



**Seamless Flow Statement of Requirements for
Technology Watch Project
Version 1.0**

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Introduction

This document describes the user requirements for the Technology Watch project of the Seamless Flow programme. The Technology Watch project is responsible for the following:

- Delivering an active preservation capability for born-digital records received by The National Archives (TNA) from other government departments (OGD)
- Delivering a means to generate Dissemination Information Packages (DIP) for delivery of archived records to the public and private users
- Providing appropriate support to sustainability programmes within other government departments

These overall requirements will be delivered through the following functions:

- **Characterisation:** This function measures the properties of electronic records which are significant to their long-term preservation, or to their presentation to users, and validates the results of migration actions.
- **Preservation planning:** This function supports the preparation of preservation or presentation action plans, by identifying when preservation or presentation action is required, the nature of the required action, and the stored records on which that action needs to be undertaken. This enables the generation of new AIPs and DIPs as required.
- **Migration:** This function enacts the results of the preservation planning function, using migration to generate new manifestations of stored electronic records, for the purposes of preservation or presentation.
- **Redaction:** This function supports the redaction of electronic records.
- **Technical registry:** The registry maintains a technical knowledge base to support the other Technology Watch functions.

The individual requirements are organised according to these six high-level functions. A seventh section describes generic technical requirements. For ease of reference, the requirements are further categorised under the following headings:

CHR Requirements related to the Characterisation function - done
CHR-PR Characterisation process
CHR-TL Characterisation tools
CHR-SI System interfaces
CHR-UI User interface

PPN Requirements related to the Preservation Planning function
PPN-PR Preservation planning process
PPN-SI System interfaces
PPN-UI User interface

MIG Requirements related to the Migration function
MIG-PR Migration process
MIG-VA Validation process
MIG-TL Migration tools
MIG-SI System interfaces
MIG-UI User interface
MIG-TP Test and production environments

RED Requirements related to the Redaction function
RED-PR Redaction process
RED-TL Redaction tools
RED-SI System interfaces
RED-UI User interfaces

REG Requirements related to the Technical Registry function
REG-CN Registry content
REG-SI System Interfaces
REG-UI User Interface

TEC Generic technical requirements for all functions
TEC-ST Standards
TEC-PC Process control
TEC-IN Infrastructure
TEC-EH Error handling

The requirements are prioritised as follows:

Mandatory those that *must* be delivered from the start
Desirable those that *should* be included, but possibly as part of a later phase of development
Optional those that *could* be included given resources and time, or if they are readily incorporated into work on a mandatory or desirable requirement.

The requirements should be read in conjunction with the accompanying function hierarchy and process models (Annex F).

Abbreviations

AIP: Archival Information Package – a conceptual package of digital objects and associated metadata which corresponds to a particular archival manifestation of a record, stored in the DOS and the GMMS.

DIP: Dissemination Information Package – a conceptual package of digital objects and associated metadata which corresponds to a particular presentation manifestation of a record, is available for use through a presentation system.

DOS: Digital Object Store – the secure storage system for the digital object components of AIPs

GMMS: Generic Metadata Management System – the authoritative source and management system for metadata, including the metadata components of AIPs and DIPs.

PbPS: Public Presentation System – the system which provides access to open DIPs for public users.

PUID: PRONOM Unique Identifier - a method of referencing a record within the technical registry that is retained throughout its life

PvPS: Private Presentation System – the system which provides controlled access to closed DIPs for OGDs and TNA staff.

RPS: Record Preparation System – the working area on which all record processing occurs, e.g. for ingest, migration, and redaction.

SIP: Submission Information Package – the conceptual package of records and metadata which is transferred to TNA by an OGD.

