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Northumberland Estates: Preservation as a Service

Business Case

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Revision History

Revision Date	Previous Revision Date	Summary of Changes	Changes Marked

Approvals

Name	Title	Date of Issue	Version

Distribution

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IT Steering Committee		01/11/2013	1.0

1. Executive Summary

“Northumberland Estates houses one of the largest private archives in Britain and, as well as providing information for Estates business and Alnwick Castle, our archivist facilitates research by scholars from around the world.”

The infrastructure required to maintain and enhance the Estates current and future digital content are under threat if we do not act without delay. Following the employment of a Digital Curator in 2012, extensive analysis and research has been undertaken. The following recommendation will ensure the long term preservation of critical business digital records, along with historically important digital materials.

Extensive analysis in collaboration with experts at the University of London Computer Centre (ULCC) has identified clear achievable solutions which are outlined in this business case. The recommended option is the adoption of a 12 month contract for Tessella to provide the Preservica digital preservation as a service. Keeping Northumberland Estates digital assets safe and accessible ensures the organisation meets its responsibility to maintain and enrich assets so as to preserve its essential fabric and qualities for future generations.

2. Context

At present, Northumberland Estates continues to produce significant quantities of paper records (storage capacity is currently reaching maximum capacity). Digital information tends to arrive on an intermittent and ad hoc basis and on a variety of storage media. The organisation is well aware that a new, consistent approach to handling digital data is required.

Some departments that have traditionally produced records in hard copy, for example the Finance Department, are now increasingly digital, meaning that all future records will only be in this format. The implication is that Northumberland Estates inability to cope with such digital information risks compromising its core function of functioning as a property management and investment business.

Digital preservation is a complex, emerging discipline that is outside the experience of most archivists and requires specialist systems. Northumberland Estates has recently appointed a Digital Curator whose specific remit is digital preservation and electronic records management. This specialist up-to-date knowledge will be key to articulating the requirements for the right system to fulfil the role.

In July 2013, the Digital Curator was successful in gaining funding from the Jisc led SPRUCE project to carry out work which supported business case developments. As part of the proposal, ULCC were contracted as consultants for the project. The knowledge and expertise of both the Digital Curator and ULCC has resulted in a thorough understanding of the options now available for Northumberland Estates to successfully ensure continued access to business critical digital information. The outputs from this project are detailed in the following business case.

Methodology

The following methodology was carried out to assess current options for the implementation of a digital repository:

1. Research resulted in the identification of current market vendors. Tessella Preservica emerged as the outstanding choice.
2. A 'Product Assessment' table was completed. This enabled a detailed picture of the functional capabilities the system had on offer. The table was grounded on the Open Archival Information System (OAIS) which establishes current best practice for any digital preservation framework.
3. A high level User Story was undertaken. This high level exercise gives a broad overview of how the implementation of a digital repository will fit into current organisational processes.
4. The resulting User Story was used as the basis for a broader organisational assessment. The ISO 16363 Assessment gives further detail on the institutional readiness of Northumberland Estates plans to implement a digital repository. This assessment also serves as a benchmark which can aid future repository audits.
5. The results of this analysis are shown in Diagram A and Diagram B:

Diagram A shows the results from the ISO16363 Organisational Assessment:

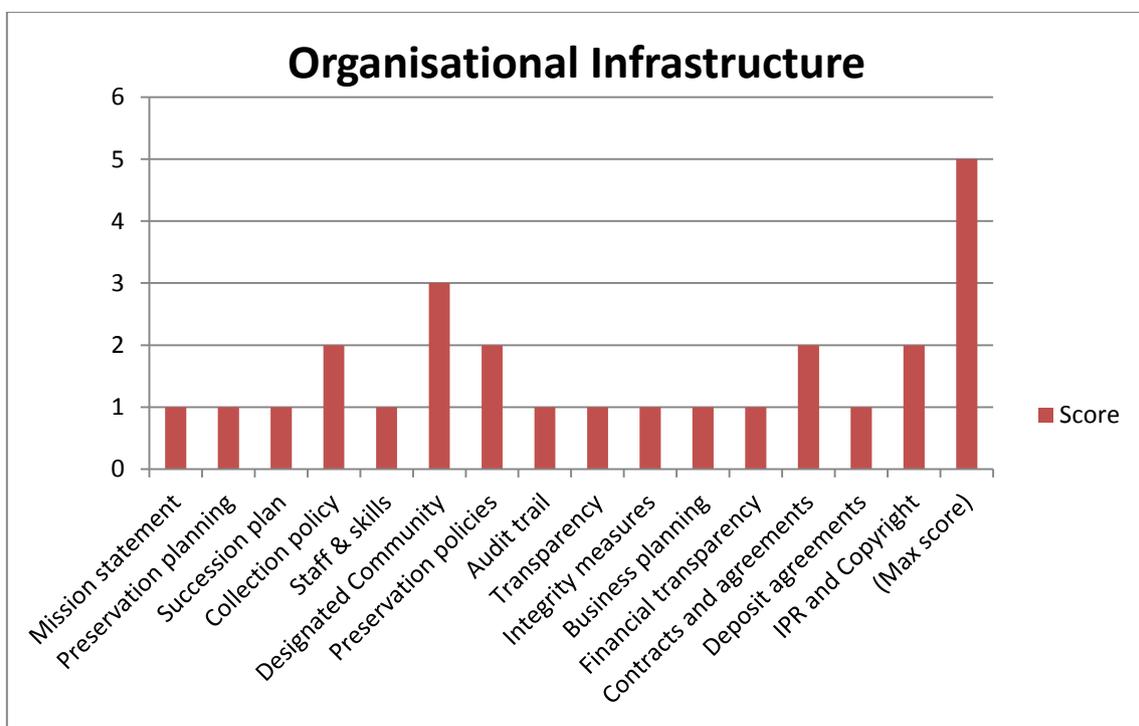
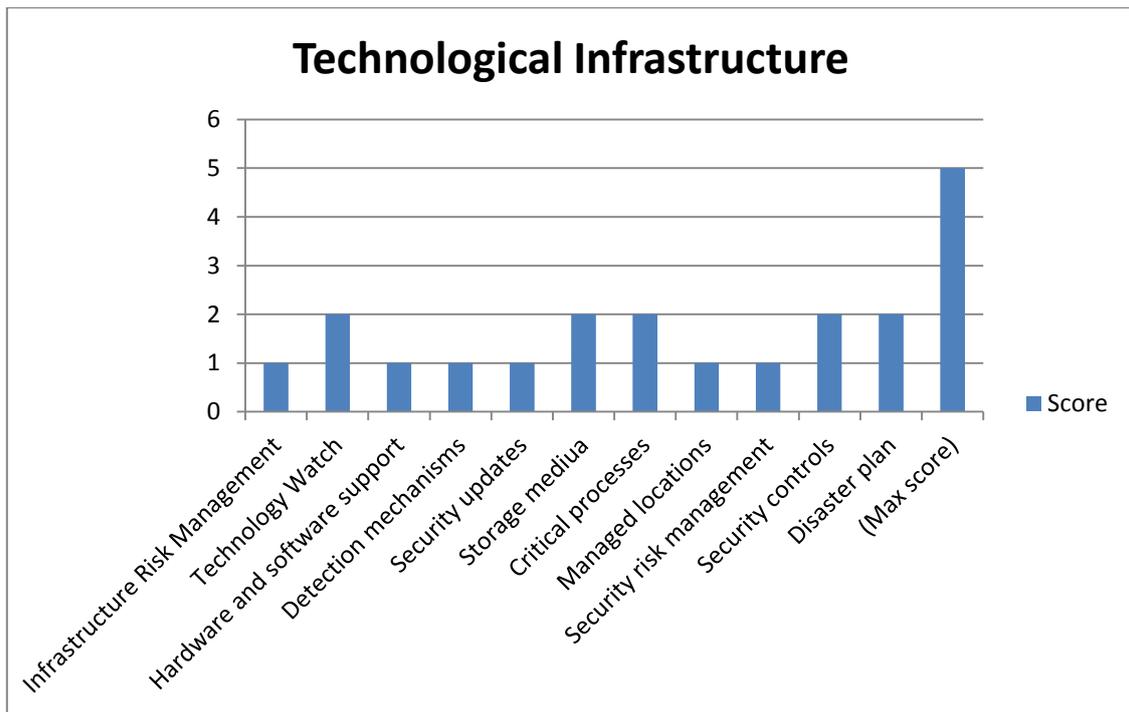


Diagram B shows the results from the ISO16363 Technical Assessment:



Conclusions

Both the organisational and technological ISO 16363 assessments reveal that Northumberland Estates are at the base level needed for the establishment of a best practice digital preservation environment. This is to be expected, but both assessments highlight the need to invest in a digital repository service.

Backup alone does not serve as an appropriate solution for trusted digital archives, however; replication of content is best practice, and it is especially important to separate the replicas geographically. To mitigate the risks of technology failure, it is even better to store replicated content in systems that use different underlying technologies than the original archive system. While a solution might be hosted in-house, vendors offer Cloud computing based solutions superintended by digital preservation specialists who ensure that collections are protected from the risks of digital decay.

3. Strategic Vision

The longevity of all Northumberland Estates digital resources is under threat. Without access to the trusted digital information it needs to preserve the organisation will not be able to support business critical work or its administration, nor the requirements for legislative access to Estates information wherever and whenever they want it in the future. The implementation of Preservica for a 15 month feasibility pilot will result in the assurance that Northumberland Estates can preserve digital information into the future and realise the benefits of effective digital ways of working.

