Annex 9

Scoping report

for the development of the
Model Requirements for the management of electronic
records (MoReq2)

Produced by the DLM Forum Working Group for the development of MoReq
version 3 - February 2006

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PART A – OVERALL AIMS AND SCOPE FOR MOREQ2

ABOUT THIS SCOPING REPORT

This report sets out the overall scoping of MoReq2 in Part A. In Part B, enhancements over the original MoReq are proposed. These are presented within a complete set of headings for MoReq2 based on the structure of the original MoReq. Where a section is new or substantively changed, descriptive text explains the suggested content of or changes to that section.

The presentation is designed to allow use of this report as part of the Technical Appendix for a MoReq2 development contract. Accordingly, Part B is written partly as a set of instructions to the future developer, particularly where a need to consider a change has been identified.

Note on this version 3 of the Scoping Report:

The purpose of version 3 of the Scoping Report is to provide expansion of descriptions to assist those tendering for the project to understand the needs of the project.

Version 2 was endorsed by DLM Forum members in October 2005 and accepted by the European Commission as a basis for the definition of the MoReq2 project. Therefore to make it clear where version 3 has extended the original text, the addition is shown in boxes. The boxes are of two types:

~ a box in the format of the example box immediately below has been placed in every requirements section of this report to provide the criteria which the MoReq2 statement of requirements will need to meet, and a rationale explaining why they are important

~ plain boxes, as this box, showing notes and amendments as a result of decisions made.

Criteria and Rationale for the Requirements	
Criteria	The criteria in each section give a broad statement of what the requirements have to cover. Existing coverage in MoReq is assumed to be carried through to MoReq2 and the criteria focus on enhancements for MoReq2. The developers of MoReq2 should view the criteria as describing the minimum to be covered and the criteria do not constrain the developers from recommending and including additional requirements which they consider to be necessary or beneficial.
Rationale	The rationales support the criteria by describing why the requirements will need to address the criteria.

Terminology

In keeping with the original MoReq, the structure of MoReq2 is defined as a series of *chapters* and *sections*. Chapters are referenced by a single number (e.g. 1 Introduction) and sections by two numbers (e.g. 1.1 Background). Individual requirements are referenced by three numbers within sections (e.g. 3.2.4).

The numbering of chapters and sections is the same as in the original MoReq, except where new sections have been added. New sections are all numbered "x" here to aid cross-referencing.

Where a section is new and where it will change, descriptive text (in addition to the summary table of criteria and rationale, as described above) describes the content of the section. Where there is no descriptive text, the section is not expected to change significantly. However, all sections must be edited to:

- Correct any errors;
- Update all information and references (e.g. the name and status of the DLM Forum, the status of other standards);
- Clarify any uncertainties or ambiguities in the original MoReq;
- Ensure total consistency with all other sections of MoReq2.

AIMS FOR MOREQ2

The overall aims for the MoReq2 development are to develop extended functional requirements within a European context, and to support a compliance scheme by:

- Strengthening from MoReq what have in the interim become key areas and covering important new areas of requirements with clarity
- Ensuring that the functional requirements are testable and developing test materials to enable products to be tested for compliance with the requirements
- Making the requirements modular to assist application in the various environments in which they will be used.

To provide compatibility, MoReq2 is to be an evolutionary update to the original MoReq, not a radically different product.

METHOD OF WORKING

The contents of the scoping report were based on the analysis of over 170 comments and suggestions for change drawn from:

- A widespread solicitation of comments (received from a wide range of organisations including archives, users of electronic records management, software suppliers, and experts from 18 countries);
- MoReq Working Group minutes;
- Examination of other standards which have emerged since the original MoReq;
- Experience in the use of MoReq.

Overall the comments were positive towards MoReq and believed that development would enable it to remain and become a stronger, more widely used de facto standard. There are strong lobbies for using it in their countries as a de facto standard, implementing a compliance testing regime and extending the requirements in important areas for records management and archival needs.

Subsequently further comments on the resulting draft by MoReq WG members were also used in the report.

ARRANGEMENT OF MOREQ REQUIREMENTS INTO MODULES, AND TESTING MATERIALS

It is proposed that MoReq2 will be arranged in modules. Some of the modules will form an essential, or "base", part of the specification, meaning that they will always be part of any interpretation of MoReq2. Other modules will be optional, meaning that their applicability will depend on circumstances. However, optional modules may contain "mandatory" requirements – known as "optional mandatory" requirements. These "optional mandatory" requirements will be considered mandatory if the optional module they belong to is included in a test. Any module may also contain desirable requirements. This scheme is illustrated in the following table.

	Mandatory requirements	Desirable requirements
Base module	√	√
Optional module	√	√

An example of an optional mandatory requirement would be "The ERMS must support a distributed classification scheme which can be maintained across a network of electronic record repositories" in the distributed systems module. If an organisation will run their system with one business classification scheme within one site, they can decide not to use the optional module for distributed systems. If an organisation chooses the module for distributed systems then the must implies a mandatory requirement to be met by a software supplier.

Modules

The requirements are to be arranged in a base module which constitutes the minimum necessary to provide credible electronic records management, and as optional modules.

The base includes sections 1 – 9, 11 and 12 the metadata requirements.

The proposed arrangement of optional modules (a modified section 10) is stated here:
- Management of physical records; and hybrid file retention and disposal (existing);
- Document management and collaborative working (existing);
- Integration with workflow (existing);
- Case work (new);
- Integration with content management systems (new);
- Electronic signatures, encryption, electronic watermarking (existing);
- Distributed systems (new, including existing requirements drawn from base and other sections));
- Offline and remote working (new);
- Definition and description of record keeping processes (new);
- Fax integration (new);
- Security categories (from 4.6)

Testing Materials

Test scripts and associated testing materials are to be produced by the developer as a combined deliverable with the base and each optional module of the requirements, to cover all the functional requirements.

The intention is that the testing materials will be usable:

■ By a generic (European-level) compliance testing regime for packaged software, which the DLM Forum expects to establish;

■ By the user community, to test specific implementations.

The testing materials are expected to be packaged in testing modules. Each module of the testing materials will accompany the relevant module of the MoReq2 functional requirements.