Characterisation System Requirements

Requirement	CHR-PR 01	Characterisation Process	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must implement the characterisation process as defined in the Process Model. The characterisation process comprises object identification, object validation, and object property extraction. This process may occur during the preparation of newly-transferred objects for loading into the Digital Object Store, during the validation of newly-migrated objects, or as required by system users (e.g. to extend characterisation information for existing objects in the Digital Object Store by utilising newly-developed characterisation capabilities). The process must produce a set of characterisation metadata for the processed objects.
Benefits
Allows the Technology Watch system to technically characterise digital objects to support preservation planning, migration and validation.
Suggested Solutions
Comments
The system must be able to resolve possible conflicts between characterisation results.
Resolution
Related Requirements

Requirement	CHR-PR 02	Object types	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must support the characterisation of digital objects of any type and created on any technology platform, subject to the availability of appropriate specific tools. It must support the characterisation of embedded objects (e.g. objects contained within zipped files) by allowing iterative characterisation.
Benefits
The system itself is agnostic about the types of digital object which it can process and can potentially be extended to process any object type through the provision of the appropriate tools.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	CHR-SI 01	Registry Interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide an interface for the technical registry, to enable querying and retrieval of information from the registry. The system must be able to query the registry using a format identification and return a list of validation and property extraction tools which are available to process that format.
Benefits
Allows the characterisation system to identify available characterisation tools recorded in the registry.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	CHR-SI 02	GMMS Interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide an interface for the Generic Metadata Management System to enable metadata generated during characterisation to be added to the GMMS. The system must be able to compile a final set of characterisation metadata for each object, and submit to the GMMS for validation and storage. The draft Meta data model can be seen in Annex H.
Benefits
Allows the characterisation system to record the results of characterisation.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	CHR-SI 03	RPS Interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide an interface for the Record Preparation System to enable access to digital objects stored on the RPS.
Benefits
Allows the characterisation system to process digital objects stored on the RPS.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	CHR-SI 04	Digital Object Store interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide an interface for the Digital Object Store, to enable stored AIPs to be requested from the DOS for characterisation.
Benefits
Allows the characterisation system to access AIPs requiring characterisation.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	CHR-SI 05 Characterisation Tool Interface		
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide a standard interface for characterisation tools to enable the integration of newly-developed and third-party tools. The interface must allow tools to be configured and deployed. The results generated need to be transformed into standard characterisation metadata. This interface should potentially allow the integration of any tool which provides a scriptable interface or API.
Benefits
Allows the characterisation system to support an extensible set of characterisation tools and to utilise existing third-party technologies wherever possible.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	CHR-UI 01	User Interface
Priority	Mandatory	Project Team

Functional Requirement
<p>The system must provide a user interface to enable users to monitor and control the characterisation process. The interface must allow users to monitor and generate reports, including:</p> <ul style="list-style-type: none"> • Status of a single object, characterisation set, or all characterisation sets at any stage within the process • Characterisation results for a single object, characterisation set, or all characterisation sets at any stage within the process • Process time elapsed and estimated time to completion for a single object, characterisation set, or all characterisation sets • Exceptions, subdivided into: <ul style="list-style-type: none"> ○ System-level exceptions ○ Objects which cannot be identified ○ Objects which can only be tentatively identified ○ Objects for which a process cannot be undertaken due to lack of tool availability ○ Objects which complete a process with a failure mode (e.g. objects which are invalid) ○ Metadata conflicts between different tools operating on the same object <p>These reports should support both user and system processing.</p> <p>The interface must allow users to:</p> <ul style="list-style-type: none"> • Pause the process for a single object, characterisation set, or for all characterisation sets • Continue a previously paused process for a single object, characterisation set, or for all characterisation sets • Terminate the process for a single object, characterisation set, or for all characterisation sets
Benefits
Allows users to monitor and control the characterisation process.
Suggested Solutions
Comments
Resolution

Related Requirements

Requirement	CHR-TL 01	Identification Tool
Priority	Mandatory	Project Team

Functional Requirement
The system must provide a tool to identify the precise format and version of a digital object and return the identification expressed in a form that corresponds to a format record in the technical registry, where available (e.g. as a PUID). The tool must be platform independent, to support potential use by other organisations.
Benefits
Allows the system to perform initial identification, in order to allow the availability of format-specific characterisation tools to be determined via the technical registry.
Suggested Solutions
Enhanced version of existing DROID tool. The DROID architecture can be seen in Annex E.
Comments
Resolution
Related Requirements

Requirement	CHR-TL 02	Validation Tools	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide tools to validate the format of an object, i.e. to verify whether or not it is well-formed and conforms to the defined specification for the format. These tools may be specially developed, or may be existing third-party tools that have been modified to conform to the characterisation system tool interface. Any tools developed by TNA must be platform independent, to support potential use by other organisations.
Benefits
Allows the system to determine whether or not objects are technically valid.
Suggested Solutions
JHOVE, additional validation tools to be determined.
Comments
Resolution
Related Requirements

