

Applying Archival Science to Digital Curation: Advocacy for the Archivist's Role

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INTRODUCTION

Increasingly, archivists, librarians, and technologists are focusing attention and resources on digital curation. Examples include curation of datasets, establishment of institutional repositories, and providing virtual work spaces for researchers to collaborate and archive their scholarly output.

Information professionals rely on models such as OAIS and emerging standards such as ISO 16363 for design, audit, and certification of trustworthy digital repositories. Archivists have valuable knowledge, skills and abilities to contribute to digital curation efforts but they must justify their involvement in these activities in ways that non-archivists can understand in order to be included.

METHODS

Using the functional entities of the OAIS reference model, and the ISO16363 standard, functions were identified for digital curation. Using the 10 Basic Characteristics of Digital Preservation Repositories as a framework, archival functions for analog holdings were mapped to functions for digital curation, listing sample techniques and guiding documents in each category to discern commonalities.

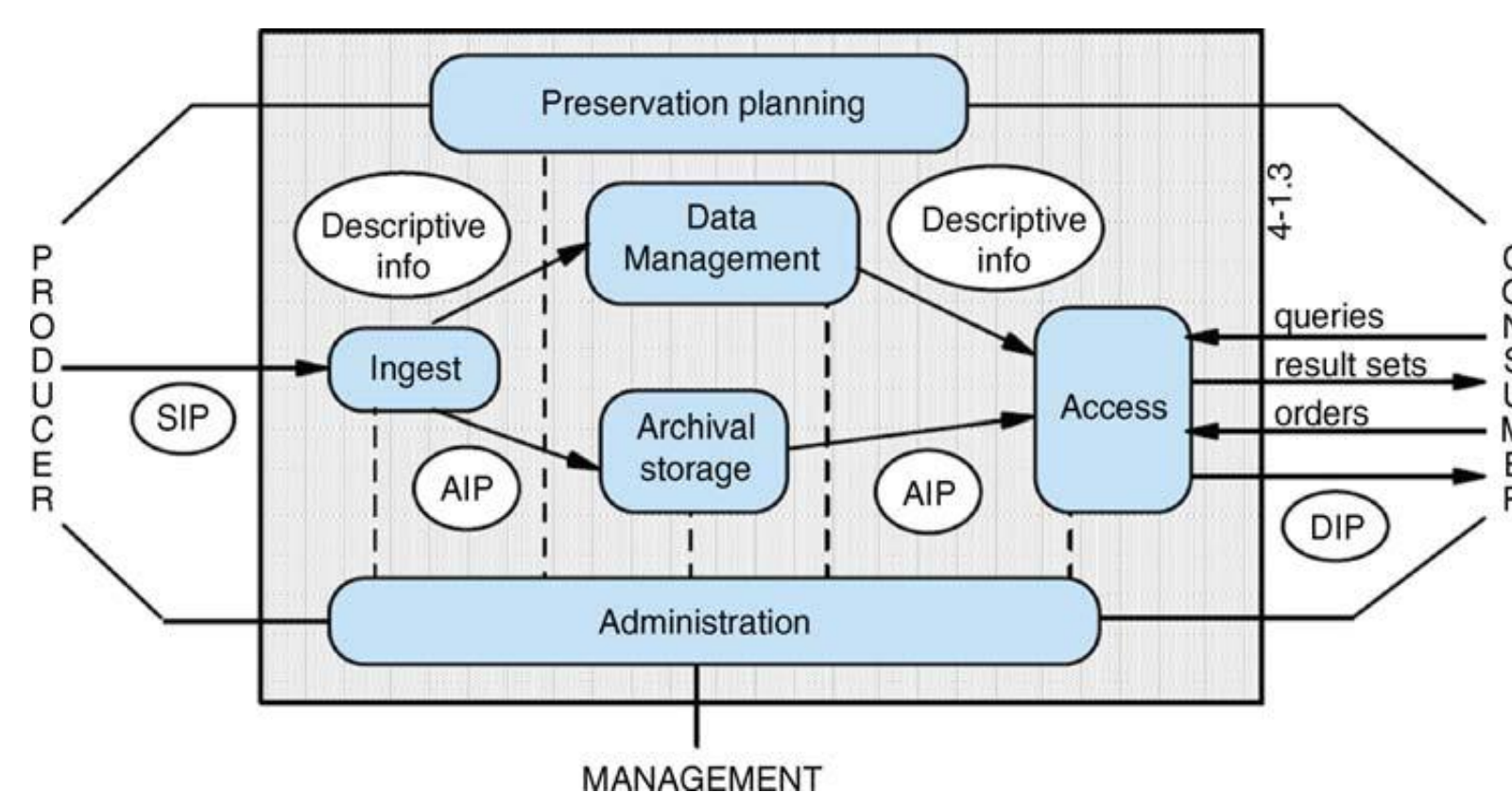


Fig. 1. Functional entities of OAIS reference model

RESULTS

The functions necessary for digital curation for trusted digital repositories are very similar to traditional archives functions informed by archival theory and practice (see Fig. 2). For both traditional analog materials and digital materials, it is critical to have an infrastructure that includes guiding documents such as mission statements, collecting policies and use policies, as well as adequate staffing and other resources to ensure sustainability. New techniques components in expanding archival functions into digital curation are identified in the chart in orange. Mapping traditional archival functions to functions for digital curation illustrates the ways archivists' existing knowledge, skills, and abilities can be used to justify or inform new processes needed in digital curation.