> *Note:* The testing materials are to be formal, published documents constituting the starting point of standard tests, irrespective of who will be doing the tests. They will need to include testing scripts with detailed steps and documented expected results.

> The definition, setting up and operation of a regime of compliance testing are seen as an additional project to be addressed by the DLM Forum separately.

Production of XML schemas for import into and export from an ERMS are seen as an additional project to be addressed by the DLM Forum separately.

KEY DEVELOPMENTS IN MOREQ2

These key developments are based on MoReq WG meetings and the weight of comments:

1. Updates of the base requirements (sections 1 – 9, 11 and 12 the metadata requirements) which are the minimum necessary to provide credible electronic records management, and the development of accompanying test scripts. The updates are to include the entity-relationship model and section 13 access control model, and a review for compliance with ISO15489 and internal consistency

2. In Annex 7, relationship to other standards and guidelines and two new appendices on changes from the original MoReq and metadata/requirements reconciliation

3. Integration with Content Management Systems particularly control of website material (new optional module) and accompanying test scripts

4. Management of non-electronic (physical) records and hybrid files (update to existing section as an optional module) and accompanying test scripts

5. Workflow (existing) and case work (new) and accompanying test scripts

6. Interoperability and openness (existing) and accompanying test scripts

7. Offline and remote working (new) and accompanying test scripts

8. Electronic signatures, encryption and electronic watermarks (digital rights management) (update to existing as an optional module) and accompanying test scripts

9. Record keeping processes (new) and accompanying test scripts

10. Document management and collaborative working (existing) and accompanying test scripts

11. Fax integration (new) and accompanying test scripts.

GENERAL CHANGES

Overview

The following describes the expected content of MoReq2. This is presented as strong guidance for the developer rather than as a mandatory outline. The developer of Moreq2 will be able to vary the structure and content, but only by negotiation, proposed as follows:

- Any deletion would need to be justified fully and agreed by both the project officer to the project;

- Any substantive change would need to be justified fully and agreed by the project officer to the project;

- Any minor change or addition would need to be brought to the attention of the project officer.

Nature of the Update

MoReq2 is to be an evolutionary update to the original MoReq, not a radically different product. Accordingly it is to:

- Maintain a focus on usable systems intended for the management of live electronic records;

- Be based on the original MoReq;

- Take into account developments since the original MoReq, in particular updates to source documents and potential further source documents, such as:
  - ISO 15489;
  - UK TNA 2002 specification;
  - German DOMEA CONCEPT standard;
  - Norwegian NOARK;
  - Swedish Transfer Method
  - Dutch REMANO;
  - Finnish Sahke-project;
  - Update to US Department of Defense 5015,2;
  - ISAAR(CPF).

- Correct errors, resolve ambiguities;

- Extend functionality in specified areas, to the extent appropriate for a live records management solution;

- Be testable;

- Contain improvements to reflect lessons learned in applying MoReq;

- Be compatible with the original MoReq, save perhaps for a small number of acknowledged incompatibilities.

MoReq2 is not intended to shift its focus from mainstream management of electronic records to a new area, such as the specialist management of archives.

Relationship with MoReq

The structure of MoReq2 must be similar to the structure of the original MoReq, except where there is a strong reason for change. This is to maximise the continuity during the adoption of MoReq2.

MoReq2 must explicitly indicate changes from the original MoReq. It is important that they be indicated in a way which:

- Highlights any change which is not backwards-compatible with the original MoReq (these are likely to be very rare);
- Allows software developers and others to identify changes easily;
- Allows other users (e.g. students, Records Managers) to read and use MoReq2 without undue distraction.

Compliance Testing Regime

The DLM Forum intends to initiate a compliance testing regime for MoReq2. Accordingly, all functional (mandatory and desirable) requirements must be written so as to allow unambiguous testing; and any non-testable requirements (such as MoReq 3.1.1) should be rewritten or moved to the introductory part of their sub-section; with the exception of any section on non-functional requirements where generic compliance testing is not appropriate.

Presentation

MoReq2 requirements are to be presented in a format similar to the format of the original MoReq, in tables for ease of use, and in editable form.

Many requirements in the original MoReq are followed by a rationale (in italic text). This approach should be followed in MoReq2. Rationales are to be included wherever they will be helpful; in general, it is expected that new requirements will have a rationale, and that the rationales of some existing requirements will be expanded.

Country Introduction (Chapter 0)

There is a consensus in the Working Group that a country introduction or "Chapter 0" should be written by the DLM Forum representatives of each country. These would be provided for inclusion at the finalisation of the various language versions of MoReq2. This was done by some translators of the original MoReq to explain the concept of "records" and their context in some cultures (for example Slovenian and Portuguese translations).

The country should decide what will be appropriate in their country introduction and it is likely to include:

- the effect of national legislation

- the effect of the records management culture for example procedures round MoReq2 for rules for recording documentary transactions, providing registry facilities using MoReq functions etc

- translation information.

PART B - PROPOSED OUTLINE FOR MOREQ2

Format of this Outline

The following presents a complete set of headings for MoReq2. Where a section is new or substantively changed, descriptive text explains the suggested content of or changes to that section. Where no text is shown for a section, no changes have been identified for that section, but it should nevertheless be reviewed.

PREFACE

If possible, a short preface will be added (equivalent to, and possibly based on the one-page "MoReq – managing electronic records made easy section" which is at the start of the printed version – but not the electronic version – of MoReq) to be signed by a senior official of the European Commission and the DLM Forum Executive Committee. This is desirable to emphasise the value of MoReq2 and its definitive nature; an important part of the attraction and value of MoReq2 is the mandate it provides, and so formal approval by senior officials is especially important.

COUNTRY INTRODUCTION

This will be provided by the DLM Forum representatives of each country.

1   INTRODUCTION

1.1   Background

Add an explanation of the intentional evolutionary nature of this specification.

1.2   Purpose and Scope of this Specification

Note: Everywhere where there is no text within a section in this report, this means that no specific changes to MoReq are called for. The section does need to be checked for consistency with updates in the rest of the document and if necessary updated.

1.3   What is an ERMS?

1.4   For What can this Specification be Used?

In addition: together with the testing materials it can be used to test compliance with the requirements by:

- packaged software

- particular implementations.