Requirement	CHR-TL 03 Property Extraction Tools		
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide tools to extract defined significant properties from within the digital objects. These may include syntactic properties (e.g. detecting the presence of passwords or macros) or semantic properties (e.g. email recipients). They may also include the detection of object-specific technical dependencies between objects (e.g. detecting that a word-processed document contains a linked spreadsheet). These significant properties may be explicitly encoded within the object, or may be implicitly determined through analysis of the content. Significant property sets will be defined for specific object types, such as raster images, video, databases, etc. These tools may be specially developed, or may be existing third-party tools that have been modified to conform to the characterisation system tool interface. Any tools developed by TNA must be platform independent, to support potential use by other organisations.
Benefits
Allows the system to extract key significant properties to support preservation planning, migration and validation.
Suggested Solutions
JHOVE, NLNZ Metadata Extractor, additional extraction tools to be determined.
Comments
Resolution
Related Requirements

Requirement	CHR-TL 04 Generic Property Extraction Tool		
Priority	Desirable	Owner	Project Team

Functional Requirement
The system may provide a generic property extraction tool to allow property extraction for formats not supported by existing tools. This tool will use information stored in the technical registry, which describes the extractable properties of particular formats and the means by which they may be extracted from a bitstream. The tool must be platform independent, to support potential use by other organisations.
Benefits
Provides an easily extensible, generic property extraction function to provide coverage where existing tools are not available.
Suggested Solutions
PLANETS characterisation toolset, expansion of DROID.
Comments
Resolution
Related Requirements

Preservation Planning System Requirements

Requirement	PPN-PR 01	Preservation planning process	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must implement the preservation planning process as defined in the Process Model. The preservation planning process comprises risk assessment, technology watch, impact assessment, and migration pathway generation. This process may occur during the preparation of newly-transferred objects for loading into the Digital Object Store, following the validation of newly-migrated objects, and as an ongoing process. The process may produce a preservation plan, comprising a migration pathway certified for use in the migration process, and a list of AIPs to be migrated.
Benefits
Allows the Technology Watch system to monitor technological changes, assess impacts, and generate preservation plans for digital objects, to enable those objects to be migrated in a timely and authentic manner.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	PPN-SI 01	Registry Interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide an interface for the technical registry, to enable querying and retrieval of information from the registry.
Benefits
Allows the preservation planning system to perform risk assessments and identify potential migration pathways using the registry.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	PPN-SI 01	GMMS interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide an interface for the Generic Metadata Management System, to enable metadata relevant to preservation planning to be queried and retrieved.
Benefits
Allows the preservation planning system to query information about records stored in the DOS.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	PPN-UI 01	User interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide a user interface to enable users to monitor and control the preservation planning process. The interface must allow users to monitor and generate a variety of reports for both user and system processing.
Benefits
Allows users to monitor and control the preservation planning process.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	PPN-TL 01	Risk assessment tool	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide a tool to enable risk assessments to be performed on newly-transferred or existing accessioned objects. The risk assessment will be based upon a set of criteria. Risks associated with certain criteria may be calculated based on information stored in the technical registry, while others may be specific to individual objects. The resultant risk score for each object will be returned in accordance with a predetermined scale of risks.
Benefits
Allows the system to calculate current risks to all objects.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	PPN-TL 02	Technology watch tool	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must perform a recalculation of generic risk criteria values in response to updates to the technical registry which impact on those criteria.
Benefits
Allows the system to modify risk assessment criteria in response to changes in technology.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	PPN-TL 03	Impact assessment tool	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide a tool to identify the impact of changes in risk criteria values on objects stored in the DOS. The impact assessment must take account of inter-object dependencies in determining the set of affected objects. The tool will report on all objects impacted by a given change, and the nature of that impact.
Benefits
Allows generic technology changes to be translated into real impacts on TNA's collections.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	PPN-TL 04	Preservation plan generation tool	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide a tool to generate preservation plans to address the results of the impact analysis. The tool will identify candidate target formats and migration pathways using the technical registry. Following user approval of a specific target format and migration pathway, the tool will generate a preservation plan, comprising the selected migration pathway and a list of objects to be migrated. Preservation plans must be representable in both human and machine processable forms. If no acceptable migration pathway can be identified from the current record manifestation, the tool must be capable of utilising earlier manifestations as the source for the migration pathway.
Benefits
Allows the results of preservation planning to be translated into a plan actionable by the migration process.
Suggested Solutions
Comments
Resolution
Related Requirements