CONCLUSIONS

Archivists have led digital preservation efforts since the 1990s, but their efforts are not always recognized outside the archives profession. Using common terminology, and understanding how digital curation functions expand upon traditional archival functions, archivists can communicate with confidence the role they play and the value they bring to digital curation activities and creation of trustworthy digital repositories. The need for institutions to demonstrate trustworthiness offers opportunities for archivists to communicate specific ways they can contribute to meeting the ISO 16363 standard for digital repositories.

Based on the functional mapping results, archivists are particularly well-suited to creation of policies and procedures relating to appraisal, accessioning, and preservation, including security and emergency plans, all critical components of trustworthy repositories.

PROBLEM STATEMENT AND OBJECTIVES

Archivists are sometimes forgotten in an institution's digital curation efforts, or added after the initial planning stages. If archivists allow their exclusion from stewardship of unique digital materials, future archival collections and their researchers will suffer.

Archivists need successful communication strategies to convince stakeholders of the expertise they bring to digital curation. Terms used by archivists to describe their skills may not be understood by librarians and technologists. Mapping traditional archival functions to terms describing digital curation functions will enable communication efforts across disciplines.

Characteristic	Traditional Archival Practices/Guiding Documents	Digital Curation Methods
Maintenance	Preservation reformatting; archival holdings maintenance	Normalization; checksums/ongoing fixity checks; DOIs; metadata (technical, preservation)
Organizational fitness	Mission statement; qualified staff; adequate resources, authority, support; identification of core customers or communities	Mission statement; qualified staff, adequate resources, authority, support; identification of core customers or communities
Legal rights	Deeds of gift; research usage agreements; rights included in finding aid	Deeds of gift or submission/ingest agreements; research usage guidelines and rights information included in metadata
Policy framework	Planning and policy documents: mission statement; strategic plan goals and objectives; collection development policy; access and use policy; reproduction policy	Planning and policy documents: mission statement; strategic plan goals and objectives; collection development policy; access and use policy; reproduction policy; digital preservation policy
Acquires/ingests based on criteria	Collecting policy; deed of gift; accessioning procedures, accession number/unique identifier, physical control (location), intellectual control (content description, documentation of provenance)	Collecting policy; deed of gift or submission agreement signed; accessioning procedures, accession number/unique identifier, physical control (location of media or virtual file location), intellectual control (content description, documentation of provenance)
Integrity, authenticity, usability over time	Deed of gift and accessioning documents; appraisal process; usability and preservation of materials assessed as part of accessioning and processing; notation of obsolete formats or critical preservation challenges	Deed of gift or submission agreement; accessioning worksheet; checksums; unique identifiers; capture provenance metadata; ongoing fixity checks; audit trails/change history captured in metadata; usage metrics
Metadata about actions taken, access support, usage contexts	Processing notes, deed of gift, donor correspondence, accessioning documents, condition reports, & finding aids document actions taken during preservation, accessioning, processing; access support & usage processes documented in finding aid and/or use policies; commitment to access stated as part of mission.	Processing notes; submission agreement; accessioning documents; audit trails/change histories metadata; digital preservation policy documents commitment and challenges to long-term preservation, level of commitment over time specified; reappraisal of content; deaccessioned objects are documented; DOIs; commitment to access stated as part of mission.
Dissemination	Materials used in secure environment (reading room) according to usage policy; rights information in finding aid; reproduction policy clarifies dissemination; related materials in finding aid; citation information in finding aid.	Materials used in secure online environment according to usage policy; rights information in metadata; reproduction policy clarifies dissemination; links provided between related objects in metadata; repository enabled for harvesting by other repositories and aggregators; citation information in metadata.
Program for preservation	Roles, responsibilities for preservation specified (structure, staffing, budget); preservation assessment during accessioning, processing, stabilization, reformatting, and/or restoration completed as feasible; usage metrics and collecting priorities used in future reappraisal; decisions documented; emergency response plan.	Roles, responsibilities for preservation specified in organizational structure (structure, staffing, budget); accessioning and processing workflows include identification and verification of file formats and virus checks; technology watch; regular fixity checks; preservation metadata; audit trails/change history; usage metrics and collecting priorities used in future reappraisal; decisions documented; emergency response plan.
Technical infrastructure for maintenance, security	Access policies, limited access to collection storage areas; security and preservation monitoring; archival holdings maintenance; emergency response plan; some collections may be reproduced and stored in multiple locations	Access policies, limited access/dark archive for master objects with separate storage for access copies; ongoing fixity checks; audit trails/change history; firewalls; emergency response plan; redundancy (LOCKSS) with geographic distribution.

Fig. 2. 10 Basic Characteristics of Digital Preservation Repositories: mapping traditional archival functions to functions for trustworthy digital repositories
Orange text signifies new or expanded methods for digital curation

LITERATURE CITED

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