1.5 Emphasis and Limitations of this Specification

Add clarification that the specification is primarily intended to deal with unstructured records (e.g. standard electronic office documents, e-mail messages, video, letters) in non-case environments (though it can be used in the context of structured records and case management, and case records are addressed in section 10.x).

1.6 Using this Specification

Add emphasis that the specification should not be used for procurement purposes without being customised. Customising the generic requirements in MoReq2 will be an essential step, as each organisation will find MoReq2 contains requirements which are inapplicable to it, and also that it has particular requirements which are not included in MoReq2 such as national regulations.

1.7 Organisation of this Specification

1.8 Mandatory and Desirable Requirements

Consider carefully how best to express the concept that some requirements will be mandatory only in some environments – for example, features related to multi-site synchronisation are mandatory for distributed architectures but irrelevant to central architectures.

1.9 Comments on this Specification

Agree with the Project Officer an e-mail address (or other mechanism) for comments which can be sustained indefinitely.

2 OVERVIEW OF ERMS REQUIREMENTS

2.1 Key Terminology

Make changes required for consistency with other sections.

2.2 Key Concepts

Replace the figure with one which :

■ Is consistent with the original MoReq 3.1.6 (i.e. replace level with class);

■ Shows sub-record entities.

2.3 Entity-Relationship Model

Update for consistency with 13.2.

3 CLASSIFICATION SCHEME

3.1 Configuring the Classification Scheme

Rework to give equal weight to other means of deploying classification schemes, in particular the use of a thesaurus. Note that this has many repercussions on the wording of many of the detailed requirements.

Requirement 3.1.6 prevents files and classes from being stored within the same class. Consider carefully in what circumstances it is required. It is required in some circumstances (e.g. in a classification scheme based on functions and activities) whereas it is possible that it is not needed in others (e.g. in a classification scheme based on keywords); if such a scheme is needed, controls need to be stated.

Criteria and Rationale for the Requirements on Configuring the Classification Scheme	
Criteria	The ERMS must be flexible in supporting the variety of classification scheme structures which organisations may need, balanced with constraining the structures to meet records management good practice.
Rationale	It is necessary to demonstrate an initial overall sound design and so it must be possible to construct the business classification scheme within the ERMS before folders and records are added.

3.2 Classes and Files

Add the principle of inheritance of metadata values.

Criteria and Rationale for the Requirements on Inheritance of Metadata Values	
Criteria	The ERMS must support the principle of inheritance of metadata values and the ability to amend (i.e. over-ride) inherited metadata attributes on any individual class
Rationale	(Requirement 3.2.5 already specifies that a new class or file must inherit metadata according to its position in the classification scheme. This should also apply to descendent classes and files when the metadata in a class higher in the scheme is changed). In addition although, by default, specified metadata attributes may be inherited, authorised users must be able to edit the inherited metadata value as required during the object's lifetime.

3.x Record Types

Include new requirements for defining and managing record types (i.e. different types of documents which have different retention requirements, access controls or metadata elements).

Criteria and Rationale for the Requirements on Record Types	
Criteria	The ERMS must support the definition of distinct record types, so that a different management policy can be applied to each record type.
Rationale	The record type is essentially a template that specifies the metadata attributes and behaviour connected to records that are created using the particular record type. The use of record types provides a powerful and granular level of control over the records controlled by the ERMS, catering for changes in the business environment as well as legislative requirements, etc. In particular, record types can be used to comply with data protection legislation, enabling different disposal metadata settings to be applied to different records as appropriate. Authorised users must be able to define specific record types; in addition to the metadata attributes, the definition process must identify the users who will be able to declare records of the new record type. The ERMS must provide the means to allocate disposal schedules to the specific defined record types.

3.3   Volumes and Sub-files

Consider carefully the need for sub-files as well as volumes and depending on this include an extensive rationale for the inclusion of volumes and sub-files, namely that it is not only to avoid creating large files, but also:

- To ease navigation through large files;
- To allow management of retention for files which may never close, e.g. geographically-referenced files.

Review extensively (this section and other sections) to ensure that the functionality allows the ERMS to manage using volumes while allowing the users to perform all functions without needing to recognise the existence of volumes.

If adding functionality to allow the division of files into sub-files, note that this may require changes in other sections.

Draw a distinction between volumes and sub-files. A volume is:

- A "mechanical" (e.g. time-based) sub-division of a file;
- Created sequentially;
- Can only be opened if no other open volume exists in the file;

and a sub-file which can be:

- A sub-division created on any basis, mechanical or intellectual;
- Created concurrently;
- Can be open at the same time as other sub-files in a file.

Note that the removal of the concept of "volumes" would be considered as a radical change, and so it is not likely to be appropriate to remove this concept. Accordingly, if the concept of sub-files is added, care will have to be taken to ensure the two concepts co-exist without problems.

Criteria and Rationale for the Requirements on Volumes	
Criteria	Volumes are required for disposal scheduling in most cases and need to be distinct from any sub-files.
Rationale	Sub-files can only be accommodated if they can be distinguished from, and do not interfere with the functioning of volumes. Also disposal scheduling needs to work for sub-files and volumes.

3.4   Maintaining the Classification Scheme

Criteria and Rationale for the Requirements on Maintaining the Classification Scheme	
Criteria	It must be possible to relocate a class or file and maintain their integrity. Creating and closing files must be restricted to authorised users.
Rationale	There needs to be flexibility to amend the classification scheme with appropriate options to maintain metadata and controls on users.

3.x   Navigation and Process Initiation

Add requirements for the ability to initiate processes (such as declaration, examination of metadata, opening a file, creating a file) from any point within the classification scheme rather than having to initiate the function from a menu then having to navigate to the desired point.

This usability feature may be described in requirements in a new section; or it may prove preferable to organise the requirements elsewhere to avoid the need for this additional section.

Criteria and Rationale for Requirements on Navigation and Process Initiation	
Criteria	All users must be able to initiate processes from the item in the classification scheme upon which the process will act. Also they must be able to return to a point in the classification scheme directly after other activities.
Rationale	For users' efficiency, they need to be able to navigate through the classification scheme and having found the relevant item to carry out actions there. Also to avoid subsequent repeated navigation by a user through the classification scheme to files or records which are used frequently by that user, it needs to be possible to return directly to them after working in other parts of the classification scheme and in subsequent work sessions.