Migration System Requirements

Requirement	MIG-PR 01	Migration process	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must implement the migration process as defined in the Process Model. The migration process comprises the execution of migration pathways defined in the preservation planning process to generate new AIPs or DIPs. This process will occur as a result of a preservation plan being generated. The process will generate a new metadata set for each new AIP or DIP, including new metadata to describe the migration process and all technical dependencies.
Benefits
Allows the technology watch system to migrate digital objects to new technical manifestations, in accordance with agreed preservation plans.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	MIG-PR 02	Migration validation process	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must implement the migration validation process as defined in the Process Model. The validation process comprises the characterisation of a migrated object and the comparison of the characterisation results with those generated for the source object.
Benefits
Allows the technology watch system to validate the results of a migration action.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	MIG-SI 01	Registry Interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide an interface for the technical registry, to enable querying and retrieval of information from the registry.
Benefits
Allows the characterisation system to identify available migration tools recorded in the registry.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	MIG-SI 02	GMMS Interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide an interface for the Generic Metadata Management System It should enable metadata generated during migration to be added to the GMMS, and existing characterisation metadata contained within the GMMS to be retrieved for validation.
Benefits
Allows the migration system to record the results of migration, and to validate the results of migration processes.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	MIG-SI 03	RPS Interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide an interface for the Record Preparation System, to enable access to digital objects stored in the RPS.
Benefits
Allows the migration system to process digital objects stored in the RPS.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	MIG-SI 05	Digital Object Store interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide an interface for the Digital Object Store, to enable stored AIPs to be requested from the DOS for migration and migrated AIPs to be submitted to the DOS from the RPS.
Benefits
Allows the migration system to access AIPs requiring migration.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	MIG-SI 06	Migration Tool Interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide a standard interface for migration tools to enable the integration of newly-developed and third-party tools. The interface must allow tools to be configured and deployed and the results generated to be transformed into standard migration metadata. This interface should potentially allow the integration of any tool which provides a scriptable interface or API.
Benefits
Allows the migration system to support an extensible set of migration tools and to utilise existing third-party technologies wherever possible.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	MIG-UI 01	User Interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
<p>The system must provide a user interface to enable users to monitor and control the migration process. The interface must allow users to monitor and generate reports, including:</p> <ul style="list-style-type: none"> • Status of a single object, migration set, or all migration sets at any stage within the process • Migration results for a single object, migration set, or all migration sets at any stage within the process • Process time elapsed and estimated time to completion for a single object, migration set, or all migration sets • Exceptions, subdivided into: <ul style="list-style-type: none"> ○ System-level exceptions ○ Objects for which a process cannot be undertaken due to lack of tool availability ○ Objects which complete a process with a failure mode (e.g. objects which are invalid) <p>These reports should support both user and system processing.</p> <p>The interface must allow users to:</p> <ul style="list-style-type: none"> • Pause the process for a single object, migration set, or for all migration sets • Continue a previously paused process for a single object, migration set, or for all migration sets • Terminate the process for a single object, migration set, or for all migration sets
Benefits
Allows users to monitor and control the migration process.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	MIG-TL 01	Migration Tools	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide tools to migrate digital objects. These tools may be specially developed, or may be existing third-party tools which have been modified to conform to the migration system tool interface. Any tools developed by TNA must be platform independent, to support potential use by other organisations.
Benefits
Allows the system to migrate objects to new manifestations.
Suggested Solutions
Stellent Outside In Transformation server or equivalent?
Comments
Resolution
Related Requirements