4. Options

There are two clear options which Northumberland Estates faces:

A. *Preservica – Tessella* (Recommended option)

A subscription to the cloud-hosted digital preservation service Preservica. Preservica is based on the same advanced technology specifically developed for leading national archives and memory institutions across the world and for an annual fee would offer a flexible, robust, but affordable solution to Northumberland Estates digital preservation needs.

B. *Do nothing*

The cost of inaction will result in the loss of business critical content which has to be kept for regulatory and compliance; if it isn't retrievable then Northumberland Estates could potentially face litigation, fines, penalties and major business damage. The 700 year reputation of Northumberland Estates would also be under threat if an adequate digital continuity solution is not acquired.

5. Benefits (if recommended option is adopted)

- Recurring **financial savings** in supporting the transition from paper based to digital records.
- **Corporate memory** in historical terms, but also the wider context of enhancing accumulated knowledge and expertise.
- Increased **efficiency** and saving of staff time in accessing and disseminating information.
- Meeting **legislative requirements**. There is a very high risk that without proactive intervention, digital information will become inaccessible and Northumberland Estates will be unable to meet its regularity obligations.
- Northumberland Estates have already invested significant resources in the creation of digital information. Adequate digital preservation activities will **protect** and sustain existing infrastructure.
- **Supports** digital ways of working. For example, the future implementation of an EDRMS can be supported though the assurance that Northumberland Estates can organise and preserve its digital information into the future.

6. Project Plan

Tessella have offered a 15 month proposal which includes a specific offer (EVAL 3) for Northumberland Estates. A 3 month "try before you buy" option (including Tessella promoting Northumberland Estates as EVAL 3 Early Adopter) is detailed in Attachment ... (Schedule 1m page 15 & Schedule 3.3, page 19).

As stated whilst there is no subscription cost during the first 3 months for the Preservica service, Northumberland Estates must take the 1 day (on-site) basic training course at

£2,000 (excluding VAT). The training is package defined in Attachment ... (Schedule 3, page 17 and 18). The proposal includes continuation into 12 month Classic Pay Plan with the required level of storage (550 Gb) at £1,150 per month (excluding VAT).

Response must be submitted by 15th November 2013.

Cost Analysis

Cost Type	Funding Source	Funding Amount	Proposed/ Confirmed	Approval Authority	Balance
3 Month Preservica Trial	NE	£2,400 (Inc. VAT)	Proposed	Agent and Financial Director/ITSC	£2,400
12 Month Preservica Contract	NE	£16,560 (Inc. VAT)	Proposed	Agent and Financial Director	£16,560

First Year Costs = £18,960

On-going Annual Costs = £16,560

Timescales

Timescale Type	Projected Timescale	Completion Date	Proposed/ Confirmed	Total Timescale
3 Month Preservica Trial	November 2013 – January 2014	January 2014	Proposed	3 Calendar Months
12 Month Preservica Contract	February 2014 – January 2015	January 2015	Proposed	15 Calendar Months

Assumptions

- It is assumed that a digital preservation post will be in continuous occupation.
- Northumberland Estates will gain early adopter status with Tessella.

Appendix A – Preservica Functional Assessment

Assessment of product against OAIS compliance requirements

Product name: **Preservica**

Sources consulted: Preservica - Service Description - System Functions V4 4 (2013)

Date of assessment: 16/09/2013 + 20/09/2013

Assessment performed by: Ed Pinsent, ULCC

Scoring: Use 0 to 3 range, where the requirements are: not met (0), partially met (1), fully met (2), exceeded (3).

Score weighting uses Craig Borvsowich's *Constructing a Weighted Matrix* (2006). TOTAL = Weight x Score.

Requirement	Necessity	Met?	How met	Comments	Weight	Score	TOTAL
001: ingest mixed content	Essential	Y	Ingest allows users to load information into the archive in a managed and efficient manner. Preservica provides locally installable (optional) "SIP Creator". Tool to upload ZIP files of content direct via browser and ability to post bulk content on USB drives.		5	2	10
002: import records from EDRMS	Conditional	?	The SIP Creator can build submission packages from locally held files and assign descriptive metadata from fragments created elsewhere or by using a GUI.	<i>Broadly this function sounds like it could work for interfacing with outputs from an EDRMS, but it would have to be demonstrated. Explicit support for EDRM exports is not mentioned. We sense there could be a complex metadata mapping exercise involved.</i>	2	1	2