4 CONTROLS AND SECURITY

4.1 Access

Allow for the definition of roles and the allocation of access rights to them.

Allow for several different administrators, each to have control over a part of the classification scheme, or each to have control over one of several classification schemes.

Consider how best to represent the requirements for access to different functions. In practice, different organisations allocate functions to different roles, so it may be more helpful to specify the capabilities to allocate and maintain rights according to arbitrary schemes rather than to specify a single view of rights.

Some implementations will need roles designed to support a distributed architecture. These will need specific mandatory access features (which will not be mandatory otherwise).

Consider defining the specific role of "reviewer" for the appraisal and disposal of records.

Criteria and Rationale for Requirements on Access	
Criteria	The requirements must provide a flexible scheme to enable the user organisation to define various roles and the rights of the roles to use functions. It must be possible to allocate the roles to users and/or user groups. It must be possible to restrict users' access to parts of the classification scheme.
Rationale	Different roles are required in different organisations and although some roles such as systems administrator, records manager, reviewer and end user are in widespread use other roles may be called for such as "super user" or local records manager. Some organisations have to retain registry officer roles and to restrict end users to fewer functions. Users when allocated a role can be constrained to access only particular parts of the classification scheme for executing their role.

4.2 Audit trails

Consider whether it is desirable to add features to ensure that any changes made to the back-end database are recorded in the audit trail.

Criteria and Rationale for Requirements on Audit Trails	
Criteria	The audit trail must be an unalterable and complete log of all (as specified by the systems administrator) activities affecting the records including metadata and the business classification scheme.
Rationale	The data logged by the audit trail needs to be fit for auditing purposes and therefore must be unalterable by users including the systems administrator and to capture actions on the records including attempted actions and actions on the underlying database.

4.3   Backup and Recovery

Consider carefully the need for additional requirements to handle (re-)destruction of records, after a restore is performed, of records which had previously been disposed of (destroyed) in the interim.

Criteria and Rationale for Requirements on Backup and Recovery	
Criteria	The backup and recovery procedures must be capable of restoring the records and associated system to their complete, integral and up to date state.
Rationale	The procedures need to restore the system including records, metadata and audit trail. Where data cannot be restored notification needs to be given to an administrator. Ensuring integrity includes the correct working of the classification scheme and all links, and re-destroying previously destroyed records.

4.x   Vital Records

Add desirable requirements to allow vital records to be:

■   Identified (in metadata);

■   Restored first, in the event of a disaster which requires a system restore.

This will be especially useful for environments that involve very large volumes, in which a full restore may take an unacceptably long time.

Criteria and Rationale for Requirements on Vital Records	
Criteria	The ERMS should allow vital records to be identified and restored in a dedicated operation.
Rationale	Identifying vital records can be advantageous for rapid recovery after a disaster.

4.4   Tracking Record Movements

Note: the elements of this section should be moved to other sections as below.

Expand this section to reflect tracking features in detail and move 4.4.1 and 4.4.2 to section 10.1. Review 4.4.3, with a view to moving it to 11.7 after appropriate change, and desirable addition of an interface to a file format registry.

Criteria and Rationale for Requirements on Tracking Record Movements	
Criteria	Disbanded section: requirements 4.4.1 and 4.4.2 move to section 10.1 and requirement 4.4.3 to section 11.7.

Rationale	This section needs to be reallocated to reflect the two dominant storage issues • The tracking of locations of physical records i.e. records which are units that cannot be read by the ERMS. This belongs in section 10.1 Management of Physical Records • Management of digital storage which holds electronic records. This needs to be treated as part of Preservation at section 11.7.

4.5 Authenticity

Review against ISO 15489 with a view to ensuring that MoReq2 supports the essential characteristics for records: namely authenticity, reliability, integrity and usability.

Criteria and Rationale for Requirements on Authenticity	
Criteria	This section must ensure that requirements necessary for establishing and maintaining the authenticity of records are covered either here or in related sections on controls, metadata and audit.
Rationale	Authenticity needs to be achieved in line with ISO 15489, i.e. that a record can be proven to be what it purports to be and to have accurate metadata on creator/sender, and date and time of creation/sending.

4.6 Security Categories

The current section is written to apply only to secure environments. Move it to section 10.x as a separate module. Consider whether any subset of it would form a part of the mandatory base requirements (i.e. whether any requirements similar to categories are needed in all environments including private sector, charities etc).

Criteria and Rationale for Requirements on Security Categories	
Criteria	The functions for security categories must enable an organisation which operates in an environment requiring security categories to implement their scheme as an additional layer of access control. In addition, security metadata must be inherited upwards from record to its file.
Rationale	Using security categories has an additional implication for inheritance of metadata as follows. If a record is given a security category then this needs to have the effect of upgrading its file to avoid inferences being possible from related documents in the file (see also section3.2).

5 RETENTION AND DISPOSAL

5.1 Retention Schedules

Review carefully to emphasise the role of retention schedules and disposal. Consider the treatment of potentially more than one retention schedule applying to an object. Note also the need to consider record types (see section 3.x). Retain the current MoReq principle that more than one retention schedule is allowed. Remove actual and potential ambiguities, and clarify details of logic such as:

◼ How and when conflicts between retention schedules are identified;

◼ How conflicts between retention schedules are avoided (if they are avoided); or

◼ How conflicts between retention schedules are resolved (if they are allowed).

Clarify that any number of external events (as referenced in 5.1.11) is unlimited, and so different external events can be linked to different retention schedules.

Consider carefully whether to include clearly-structured requirements for:

◼ Defining, referring to, maintaining, deleting retention schedules;

◼ Defining, referring to, maintaining, deleting external events.

Criteria and Rationale for Requirements on Retention Schedules	
Criteria	The requirements must provide comprehensive functions for defining retention schedules, for allocating them to classes, files and record types, for resolving conflicts and for executing each retention schedule as a disposal process. The requirements must enable export of disposal schedules with the files they act on.
Rationale	The retention schedules need to be defined separately so that they can be amended, a history of changes kept, and disposal processes will be determined by the up to date schedule. Retention schedules need to be capable of default inheritance downwards and of being over-ridden. The generic disposal process needs to report on all files and record types identified and to seek confirmation before proceeding.