Requirement	MIG-TL 02	Migration Validation Tool	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide a tool to validate migrated objects, by characterising the target objects and comparing the characterisation results to those from the source objects. This will provide a measure of authenticity for the migrated object.
Benefits
Allows the system to validate the authenticity of migrated objects.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	MIG-TP 01	Migration Production environment	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide a production environment to enable the production migration of digital objects.
Benefits
Provides the operational migration environment.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	MIG-TP 02	Migration Test Environment	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide a test environment to enable the testing and evaluation of migration pathways prior to their certification for use in the production environment.
Benefits
Enables new migration pathways to be tested outside the production environment.
Suggested Solutions
Comments
Resolution
Related Requirements

Redaction

Requirement	RED-PR 01	Redaction Process	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must support the redaction process as defined in the Process Model. The redaction process comprises the creation of unsecured, redacted AIPs, and the subsequent generation of secured DIPs. This process occurs upon receipt of an instruction to produce a new redacted record.
Benefits
Allows securely redacted DIPs to be generated as required.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	RED-PR 02	AIP Redaction Process	
Priority	Mandatory	Owner	Project Team

Functional Requirement
Upon receipt of an instruction to produce a new redacted record, the system must allow for the required AIP to be identified in the DOS, then copy the identified AIP from the DOS to the RPS to allow for creation of the unsecured redacted AIP.
Benefits
Allows AIPs to be redacted as required.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	RED-PR 03	Secure DIP Generation Process	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must allow the generation of a secured DIP from a redacted AIP.
Benefits
Allows securely redacted DIPs to be generated.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	RED-TL 01	Redaction Tools	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must support the use of tools to redact AIPs, and to generate securely redacted DIPs. These tools may be specially developed, or may be existing third-party tools. Tools may be required to run in batch mode or under the control of scripts. Any tools developed by TNA must be platform independent, to support potential use by other organisations.
Benefits
Allows users to perform redaction.
Suggested Solutions
Existing redaction and format conversion tools, scripting languages.
Comments
Should secure DIP generation be considered as another migration process?
Resolution
Related Requirements

Requirement	RED-SI 01	DOS Interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide an interface for the Digital Object Store, to enable stored AIPs to be requested from the DOS for redaction, and redacted AIPs to be submitted to the DOS from the RPS.
Benefits
Allows AIPs to be copied between the RPS and the DOS.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	RED-SI 02	GMMS Interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide an interface for the Generic Metadata Management System, to allow editing of metadata resulting from redaction processes.
Benefits
Allows redaction-specific metadata to be edited.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	RED-SI 03	RPS Interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide an interface to enable AIPs to be copied to and from the RPS and DIPs to be generated.
Benefits
Allows AIPs to be processed.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	RED-UI 01	User Interface	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide a user interface to enable users to identify and retrieve AIPs for redaction, perform redaction using available tools and generate secure DIPs using the available tools.
Benefits
Allows users to control the redaction process.
Suggested Solutions
Comments
Resolution
Related Requirements

Technical Registry Requirements

Requirement	REG-CN 01	Existing PRONOM content and functionality	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The technical registry must support all the existing content and functionality of PRONOM, unless explicitly stated otherwise in these requirements. Two instances of the registry will be required, a public version and a private version.
Benefits
The technical registry will represent an enhancement of the existing PRONOM system, rather than a brand new system. The existing PRONOM architecture can be seen in Annex E.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	REG-CN 02	PUIDs	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The registry must allow PUIDs to be assigned to all registry entries.
Benefits
Fundamental to implementing the PUID scheme, by providing a persistent and unambiguous binding between each PUID and its normative description in the registry.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	REG-CN 03	Registry content types	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The registry must be capable of storing all information types defined in the Technical Registry Information Model. This will include preservation plans generated by the preservation planning process. It must be possible to indicate the current status of each preservation plan, e.g. approved for use, tested but not approved, untested, deprecated. It will also include information on the capabilities of characterisation and migration tools.
Benefits
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	REG-SI-01	Registry content exposure	
Priority	Mandatory	Owner	Project Team

Functional Requirement
Registry content must be exposed to allow dynamic, remote, web-based, automated querying and retrieval. Remote systems must be able to specify the format of the information to be returned including, if possible, the specification of an XSLT stylesheet. A number of alternative exposure mechanisms should be provided.
Benefits
Allows external systems to utilise registry content, supporting sustainability initiatives in OGDs and other digital preservation systems.
Suggested Solutions
REST interface, SOAP interface, OAI-PMH
Comments
Resolution
Related Requirements