Requirement	Necessity	Met?	How met	Comments	Weight	Score	TOTAL
003: AIP creation	Essential	Y	Seems to be part of the SIP Creator process.		5	2	10
004: UID assignment	Essential	?	Not known	<i>Not explicitly stated, but likely that this is performed.</i>	5	2	10
005: virus and quarantine	Essential	Y	Virus checking is part of workflow steps to perform quality assurance.		5	2	10
006: file format identification	Essential	Y	Uses File Format Registry based on the UK National Archives PRONOM database.		5	2	10
007: validation	Essential	Y	Identification / Characterisation: DROID 6, JHOVE (JPEG, PDF, HTML, JPEG2000, AIFF, XML, TIFF, GIF, PNG), Native XML (validation only), Java Image IO (for image formats), Jakarta POI (for MS Office), Media Info (for video formats), Entagged Library (for audio formats).		5	3	15
008: checksums	Essential	Y	Checksum verification is part of QA workflow. Checksum calculated on storage for each copy. Checksum re-calculated on access or at regular timed intervals on files at rest. If checksum has changed (therefore the file has been changed / damaged) self-heal from an alternate copy (cyclical redundancy).		5	3	15
009: technical metadata extraction	Essential	Y	Built in technical metadata extraction required for preservation.	<i>The specification does not refer explicitly to significant properties, which will be needed.</i>	5	2	10
010: descriptive	Essential	Y	Descriptive metadata can select from	<i>No mention made of ISAD(G).</i>	5	2	10

Requirement	Necessity	Met?	How met	Comments	Weight	Score	TOTAL
metadata			one or more standard metadata schemas provided (display and edit templates included): Encoded Archival Description (EAD) 2002; MODS 3.4; Dublin Core 1.1				
011: preservation metadata	Essential	Y	Implementation of all Preservation Actions via the standard workflow engine allowing more complex pathways or actions to be automated. View the audit trail of information and digital objects.	<i>No mention made of PREMIS</i>	5	2	10
012: permanent storage	Essential	Y	Preservica stores its content within Amazon Web Services (AWS) storage systems. Coordinates storage passing the material into the archival database and cloud storage. Within S3, save files to multiple servers in multiple data centres within a given geography.		5	2	10
013: managed storage	Essential	Y	Unlimited information hierarchy, with digital objects held at any level. Alter the hierarchical position of an information object (move to new collection/ level). Coming soon: Ability to split collection between Amazon S3 (fast storage) and Amazon Glacier (slow, lower cost storage).		5	2	10

Requirement	Necessity	Met?	How met	Comments	Weight	Score	TOTAL
014: error-checking	Essential	Y	Integrity checking of all objects held in storage.	<i>This "integrity checking" process refers to the intensive checksum validation process for objects. For error-checking we would need evidence that the spinning disks / storage media are checked and refreshed as needed.</i>	5	1	5
015: AIP to DIP transformation	Essential	Y	Ability to create lower quality presentation copies used for dissemination.		5	2	10
016: technical metadata in database	Essential	Y	"Index selected metadata" is part of automated storage process.		5	2	10
017: descriptive metadata in database	Essential	Y	Metadata is held in Amazon's Web Services Relational Database Service.		5	2	10
018: preservation metadata in database	Essential	Y	Metadata is held in Amazon's Web Services Relational Database Service.		5	2	10
019: rights metadata in database	Conditional	Y	Metadata is held in Amazon's Web Services Relational Database Service.	<i>No mention made of rights metadata, but system is likely to support relevant schemas</i>	2	1	2
020: database ease of use	Essential	?		<i>We can't tell from the literature and the archivist would have to verify this.</i>	5	0	0
021: database queries on objects and events	Essential	Y	View the audit trail of information and digital objects.	<i>Would need to make sure that the audit trail does include repository events.</i>	5	2	10
022: database updates	Essential	Y	Edit descriptive metadata on any information object.		5	2	10
023: database reports	Essential	Y	Includes a set of standard reports produced in PDF, XML or CSV		5	2	10

Requirement	Necessity	Met?	How met	Comments	Weight	Score	TOTAL
			Ingest Reports (5) Access Reports (1) Data Management Reports (2) Preservation Reports (5) Administration Reports (7)				
024: user requests	Conditional	Y	See 023 above.		2	2	4
025: inventories and reports	Essential	Y	See 023 above.		5	2	10
026: audit trails	Conditional	Y	View the files and all metadata (description and audit trail) for any information object.	<i>Would need to make sure that the audit trail does include repository events.</i>	2	2	4
027: automated agreements	Optional	Y	Maintain Transfer Agreements with content suppliers.		0	2	0
028: rights policies	Conditional	?	No explicit information found, but see 032.		2	0	0
029: migration	Essential	Y	Optional workflow to migrate file formats on ingest using user defined migration pathway (normalisation). Ability to perform migrations including post-migration verification of component-level essential characteristics. Ability to create new "Digital Master" preservation copies. Ability to create lower quality presentation copies used for dissemination. Ability to see and compare pre- and post- migration component information.		5	3	15