5.2 Review

Criteria and Rationale for Requirements on Review	
Criteria	The retention schedules as applied to classes, files and record types must trigger accurately a review disposal action in each case. Whereupon it must be possible as required to re-allocate a different schedule, to make all possible information available to the reviewer, to support addition of metadata and to enable the results of the review to be stored.
Rationale	The reviewer needs to be supported with flexible facilities but where the disposal process is observed and summary destruction of records is prevented.

5.3　Transfer, Export and Destruction

Clarify the meaning of transfer (with reference to section 10.8 Interoperability) and consider carefully the need for additional requirements to support export and transfer, including that the ERMS should produce a delivery file that would contain records and the necessary metadata in a standard format; and prompts to log successful transfer notified by a recipient and destruction of the source transferred records.

Criteria and Rationale for Requirements on Transfer, Export and Destruction	
Criteria	The ERMS must support the standard disposal functions of export, transfer and destroy. Authorised users must be able to perform these functions as necessary once the retention period has expired and review is complete. Each function must be an audited process, with appropriate details logged. The ERMS must be able to export electronic files, file and class metadata, all their constituent electronic records and the record metadata, for import to another ERMS, or for transfer to a different custodian for permanent preservation. The ERMS must be able to export record content in its native format, or if that format is no longer accessible over time, a current standard, non-proprietary format to which the content has been converted for digital preservation purposes. The ERMS may also offer additional, default options to allow the export of the original record content in XML or other rendition formats. Destruction procedures must have strict controls and must maintain the integrity of the information which is not to be destroyed.
Rationale	The ERMS needs to be able to export and transfer records including those that are associated with more than one file, where this is achieved by means of a pointer, ensuring that: • in a file to be exported, a physical rather than virtual instance of the record is exported, resulting in an exported record not an exported pointer • in a file that is not to be exported, the evident association of the record with that file, and access to the content of the record, remains unaltered where associated with two or more files qualifying for export, all associations between the record and all exported files need to be retained in the exported data. The ERMS must support a two-stage transfer process, consisting of: • export of qualifying folders, part and records from the system • subsequent destruction of the exported folders, parts and records following confirmation of export. The exported data needs to be well structured so that as well as being automatically processed, the data can also be manually interrogated if required. The ERMS needs to seek confirmation from an authorised user before any destruction and enable cancellation. Where pointers are used, the ERMS needs to maintain referential integrity after a destruction process and ensure that all renditions of a record are destroyed.

6   CAPTURING RECORDS

6.1   Capture

Consider adding here the automated extraction of metadata at the time of declaration of documents created using templates (or macros , etc.).

Criteria and Rationale for Requirements on Capture	
Criteria	Capture of records must be possible from a wide range of sources, from any electronic document stored as a single computer file or closely bound components or linked simple components. It must be possible to declare a document as a formal record from when no amendments to it will be possible other than under defined rules for changes to metadata. Automated support to the capture of metadata and assignment of records to files must be provided.
Rationale	Documents need to be accepted from a wide range of applications in an organisation including widespread proprietary and open source office applications, e-mail systems (also see section 6.4), images created by a document scanning system. An API (application programming interface) needs to be provided to enable records to be passed from other applications.
	The capture must be ensured of all required metadata elements specified at systems configuration from an authoring application, the operating system, generated by the ERMS itself and input by the user (also see section 12). Users need to be able to name records by amending the existing document filename.
	Records must be assigned to at least one file and the user must be allowed to assign a record to more than one file.

6.2   Bulk importing

Add detail of requirements required to support the bulk import of records, for example;

■   Import of a classification scheme (where the records are not to be imported into the "live" classification scheme);

■   Features to (optionally) close classes, files and volumes imported after the import;

■   Import of the audit trail records to accompany the imported records.

Criteria and Rationale for Requirements on Bulk Importing	
Criteria	It must be possible to import in bulk, documents as appropriate either: • with metadata and mapping this to record metadata in the ERMS or • without metadata and automatically extracting this from document properties where possible and providing facilities for the addition of missing metadata and assignment of documents to files It must be possible to import electronic records in their existing format, without degradation of content or structure, retaining the relationship between the components of any compound record The ERMS should be able to import any directly associated audit information with the record and/or file.
Rationale	-

6.3 Types of Objects (Title changed from Types of Documents)

Include more detail on the capture and management of:

- Multimedia records;
- Compound objects;
- References to the existence of external databases;
- References to physical records;
- Records of web-based transactions;
- Telephone conversations (e.g. Århus Convention, requests for environmental information etc.).

In all of these cases, consider special requirements, including metadata requirements.

Consider also whether instant messaging should be included.

Criteria and Rationale for Requirements on Types of Documents/Records	
Criteria	Capture and declaration of any document created as a single component must be possible and where records are captured which are constructed of more than one component, the relationship between the constituent components must be retained.
Rationale	It needs to be possible to capture documents in native format and not to be dependant on the generating application. This includes website content (see also section 10.x Integration with Content Management Systems). It should also be possible to capture renditions as well as the native format. Where records are captured which are constructed of more than one component, it needs later to be retrieved, displayed, managed and disposed of as one unit. This section also needs to be consistent with section 6.x Scanning and Imaging and section 10.x Fax Integration.

6.4 E-mail Management

Include more detailed requirements for the capture of e-mail, including the mandatory automatic capture of e-mail metadata, and tight integration to aid ease of use.

Consider adding requirements for capture of records generated by emerging communication channels (e.g. video conferencing and instant messaging).

Consider cross referencing (to 10.5) to requirements for the management of digital signatures.

Criteria and Rationale for Requirements on E-mail Management	
Criteria	E-mails must be treated as important records equally to other types of document. It must be possible to capture an e-mail message from within an e-mail client and ensure that the message including transmission details cannot be altered except for specified metadata. It must be possible to store an e-mail with the following options for the user: • to store the e-mail together with any attachments • to store the bare e-mail separately and store any attachments separately • to store the bare e-mail and not to store any attachments.
Rationale	Metadata needs to be fixed except that the user will need to be able to edit the title line if necessary to provide a more useful record title.

6.x Integration with Scanning and Imaging

Include more specific requirements for scanning and imaging capture, including requirements for integration, bulk scanning, and other conventional features of production scanning systems.