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Requirement	REG-SI-02	PUID resolution
Priority	Mandatory	Owner Project Team

Functional Requirement
The registry must provide a service to resolve PUID URIs to URLs for the corresponding registry content. The service must allow resolution to either human-readable or machine-readable versions of the content, as specified within the URI.
Benefits
Supports implementation of the PUID scheme by enabling PUIDs expressed as URIs to be resolved as URLs. This will enable systems using the PUID scheme to dynamically link to the normative definition of each PUID.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	REG-UI-01	Simple Search
Priority	Mandatory	Owner Project Team

Functional Requirement
The system must provide a simple user search facility, allowing keyword searching across multiple registry fields from a single search box. For example, a user should be able to enter the search terms “Word 2000 Windows” and be returned a set of search results for all fields containing that combination of terms.
Benefits
Improved useability. This requirement derives from external user feedback.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	REG-UI-02	Advanced Search	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide an advanced user search facility, allowing targeted querying of specific types of registry content. The advanced search should be based on the existing PRONOM 4 search functionality.
Benefits
Improved useability. This requirement derives from external user feedback.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	REG-UI-03	Registry maintenance	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide a facility to enable users to maintain and update the registry content. It must be possible to undertake maintenance functions on draft content without affecting the content of the live system, to save draft content at any point up to release and to release draft content onto the live system. The system must support the following maintenance functions:
<ul style="list-style-type: none"> • Addition of new content • Deletion of content • Updating of existing content • Review of new or updated content prior to release • Release of content onto live system
Benefits
Enables registry content to be maintained and quality controlled.
Suggested Solutions
Comments

Resolution
Related Requirements

Requirement	REG-UI-04	Registry reporting	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide a user interface to enable users to monitor and control the technical registry. The interface must allow users to monitor and generate a variety of reports for both user and system processing.
Benefits
Allows users to monitor the technical registry.
Suggested Solutions
Comments
Resolution
Related Requirements

Generic Technical Requirements

Requirement	TEC-ST 01	Application Development	
Priority	Mandatory	Owner	Project Team

Functional Requirement
All systems must be development in accordance with TNA's application development standard (annex K) and appropriate ISO and BSI standards.
Benefits
Ensures that all applications are conformant to TNA technical, security and quality requirements.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	TEC-ST 02	Access Control	
Priority	Mandatory	Owner	Project Team

Functional Requirement
All systems must comply with the Seamless Flow Access Control Policy and Access Control Model (Annex L).
Benefits
Ensures that appropriate access and security controls are implemented on all systems.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	TEC-ST 03	Data Model and Metadata	
Priority	Mandatory	Owner	Project Team

Functional Requirement
All systems must comply with the Seamless Flow Data Model (see Annex G), Cataloguing and electronic referencing guidelines (Annex M) and Metadata Scheme
Benefits
Ensures interoperability of content with other SEF systems.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	TEC-ST 04	Interoperability	
Priority	Mandatory	Owner	Project Team

Functional Requirement
All systems must comply with the Seamless Flow Interoperability Protocol (to be defined). This will provide a standard for data exchange between Seamless Flow systems.
Benefits
Ensures interoperability of content with other SEF systems.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	TEC-ST 05	Technical Development	
Priority	Mandatory	Owner	Project Team

Functional Requirement
All systems must be compatible with the TNA IT infrastructure, as defined in Annex J. It must comply with the developing Seamless Flow requirements for network security (see Annex J2 for current information).
Benefits
Facilitates integration of new systems within existing TNA IT infrastructure, and future support and maintenance.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	TEC-PC 01	Process Control	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must utilise the Seamless Flow workflow management system, to provide a mechanism to control the automated execution of technology watch processes. It must allow the process flow to be reconfigured and the execution of processes to be paused, resumed, and terminated by users. It must support batch processing and scheduling of processes, included unattended execution (e.g. overnight). It must also support progress tracking and reporting.
Benefits
Allows the various technology watch process flows to be automated.
Suggested Solutions
Integration with Seamless Flow workflow tool.
Comments
Resolution
Related Requirements