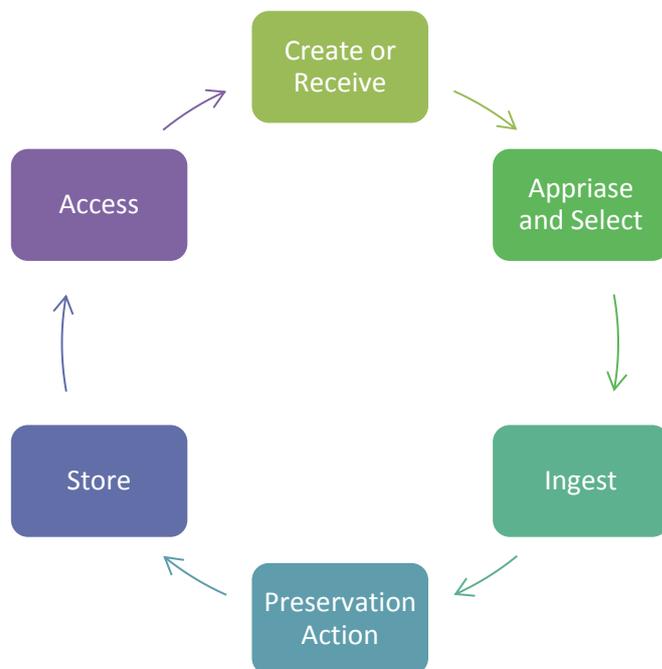
Requirement	Necessity	Met?	How met	Comments	Weight	Score	TOTAL
			Tools for Migration : for example Native Java Image library (most image formats), Oracle Open Office (various office formats to PDF and PDF/A), Imagemagick (most image formats), FFMPEG (various AV formats).				
030: policy enactment	Optional	Y	Implementation of all Preservation Actions via the standard workflow engine allowing more complex pathways or actions to be automated.		0	2	0
031: template design	Optional	Y	Manage schemas used for content Description.		0	2	0
032: DIP creation	Essential	Y	Launch Access workflows, for example creating a Dissemination Information Package (DIP) for download or delivery, transforming metadata for download into preferred schema either using the provided METS transform or a user provided transform, and sending notifications by e-mail and/or text when the DIP is ready for download.		5	3	15
033: DIP delivery	Essential	Y	Preservica provides a Web based "Explorer" to allow the browsing, searching, viewing and downloading of all metadata and content.		5	2	10
034: AIP to DIP audit	Essential	Y	View the files and all metadata (description and audit trail) for any information object.		5	2	10
035: access rights	Essential	Y	User Management:		5	2	10

Requirement	Necessity	Met?	How met	Comments	Weight	Score	TOTAL
			<p>Create and suspend users; Create roles and assign to users; Users requested new password.</p> <p>Comprehensive security model for information objects. Define tags saying which actions can be performed by which user roles. Assign tags to collections and records (deliverable units) allowing fine grain user access control to information objects.</p>				
036: managed access	Essential	Y	Ability to control access to content (or content and metadata) through roles and access control lists.		5	2	10
037: consumer front end	Essential	Y	Preservica provides a Web based "Explorer" to allow the browsing, searching, viewing and downloading of all metadata and content.		5	2	10
038: finding aid support	Essential	Y	<p>Encoded Archival Description (EAD) 2002 MODS 3.4 Dublin Core 1.1</p> <p>Alternately, descriptive metadata can make use of user provided descriptive metadata schemas.</p>	<i>ISAD(G) is not mentioned.</i>	5	2	10
039: representations	Essential	Y	Download any manifestation (representation) of an entire information object or selected file.		5	2	10
040: readers and access tools	Essential	?	Not known.	<i>No explicit specification found</i>	5	0	0

Requirement	Necessity	Met?	How met	Comments	Weight	Score	TOTAL
				<i>TOTAL SCORE:</i>			327

Appendix B – User Story

Digital Preservation: A User Story at Northumberland Estates



Create or Receive

Who: Designated Community, Producers, Collections and Archives Department

Data can be received in two ways: Creation of born digital content through day to day working practices. Additional digitisation content may be created on a sporadic basis.

Received data may take the form of legacy files or more likely to receive data from an EDRMS once implemented. Must include including administrative, descriptive, structural and technical metadata.

Appraise and Select

Who: Collections and Archives Department, Archivist, Digital Curator

Data is appraised and selected for long-term curation and preservation. Retention schedules can be adopted to identify valuable content (schedules need further refinement). Re-appraisal may take place before depositing it to long-term storage.

Decisions on long-term value will include consideration of the following:

- Is there a legal requirement associated with the material?
- Is the material of high value for Northumberland Estates business/mission?
- Could it reasonably be considered to be an important example of its type?

Ingest

Who: Collections and Archives Department, Archivist, Digital Curator

Once content has been selected/appraised to accept Submission Information Packages (SIPs) from Producers the contents must be prepared for storage and management within the repository. Example functions include receiving SIPs, performing quality assurance on SIPs, and generating an Archival Information Package (AIP) which complies with the repositories documentation standards.

