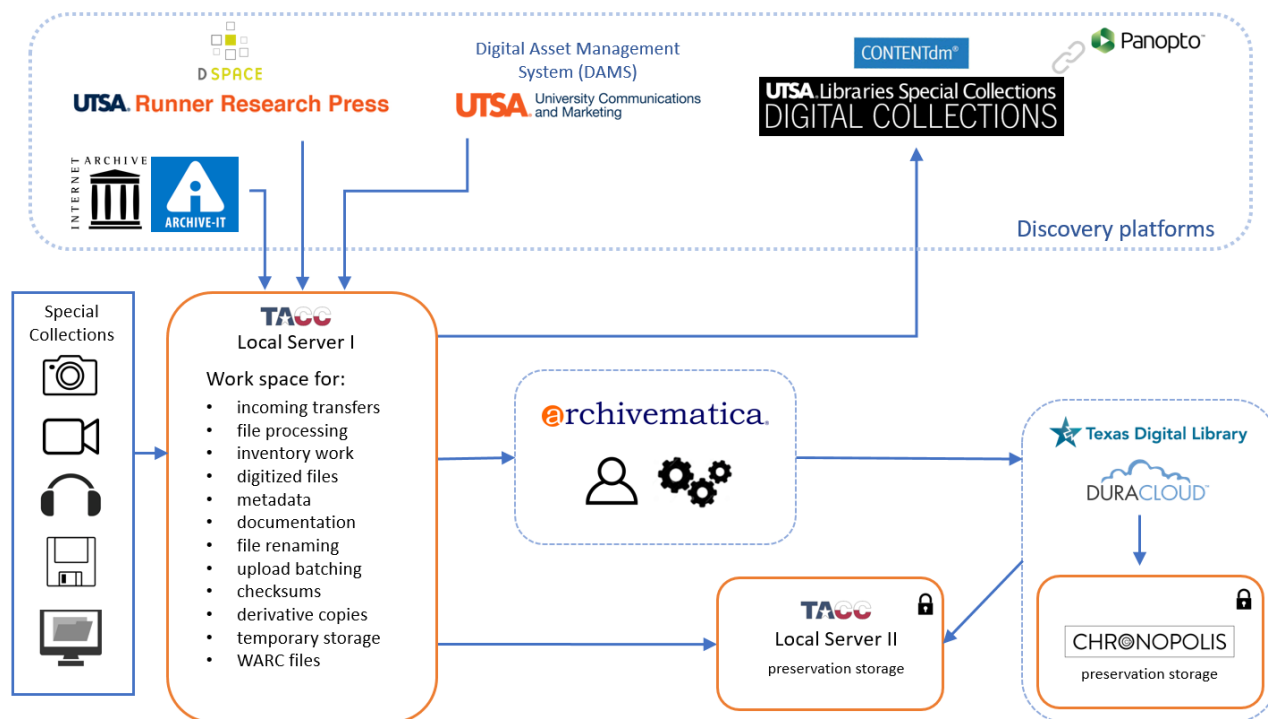
- Coordinating the activities of the team and associated working groups.
- Communicating the activities and concerns of the team through appropriate channels as defined in the Communication section.
- Providing relevant data to the team for review.
- Maintaining team documentation.
- Representing their functional area as team members.
- Bringing issues and questions to the group raised by Libraries and Museum staff.

Members are responsible for:

- Actively communicating relevant and contextualized information from the meetings to their department or unit and bringing that feedback to the governance group.
- Contributing their own expertise and providing input and feedback regarding their departmental needs, ensuring those needs are addressed in the development of policies and workflows.
- Reading relevant materials in advance of meetings.
- Preparing updates when needed.
- Participating in documentation and policy creation.
- Participating in task forces to address focused needs.
- Bringing issues and questions to the group raised by Libraries and Museum staff.

APPENDIX D: TOOLS USED BY THE UNIVERSITY TO PROVIDE DIGITAL PRESERVATION SERVICES

The following diagram demonstrates the relationship between the different tools and services employed by the digital preservation program to manage and preserve digital assets following the OAIS reference model.



Archive-It: This service is provided by the Internet Archive, it allows digital preservation staff to copy websites affiliated with UTSA and preserve these as part of University Archives. Additional collections exist to supplement collecting websites related to other Special Collections collection development areas.

Archivematica: The digital preservation program uses this tool to create and manage archival packages following the OAIS model, specifically for the examination of digital assets and extraction of metadata for generating submission information packages (SIPs) and the bundling of secure archival information packages (AIPs). Archivematica is additionally used to normalize files that warrant that preservation action, and to store the resulting AIPs on secure servers for replication and long-term preservation.

TACC: The Libraries purchases annual storage allocations from the Texas Advanced Computing Center (TACC), a data center maintained by the University of Texas at Austin. Local Server I provides high-reliability storage for data requiring persistent access. Local Server II fulfills the need for high-capacity long-term storage, by providing a file system for archival purposes based on long-term tape storage—this is the secure archive for AIPs that are to be stored and not accessed.