Criteria and Rationale for Requirements on Scanning and Imaging	
Criteria	It must be possible to interface with scanning and imaging applications to capture records and register them, automatically capturing metadata where possible. In addition, a facility must be provided for the user to input or amend the title and to add where not automatically captured, at a minimum, creator, subject, description. There must be a facility for bulk scanning with controls and checks on batches of input. The whole must be covered by trusted processes which log user information and supervisor audit according to an accepted standard (such as British Standards Institution BIP 0008).
Rationale	-

7   REFERENCING

Add references to the existence of emerging identifier systems (e.g. DOI and URN), and their relevance (if any) to identifying objects in an ERMS context.

Criteria and Rationale for Requirements on Referencing	
Criteria	All occurrences of classes, files, records, volumes and extracts must be allocated a system identifier. Integrity must be maintained including the uniqueness of each system identifier within the system, and referential integrity. It must be possible to store an additional identifier for each object which is generated either according to a standard (e.g. DOI or URN) or according to a user specified method (for example by a registry officer or local records manager).
Rationale	-

8   SEARCHING, RETRIEVAL AND RENDERING

8.1   Search and Retrieval

Criteria and Rationale for Requirements on Search and Retrieval	
Criteria	Facilities for searching and retrieving classes, files and records (including data on physical records) must be provided. Also graphical browsing of the classification scheme with retrieval of files and their contents must be provided. It must be possible to link to a thesaurus meeting ISO 2788 (monolingual) and should be possible to link to a thesaurus meeting ISO 5964 (extension to multilingual)
Rationale	It needs to be possible to search all records management metadata and record content and to use terms from a controlled vocabulary or thesaurus where this is implemented. Facilities are needed for saving searches and should make it possible to modify a search for re-use. The use of propositional search logic should be available including Boolean operators, partial matches and wildcard characters. Also needed is graphical browsing of the classification scheme, and browsing directly from a class to the files created under that class, and the direct selection and retrieval of files and their contents though this mechanism. Throughout, results need to be constrained by the access controls including security controls applying to the user.

8.2   Rendering: Displaying Records

Criteria and Rationale for Requirements on Displaying Records	
Criteria	From search results, the user must be able to request the contents of files and records to be directly displayed along with available metadata. Viewing mechanisms must be available to display the information as it was intended.
Rationale	Displaying information needs to possible without a further search or re-entry of data. The viewing mechanism needs to be capable of displaying the content of all the types of records which have been captured, showing the features and layout as provided by the generating application even though this may not be present.

8.3   Rendering: Printing

Criteria and Rationale for Requirements on Printing	
Criteria	Printing of all the types of records which have been captured (and are printable) must be possible in the same manner as they are displayed on screen.
Rationale	Printing needs to be done without the use of 'screen-dumping' or 'snapshots' and needs to allow the metadata for a class, file or record to be printed. There should be options to print a list of search results and to allow all the records in a file to be printed in one operation.

8.4   Rendering: Other

Criteria and Rationale for Requirements on Other Rendering	
Criteria	Facilities should be provided for the presentation of material to a destination external to the ERMS in a form suitable for electronic publication or onward transmission.
Rationale	The material may need to include selections of classes, files, records and extracts (including metadata) and will need to be rendered in a format in widespread use (XML, non-proprietary HTML etc). For e-mails, it should be possible to retrieve and copy to a compatible e-mail application for transmission.

9 ADMINISTRATIVE FUNCTIONS

9.1 General Administration

Criteria and Rationale for Requirements on General Administration	
Criteria	A full set of tools must be provided for the system administrator to administer the ERMS.
Rationale	-

9.2 Reporting

Include more detailed reporting requirements.

Include requirements for rendering reports in other electronic formats.

Consider requiring more flexibility in reporting.

Criteria and Rationale for Requirements on Reporting	
Criteria	A flexible reporting capability is necessary for the system administrator and authorised users to provide management and statistical reports including activity and status within the ERMS, retention and disposal schedules, outcomes of export and destruction processes.
Rationale	-

9.3 Changing, Deleting and Redacting Records

Criteria and Rationale for Requirements on Changing, Deleting and Redacting Records	
Criteria	Changes and deletions must be closely controlled by the ERMS according to records management principles. Redaction is not allowed to alter the content of the record but the creation of a redacted copy must be recorded in the record's metadata.
Rationale	Ad hoc changes and deletions need to be prevented and the only changes and deletions done need to be within a quality process. Redaction is not allowed to alter the content of the record and so will need to be done on a copy (extract) or by a filter mechanism but the creation of the extract or filter must be recorded.

10   OPTIONAL MODULES
renamed section, deleting: Other functionalities

10.1 Management of Physical Records

Criteria and Rationale for Requirements on Physical Records	
Criteria	Definition of physical files and records (that is metadata profiles) must be possible and they must be managed in a manner closely integrated with electronic files and records. Definition of a hybrid file must allow a pair of physical and electronic files to share a file title. Different metadata must be allowed for physical files and records but with the normal inheritance rules. Support for a tracking system should be provided.
Rationale	Physical/non-electronic files and records comprising units of media separate from the ERMS storage, be they in paper, audio tape, CD, DVD etc, need to be handled as part of the total collection of files and records. Physical file and record metadata can include information on its location and changes need to be logged to the audit trail. Searching, retrieval and access controls need to be compatible between associated physical and electronic items. Check-out, check-in, bring forward and ordering facilities should be supported to enable a tracking system to be operated with also support to producing barcodes for locating and tracking physical items.

10.2 Hybrid File Retention and Disposal

Revise to include more detailed requirements for management of non-electronic records and hybrid files. Ensure complete consistency between this section and sections 1.2 and 1.5.

Criteria and Rationale for Requirements on Hybrid File Retention and Disposal	
Criteria	Where physical files or records are associated with electronic ones, they must share the same retention rules and review decisions, and disposal actions must be done together. Likewise it must be possible to export physical files or records associated with electronic ones and retain the associations.
Rationale	Retention rules, and disposal schedules and actions need to be consistent for electronic and associated physical files and records. This section needs to be consistent with section 5.1.

10.3 Document Management and Collaborative Working

Note the revised name for this section.