Requirement	TEC-PC 02	Audit	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide an audit of executed processes. The processes requiring auditing and the audit information to be recorded will be defined in the generic event metadata of the Seamless Flow Metadata Scheme. The audit log must be incorporated into the event metadata for the audited objects, and must support reporting on audited events. User actions must be audited in accordance with the Seamless Flow Access Control Policy. Audit processes must conform to the audit requirements of the Generic Metadata Management System.
Benefits
Supports the provenance and integrity of digital objects, and the identification and rectification of exceptions.
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	TEC-EH 01	Error Handling	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must provide robust error handling, with detailed reporting of errors (subject to any constraints imposed by the error handling facilities of third-party products).
Benefits
Supports efficient systems administration and resolution of errors.
Suggested Solutions
Comments
Resolution
Related Requirements

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Requirement	TEC-IN 01	Backup and disaster recovery	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The technical registry needs to have a back-up system and appropriate disaster recovery plan that conforms to TNA standards.
Benefits
Ensures system availability and business continuity
Suggested Solutions
Comments
Please see Annex G the Overview of The National Archives IT Environment for further guidance.
Resolution
Related Requirements

Requirement	TEC-IN 02	Technical registry - number of users	
Priority	Mandatory	Owner	Project Team

Requirement
The public and private versions of the technical registry needs to be able to support 100 concurrent users each with no detrimental effect on performance, and be capable of expanding to more users over time.
Benefits
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	TEC-IN 03	Other systems - number of users	
Priority	Mandatory	Owner	Project Team

Requirement
The other technology watch systems (Characterisation, Preservation Planning, Migration, Redaction) need to be able to support 5 concurrent users each with no detrimental effect on performance, and be capable of expanding to more users over time.
Benefits
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	TEC-IN 04	Product Testing	
Priority	Mandatory	Owner	Project Team

Requirement
The supplier should propose an appropriate high-level testing strategy, including system testing (both at supplier site and within TNA), penetration testing and user acceptance testing and supply all code and other resources required for white box testing in a debug environment.
Benefits
Suggested Solutions
Comments
A more detailed testing strategy and plan will be required to form part of the proposal for stage 2. The supplier should state what access to TNA systems would be required for the development and pilot phase.
Resolution

Related Requirements			
Requirement	TEC-SU 01	Online support, training & documentation	
Priority	Mandatory	Owner	Project Team

Requirement			
Suppliers must provide details of support including online support, training and documentation.			
Benefits			
Suggested Solutions			
Comments			
It is anticipated that suppliers will provide the following documentation in addition to the detailed functional and non-functional specification required in phase 1: release notes, an installation guide, a systems admin guide, system test scripts (in conjunction with TNA), user guide, training plan and training notes and a road map for development. Suppliers should also indicate the maximum term of a support contract and their proposed strategy for managing upgrades to third-party software.			
Resolution			
Related Requirements			

Requirement	TEC-SU 02	Support services	
Priority	Mandatory	Owner	Project Team

Requirement			
Second-line support will be required for all software developed for a minimum of 3 years.			
Benefits			
Suggested Solutions			
Comments			
Resolution			
Related Requirements			

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Requirement	TEC-SU 03	Knowledge Transfer
Priority	Mandatory	Owner Project Team

Requirement
The supplier should state their approach to knowledge transfer, in regard to the system, to TNA staff during both system development and implementation.
Benefits
Suggested Solutions
Comments
This will include staff within ICT and Digital Preservation.
Resolution
Related Requirements

Requirement	TEC-PM 01	Performance metrics
Priority	Mandatory	Owner Project Team

Requirement
All user interfaces developed for the technical registry must provide the user with an apparent response time of <1 second for all queries on or logging to the registry with 100 concurrent users. The systems must be fully functionally available for at least 98% of the core business hours of 08:00 to 18:00.
Benefits
The user must be able to progress their work without the system unduly delaying their ability to use the interface.
Suggested Solutions
Comments
Must meet the user interface criteria given in the requirements section of the ITT. The successful supplier will be required to identify concrete performance metrics acceptable to TNA during the first phase of the project which can be used for later acceptance testing.
Resolution
Related Requirements