Once AIP has been created the transfer of data to repository can commence. Process should be straight-forward as possible and provide support and guidance; automates processes where appropriate.

Preservation Action

Who: Collections and Archives Department, Archivist, Digital Curator

Undertake actions to ensure long-term preservation and sustainability of the authoritative nature of data. Preservation actions should ensure that data remains authentic, reliable and usable while maintaining its integrity. Actions include checksum creation and validation, file format identification, and metadata creation etc.

Store

Who: Collections and Archives Department, Archivist, Digital Curator

Once satisfied with the Archival Information Package (AIP), transfer AIP to the digital repository for permanent storage. Bit level preservation must be provided along with the services and functions for the maintenance and retrieval of AIPs. Other critical functions of the repository include managing the storage hierarchy, performing routine and tailored error checking, and providing disaster recovery capabilities (including at least one copy in a geographically different location).

Access

Who: Consumers, Designated Community, Collections and Archives Department

Access must allow Consumers to request and receive information products. Functions include communicating with Consumers to receive requests, applying controls to limit access to specially protected information, coordinating the execution of requests to successful completion, generating response Dissemination Information Packages (DIP) and delivering responses to Consumers. Finding aids can be produced through CALM.

Appendix C - ISO 16363 Organisational Assessment

SPRUCE / Northumberland Estates project

ISO 16363 assessment

This assessment represents a cut-down and simplified version of ISO 16263, which retains only those requirements considered essential for the purposes of this project. . It has been used to conduct a mini gap analysis on the digital preservation capacity of Northumberland Estates (NE).

The ISO assessment is explicitly intended to complement and enhance the assessment of the repository solution. In particular, all of section 4 on Digital Object Management is not represented in this ISO assessment, since most of its essential detail is already expressed in the repository assessment document.

In completing the assessment, the “Intended practice” section uses statements from NE’s User Story, and further information supplied by the project manager. The “How met / examples” section is ULCC’s summary of how and whether each requirement has been met, or could be met in the future.

The scoring element uses the Five Organisational Stages model (Kenney / McGovern, <http://www.dpworkshop.org/>). The five stages of organisational response to digital preservation are:

1. **Acknowledge:** Understanding that digital preservation is a local concern;
2. **Act:** Initiating digital preservation projects;
3. **Consolidate:** Seguing from projects to programs;
4. **Institutionalize:** Incorporating the larger environment; and
5. **Externalize:** Embracing inter-institutional collaboration and dependency.

Organisational Infrastructure

Requirement	Mission Statement
ISO 16363 section number	ISO16363 3.1.1
Intended practice	<p>The issue is that Northumberland Estates (NE) is not a Memory Institution as such. We are a private business that has identified the need to preserve organisational digital content for the long term.</p> <p>Northumberland Estates’ business strategy evolves from its past. Our responsibilities are to maintain and enrich the Estate so as to preserve the essential fabric and qualities for future generations. To achieve these goals our business strategy is to achieve structured growth, while maintaining tradition through a modern, efficient, and targeted business model. As a modern property investment business, we are looking ahead to the next 700 years.</p>
How met / examples	NE’s mission statement can evolve from the declared intentions as recorded above.

Score	Stage 1, Acknowledge
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Requirement	Preservation Plan
ISO 16363 section number	ISO16363 3.1.2
Intended practice	Northumberland Estates is committed to providing bit-level preservation along with the services and functions for the maintenance and retrieval of AIPs.
How met / examples	Bit-level preservation will be the foundation of the preservation plan. The preservation plan needs to be formally documented in official records to meet this requirement.
Score	Stage 1, Acknowledge

Requirement	Succession plan
ISO 16363 section number	ISO16363 3.1.2.1
Intended practice	Technology usage and Succession plans would also be useful but currently do not exist.
How met / examples	NE acknowledge the need for a succession plan and recognise this is a gap.
Score	Stage 1, Acknowledge

Requirement	Collection policy
ISO 16363 section number	ISO16363 3.1.3
Intended practice	Data is appraised and selected for long-term curation and preservation. Retention schedules can be adopted to identify valuable content (schedules need further refinement). Re-appraisal may take place if the retention period expires before depositing it to long-term storage. Decisions on long-term value will include consideration of the following: <ul style="list-style-type: none"> • Is there a legal requirement for retention associated with the material? • Is the material of high value for Northumberland Estates' business/mission? • Could it reasonably be considered to be an important example of its type?
How met / examples	The above description of intended practice has the makings of a sound collection policy. It would benefit from a more formal expression.
Score	Stage 2, Act

Requirement	Staff and skills
ISO 16363 section number	ISO16363 3.2.1
Intended practice	The current project will provide the justification for further investment and train relevant staff in order to deal with digital content.
How met / examples	Currently there is a staff and skills gap at NE for digital preservation.
Score	Stage 1, Acknowledge