Include more detailed requirements for document management, version control and editing.

Add requirements for collaborative working, being sure to take into account the capabilities of a range of products.

Criteria and Rationale for Requirements on Document Management and Collaborative Working	
Criteria	Document management facilities must be either an integral part of the ERMS or capable of integration with the ability to transfer declared documents as records and/or with the ability to pass management control of documents within the document management filestore to the ERMS at time of declaration.
Rationale	Document management including collaborative working needs to work closely with records management facilities for users' ease and efficiency of working. The ownerships and access controls for records management need to take precedence. The document management facilities should provide a personal workspace for each user to store drafts of documents.

10.4 Integration with Workflow

Consider adding more detail on workflow requirements, for example to take into account:

- Support for documents as well as for records;
- Features to support directly the ability to demonstrate compliance with a specified business process (e.g. maintenance of the process that was followed as a record);
- Workflow instances automatically associated with instances of files or documents when they are created;
- Automated declaration of documents as records in a workflow;
- The relationship between types of files and workflow maps;
- The relationships between instances of files, documents and instances of workflows;
- The ability to determine the version of a workflow definition that a workflow instance (within a file) was based upon.

Criteria and Rationale for Requirements on Workflow	
Criteria	The required capability for workflow varies from simple routing (such as checking and approving of a document before registration) through to handling high-volume transactions with the handling of exception cases, and reporting on system and group/individual performance. Therefore the basic requirements in this module need to be stated as mandatory but the majority need to be stated as desirable. It must be possible to capture a graphical representation of an individual transaction workflow process from the workflow application.
Rationale	-

10.x Casework

Add new requirements for managing casework files, for example:

■ Case files can be created and opened by case workers (whereas non-case files normally cannot);

■ Applicable requirements from section B4 of the 2002 specification published by The National Archives of England, Wales and the United Kingdom.

Criteria and Rationale for Requirements on Casework	
Criteria	The casework module is for managing case files. These are to be differentiated so that special rules can be applied to allow external applications to create case files or for users to do so, and subsequently for users to access files simply by case identifier.
Rationale	Allowing external applications under controls to create case files includes creating the file metadata. When users do so, the case identifier needs to be validated. The ERMS should be configurable for capturing and declaring records from external applications either with or without user action within the ERMS.

10.x Integration with Content Management Systems

"Content management" for these requirements means the management of documents and records in a variety of contexts (including particularly, but not exclusive to, an internet protocol (IP) -based environment accessed using browser technology).

The main challenge in this area is the need for robust control of public website, intranet and extranet content. There are other important considerations:

• The need for some degree of integration into the business classification scheme used by the organisation to manage record resources and their disposal;

• Dynamic and data driven solutions where databases and other active content are present;

• Repurposing of content for new contexts and user communities whilst keeping audit trails and lines of authority clear; and

• Historical archiving and disaster recovery back-ups.

Accordingly, the requirements can be seen to involve three different levels of content management with the meanings of these levels as below:

1.Simple content management is where there is a capability to 'publish' a single object from the EDRM environment to a world wide web [or other] IP environment [possibly involving rendition of the object in the process]

2.Web content management is defined as the scenario where complex compound objects from diverse sources are published to websites (including intranets); and

3.*Enterprise content management* is where the previous environments have been integrated fully into the EDRM (and perhaps other) environments and, optionally, there may be records management control exercised over objects in many systems.

The first should give rise to mandatory requirements in this module.

Consider carefully the other two outlined above for the degree to which and how they should be covered by requirements. The levels 2 and 3 above should be assessed against the characteristics of the two following situations:

- Treating the entire drafting, publishing, 'archiving' (in the sense of taking off-line) and disposal (including historical archiving and other methods of *final* disposal) as a continuum and bringing together the document / content management stages of approval and publishing together with the records management concepts of disposal. Treating both as essential and complementary parts of content 'status'.

- Developing the means of controlling alternative manifestations of content from that present in the base requirements (i.e. rendition, extraction) into the dynamic *Content management* environment. The main needs here are ensuring that the objects in the document repository are under the required level of control and there is sufficient metadata present to ascertain what the content was at a given time in the past (subject to the audited disposal of objects no longer required).

Criteria and Rationale for Requirements on Integration with Content Management Systems	
Criteria	Intellectual control must be maintained through records management principles of authored documents, declared as records which are published and later withdrawn from publication and may or not be replaced by a revised published record in respect of the content and time periods when they are published.
Rationale	The organisation is responsible for information which it has sourced and published. This may include the date range for which it is or was valid.

10.5 Electronic Signatures

Clarify and expand on existing requirements. Include requirements for medium term use and removal of reliance long-term on personal electronic signatures.

Although MoReq2 is of course for international application, it may be necessary to take into account specific national legislation and relevant EU directives (i.e. ensure that MoReq2 does not contradict it, or if this is not possible make explicit mention of any contradiction). If appropriate, include requirements for the removal of the signature for records management and archival purposes.

Consider adding a description and discussion of the main types of electronic signature, and their implications for records management.

Criteria and Rationale for Requirements on Electronic Signatures	
Criteria	It must be possible to configure the ERMS to a level appropriate to the organisation, to retain following successful authentication: • That fact with the record • Also information about the authentication process • All authentication data including signatures and digital certificate with the record It is also necessary for the ERMS to interface with common electronic signature technologies and to be able to check the validity of an electronic signature at the time of declaring the record. The continued integrity of a record must be capable of being demonstrated even though changes will have been made to the metadata though not the content. The capability should be provided to apply an electronic signature to items during export.
Rationale	Electronic signatures may have been deemed necessary on balance of business risk and the ERMS will be presented with a document and associated electronic signature. These may not be possible to sustain with their close coupling: • They cannot be preserved except where the approach is one of bit-level preservation. If the objects are migrated to preserve them or additions made to the metadata, the digital signature will indicate that the object[s] has [have] changed. (the use of such signatures within a sustainability or preservation solution itself – i.e. to "ensure" authenticity - is not recommended by any significant number of authorities) • They cannot be preserved owing to the likelihood of the signature provider being an individual, organisation which subsequently changes its electronic signature arrangements, a commercial company subject to take over, bankruptcy, etc. Preserving metadata about the fact that a signature was validated at some time in the past and maintaining integrity under the control of the ERMS may be adequate.