Texas Digital Library's DuraCloud: The Libraries maintains membership in the TDL consortium, which offers a preservation service that includes storage in TDL's DuraCloud as part of its preservation workflow. DuraCloud@TDL is a hosted service, using open-source technology to facilitate storing digital assets in cloud storage.

Chronopolis: As part of TDL's preservation service, AIPs from Archivemata are immediately stored in DuraCloud, where they can be staged and moved into the Chronopolis digital preservation network for replication. Chronopolis provides long-term distributed storage of digital assets, providing a geographically distributed redundant archive system for partners. Use of this ensures that AIPs stored on TACC's servers can be replaced in the event of a disastrous data loss at TACC's Austin-based location.

CONTENTdm (Digital Collections library): The Libraries maintains digital assets meant for users to access in CONTENTdm, via a hosted service provided by OCLC. Digital assets and their corresponding metadata are shared in this platform in converted formats appropriate for the needs and expectations of end users (as Dissemination Information Packages, DIPs).

DSpace (Runner Research Press): The Libraries open access repository platform for disseminating the University's scholarly output.

Digital Asset Management System/DAMS: Managed by University Marketing, UTSA's [Marketing Resource Library](#) contains high-quality photography of the university's people, places and activities, as well as video B-roll, logos, templates and other graphical elements.

APPENDIX E: UTSA MAPPING TO NDSA LEVELS OF DIGITAL PRESERVATION

UTSA Libraries preservation system meets the following points for the [NDSA Levels of Digital Preservation Version 2.0 Matrix](#) of 5 functional areas and assessment levels.

Storage:

- Assessment Level: 4 (Sustain your content)
- Explanation: Digital assets that have been processed through the preservation system meet the requirements for redundancy and geographic distribution through use of tape backups (Local Storage II) and Chronopolis. In the event of disaster, all associated metadata and assets can be restored from these two preservation storage locations.

Integrity:

- Assessment Level: 3 (Monitor your content)
- Explanation: Upon accessioning digital assets are transferred to network storage (Local Storage I) utilizing digital preservation tools for creating checksums and checking fixity. Files that are processed into the digital preservation system are further checked by tools in Archivematica and are automatically checked upon ingest into the digital preservation system. Integrity information is documented when checked, and manual audits are available on demand.

Control:

- Assessment Level: 3 (Monitor your content)
- Explanation: When actions are performed on digital assets staff maintain documentation to log events and outcomes, and digital preservation tools automatically generate logs (technical metadata at the asset level). This is kept as administrative metadata by the archives, with copies bundled into the AIPs and managed by preservation/archives staff.

Metadata:

- Assessment Level: 4 (Sustain your content)
- Explanation: Digital assets must contain minimum administrative and descriptive metadata to be accessioned into holdings, and ingest tools automatically generate robust technical metadata that documents preservation actions.

Content:

- Assessment Level: 3 (Monitor your content), approaching 4 (Sustain your content)
- Explanation: Digital assets are analyzed for format obsolescence and preservation actions of migration and normalization are taken according to available staff time, tool capabilities, and storage space. For digital assets in higher-risk categories normalization is automatically done in Archivematica, but for more stable formats normalization will be omitted to save total storage space costs for each AIP. See Appendix G: File Normalization for more details.

APPENDIX F: GAP ANALYSIS

The Libraries acknowledges the following deficiencies in current systems and technologies:

- Processing backlog for digital assets
 - Digital assets awaiting digital preservation workflow on shared networks are stored with minimal administrative metadata
 - These are not yet replicated in Local Storage I
 - Digital assets on removable storage media (optical or magnetic media) are inventoried but not yet ingested into shared network file storage
- Lack of fixity checking on digital assets in Local Storage I and other pre-processing storage spaces
- A workflow to automatically replace invalid files discovered with fixity checking
- Geographic location for on-campus network storage and Local Storage I is not ideal, given that it is the same geographic area as UTSA (Central Texas)
- File normalization is not automatic, due to resource constraints, and current workflow is to normalize for access on demand

APPENDIX G: FILE NORMALIZATION

Normalization is the process of converting files into a preservation format to aid in long-term preservation (Source: [NDSA Working Definitions for the Levels of Digital Preservation Version 2.0](#)). Due to resource constraints (staff time, tool capabilities, limited preservation storage space) the Libraries has opted to adopt a policy of evaluating digital assets for normalization needs. Following the guidance of leaders in digital preservation planning, such as the [Library of Congress' Sustainability of Digital Formats](#) resource, preservation decisions will be made after analysis of format risk and will either automatically occur during processing with Archivematica or will be done with other tools prior to ingest and bundled into the SIP.

Because UTSA Libraries is committed to maintaining an original bitstream copy of all digital assets, file normalization would create a secondary file that is often larger in file size than the original. To facilitate long-term access, Archivematica is used to create robust technical documentation about original files, which enables preservation staff to make judgements about the risk and sustainability of files being processed. Original bitstream copies of files are always made available for use (ex: Microsoft Word files), and normalized copies (such as PDF/A renderings of Microsoft Word files) are made by staff to facilitate access in UTSA Libraries' access platforms (CONTENTdm, DSpace) and can also be made on demand by staff as needed and as tools are available.