Requirement	Defined Designated Community
ISO 16363 section number	ISO16363 3.3.1
Intended practice	<p>“Consumers” can be spilt into two groups:</p> <ol style="list-style-type: none"> 1. End users: organisational staff will require sporadic access to content within digital repository. Likely to vary depending on departmental function. This group can also be framed as the Designated Community. 2. Departmental users: specific users within Collections and Archives who have specific expertise required to use and preserve digital content. <p>Access must allow Consumers to request and receive information products. Functions include communicating with Consumers to receive requests, applying controls to limit access to specially protected information, coordinating the execution of requests to successful completion, generating response Dissemination Information Packages (DIP) and delivering responses to Consumers. Finding aids can be produced through CALM.</p>
How met / examples	The Designated Community has been identified as internal users within the organisation. The access mechanisms for classes of users have been well defined. Use of finding aids is already well established.
Score	Stage 3, Consolidate

Requirement	Preservation Policies
ISO 16363 section number	ISO16363 3.3.2
Intended practice	<p>Preservation actions should ensure that data remains authentic, reliable and usable while maintaining its integrity. A number of business drivers have been identified which can only be achieved if authentic and reliable data is available to Northumberland Estates:</p> <ul style="list-style-type: none"> • Legal and regularity compliance • Information reuse • Corporate memory • Business continuity • Protecting investment • Reputational protection • Collection development
How met / examples	Although there are no formal preservation policies, business drivers have been identified. This will assist the development of preservation policies.
Score	Stage 2, Act

Requirement	Audit Trail
ISO 16363 section number	ISO16363 3.3.3
Intended practice	All submitted content for the digital repository will include as much metadata as is reasonably expected. The

	Archivist/Digital Curator will use existing tools and processes to include administrative, descriptive, structural and technical metadata. Separate processes will be applied to content received from the EDRMS and legacy data. For example, EDRMS records should contain more structured metadata which would need to be verified and analysed separately.
How met / examples	The intended metadata practices will help to meet the audit trail requirements. This requirement will be met when there is a method for recording decisions made in the repository.
Score	Stage 1, Acknowledge

Requirement	Transparency
ISO 16363 section number	ISO16363 3.3.4
Intended practice	In order to meet preservation requirements NE will disclose methods for preserving digital content to the Designated Community and relevant stakeholders. Captured metadata will provide information for the understanding of the Estates IT landscape and how it relates to key business processes.
How met / examples	These intended practices are good, but NE may need to demonstrate compliance with standards and best practice in other areas (finance, contracts, governance).
Score	Stage 1, Acknowledge

Requirement	Integrity measures
ISO 16363 section number	ISO16363 3.3.5
Intended practice	Checksums have been identified as an essential requirement in the Repository Specification (008). Further mechanisms to incorporate integrity measures will develop once the repository is in place. These will include documentation of the procedures and an audit process.
How met / examples	The above suggests that integrity measures are not yet fully in place, but the requirement will be met as the proposed repository develops.
Score	Stage 1, Acknowledge

Requirement	Business planning
ISO 16363 section number	ISO16363 3.4.1
Intended practice	A suitable repository solution is currently under consideration along with the creation of a business case. The intended outcome is the award of the financial investment required to implement and sustain a best practice digital preservation environment. The business case will include short and long term financial planning projections.
How met / examples	Business planning processes to support the repository are not yet in place.
Score	Stage 1, Acknowledge

Requirement	Financial transparency
ISO 16363 section number	ISO16363 3.4.2

Intended practice	The repository will demonstrate that it is satisfying the needs of the Designated Community by complying with all internal NE auditing processes.
How met / examples	Transparent financial practices to support the repository are not yet in place.
Score	Stage 1, Acknowledge

Requirement	Contracts and agreements
ISO 16363 section number	ISO16363 3.5.1
Intended practice	Service levels and repository policies to be defined once business case results have been formalised. No formal deposit agreements are required as the organisation has a recognised Records Management policy which mandates the deposit of business critical/archival records.
How met / examples	NE already has a mandate for the preservation of some classes of digital archives. Existing policy simply needs to be articulated in the shape of formal policies and agreements.
Score	Stage 2, Act

Requirement	Deposit agreements
ISO 16363 section number	ISO16363 3.5.1.2
Intended practice	Written standard operating procedures to be formed once repository is in place.
How met / examples	No formal deposit agreements exist as yet.
Score	Stage 1, Acknowledge

Requirement	IPR and Copyright management
ISO 16363 section number	ISO16363 3.5.2
Intended practice	Intention is to preserve the material according to our own best practice methodologies.
How met / examples	Current best practice presumably includes a rights management dimension for non-digital material, which will extend to digital content.
Score	Stage 2, Act

Technology Infrastructure

Requirement	Infrastructure risk management
ISO 16363 section number	ISO16363 5.1.1
Intended practice	NE has identified the need to procure a suitable digital repository concerned with the entire preservation workflow based around OAIS principles. Currently no best practice digital preservation infrastructure exists but the introduction of a repository will introduce a system which is scalable, evolvable, and extensible.
How met / examples	NE's digital repository will go some way to meeting this requirement, but the ISO standard requires a pro-active

	assessment of the entire information environment with certain responsive measures in place.
Score	Stage 1, Acknowledge

Requirement	Technology watch
ISO 16363 section number	ISO16363 5.1.1.1
Intended practice	Technology watches are currently conducted manually through the Digital Curator. Formal processes for piloting and testing new technologies would be developed once repository has been implemented.
How met / examples	NE have a nominated member of staff in this role.
Score	Stage 2, Act

Requirement	Hardware and software support
ISO 16363 section number	ISO16363 5.1.1.2
Intended practice	Support for hardware and software is vital to ensure the long term viability of any implemented repository at the Estates. NE would require an appropriate level of support provided by a vendor Service Level Agreement (SLA). In conjunction with the internal IT department these support contracts would provide backup mechanisms, demonstrated preservation of system metadata, audit trails, and checksum values.
How met / examples	The above description has the makings of a robust plan.
Score	Stage 1, Acknowledge

Requirement	Detection mechanisms
ISO 16363 section number	ISO16363 5.1.1.3
Intended practice	Northumberland Estates is committed to providing bit-level preservation along with the services and functions for the maintenance and retrieval of AIPs. The implemented repository must reflect this commitment with best practice support mechanisms to detect bit corruption or loss (e.g. checksum validation).
How met / examples	The above shows that the institutional will is present to construct compliant detection mechanisms. Checksum validation may be sufficient for NE's business needs.
Score	Stage 1, Acknowledge

Requirement	Security updates
ISO 16363 section number	ISO16363 5.1.1.4
Intended practice	Access to the digital repository will be limited and controlled to key stakeholders. In combination with IT or a SLA security updates and relevant documentation should be maintained.
How met / examples	The institutional will is present to build robust security procedures.
Score	Stage 1, Acknowledge

Requirement	Storage media and hardware change
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ISO 16363 section number	ISO16363 5.1.1.5
Intended practice	NE IT currently manages hardware support, maintenance, and replacement of storage media and hardware. Repository solution will be incorporated within this framework. Strong links currently exist between IT and Collections and Archives but further work is required to identify media migration, hardware obsolescence, and hardware support which will assist the repository.
How met / examples	If staff links already exist between collections management and IT, these can be strengthened to achieve compliance with this requirement. NE recognise the amount of work that needs to be done.
Score	Stage 2, Act

Requirement	Critical processes
ISO 16363 section number	ISO16363 5.1.1.6
Intended practice	<p>Critical processes have been identified as:</p> <ul style="list-style-type: none"> • Access • Archival storage • Data management • Ingest • Security processes <p>A staged process of monitoring will be put in place to meet the mandatory requirements that the repository will perform.</p>
How met / examples	The relevant issues for critical processes have been identified and will be acted on.
Score	Stage 2, Act

Requirement	Managed locations of digital objects
ISO 16363 section number	ISO16363 5.1.2
Intended practice	Currently there is very little technological infrastructure to support managed digital objects. Capacity is limited but the introduction of a repository would help develop best practice management of digital objects. The requirements for managed locations will be achieved through the introduction of a repository for NE. Further procedures can then be developed which meet the criteria of 5.1.2.
How met / examples	It seems likely that most of NE's requirements for authenticity can be met by the repository implementation, but the planned additional procedures are also encouraging.
Score	Stage 1, Acknowledge

Requirement	Security Risk Management
ISO 16363 section number	ISO16363 5.2.1
Intended practice	An initial risk assessment using the SPOT methodology will be carried out as part of the business case. Using this as a benchmark, a regular systematic review will be carried out. Further security risk factors will be integrated into any Service

	Level Agreements.
How met / examples	A security risk management gap exists, but plans are in place to address this.
Score	Stage 1, Acknowledge

Requirement	Security controls
ISO 16363 section number	ISO16363 5.2.2
Intended practice	Internal access necessitates that security controls will be managed in line with existing security procedures for the provision of NE digital content.
How met / examples	If existing NE security procedures for digital content can be extended to the repository policies, then NE will move to Stage 3 very quickly for this requirement.
Score	Stage 2, Act

Requirement	Disaster plan
ISO 16363 section number	ISO16363 5.2.4
Intended practice	NE has an existing IT disaster plan. The repository will incorporate into this plan by providing at least one of-site backup of all preserved information.
How met / examples	Stage 2, Act
Score	If the existing NE disaster plan can be extended to the repository policies, then NE will move to Stage 3 very quickly for this requirement.