10.6 Encryption

Criteria and Rationale for Requirements on Encryption	
Criteria	It must be possible to accept records under various encryption schemes, keep metadata relevant to the encryption method and restrict access to listed users. There must also be the capability to allow encryption to be removed when a record is captured.
Rationale	It may be advantageous to hold records without encryption to simplify and ensure access where the ERMS provides adequate security.

10.7 Electronic Watermarks etc.

Consider adding more requirements related to Digital Rights Management (DRM), in particular relating to DRM features which may compromise the ability to access and/or render records over the long term.

Criteria and Rationale for Requirements on Electronic Watermarks etc.	
Criteria	It is necessary to be able to store records bearing electronic watermarks and information about the watermark. It should also be possible to apply a watermark to records during export without affecting access in the receiving system.
Rationale	-

10.8 Interoperability and Openness

To the extent possible, include requirements for interchange standards not only for records themselves, with reference to section 12, but also the associated:

■ Retention schedules;

■ Security models;

■ User/group models

■ Classification schemes;

■ Taxonomies;

■ etc.

Consider also adding requirements for a standard interface which supports direct interactions with other systems/services/portals. This interface would enable applications to append records to the records management system and also to request records from it (note that this may be covered in section 10.x on case work).

Consider adding more detailed requirements for integration with desktop applications.

Criteria and Rationale for Requirements on Interoperability and Openness	
Criteria	Interchange standards which are widely recognised have to be catered for. The ERMS must be able to support links with other applications. This section is not an optional module and therefore is to be moved into the base requirements possibly into section 11.
Rationale	Most electronic government strategies and industry groups have stated interoperability standards which need to be observed as well as the prime need to link the ERMS with related parts of the overall system architecture and potentially links externally to other organisations.

10.x Distributed Systems

Criteria and Rationale for Requirements on Distributed Systems	
Criteria	This is a new optional module which gathers together all existing and necessary requirements for operation of the ERMS over multiple locations and/or with multiple classification schemes.
Rationale	The complexities of distributed systems are unnecessary for some single site organisations. However for multi-site organisations, distributed system functionality is essential.

10.x Offline and Remote Working

Include in this new section all requirements which can be foreseen for users whose PCs/workstations are not always connected to the network hosting the ERMS repository. This should include at a minimum:

■ Users who are mobile for part of the time, using a mobile device with no connectivity to the ERMS network, or with occasional low-bandwidth connectivity which does not support full functionality;

■ Users at a fixed location which has an unreliable telecommunications connection to the ERMS network.

This will include (but is not limited to):

■ Downloading information to work on while disconnected;

■ Providing a mechanism which results in capture of records created while disconnected;

■ Offline administrative changes;

■ Effect of transactions such as file deletion while a user has an offline copy of the file;

■ Audit trail.

Note: the terms "offline" and "remote" have not been defined. They may have different requirements or may be synonymous. The important point is to capture requirements which are practically relevant in the present and foreseeable future, to allow users to create and use electronic records easily and with the required rigour.

Criteria and Rationale for Requirements on Offline and Remote Working	
Criteria	A remote log-in facility must provide the standard user's range of the ERMS functionality and additional features as outlined above. Also it should be possible to carry out appropriate user tasks offline.
Rationale	-

10.x Definition and Description of Recordkeeping Processes

Include in this new section requirements for linking together "atomic" functions and changes of metadata to form common business processes, for example:

- The process of redacting a record, which involves creating an extract, making the redaction, declaring the redacted version into the appropriate folder, cross referencing the record and the extract, and updating several metadata elements;

- The process of changing the security category of a record, which includes updating several metadata elements;

- The process of opening a hybrid file, which includes the production of physical file covers, the attachment of paper records and the linking of the physical to the electronic part;

- The review process, which involves looking at the metadata and contents of several files and/or volumes in a row, then making disposal decisions which may affect the retention schedules and possibly other metadata (see also 5.2.3).

Criteria and Rationale for Requirements on Recordkeeping Processes	
Criteria	Common processes as described above have to be supported.
Rationale	-

10.x Fax Integration

Consider adding a new section on requirements for fax integration .

Criteria and Rationale for Requirements on Fax Integration	
Criteria	The ERMS should provide an interface to a fax server facility including providing a fax template which requires title, sender and recipient data to be entered. The fax integration should provide the capability to send outbound faxes and to subsequently register the fax in the ERMS automatically capturing metadata for a minimum of title, sender, time and date sent, recipient. The fax integration should provide the capability to receive incoming faxes, to add/amend a title, sender and recipient, and to register the fax in the ERMS capturing metadata for a minimum of title, sender, time and date received, recipient. The fax integration should provide the capability to deal with faxes in paper form by scanning in and then dealing with them as above.
Rationale	Faxes need to be managed in a way analogous to management of e-mails (see section 6.4).

11   NON-FUNCTIONAL REQUIREMENTS

A note on testing of non-functional requirements: no generic compliance tests are specified. MoReq2 should include advice that user organisations should devise and carry out tests as part of their specific selection and implementation activities.

11.1 Ease of Use

Criteria and Rationale for Requirements on Ease of Use	
Criteria	The ERMS must apply best practice to the user interface of each platform for which it is supplied and must provide interfaces to standard e-mail clients and standard office applications so that objects can be captured directly into the ERMS. Multiple simultaneous display of files and records, and rapid and easy to use manipulation of and links between files and records must be provided. The terminology, labels, facilities and error messages must be consistent and intuitive.
Rationale	-

11.2 Performance and Scalability

Add a comment (possibly as a rationale to 11.2.8) to the effect that a production ERMS may have to cope with millions of records in hundreds of thousands of files and classes. In some cases even larger numbers can be foreseen This statement should not, strictly, be necessary, as it is covered by the existing requirements 3.1.3 and 3.2.9. However, experiences with system implementations suggest that some suppliers are surprised by this magnitude.

Search other resources related to best practice to try to find suggested minima for system performance levels. These minima are to be indicative rather than mandatory. Wherever possible, refer to the sources used.

Consider moving all requirements related to scalability (e.g. 6.3.5) to this section.

Criteria and Rationale for Requirements on Performance and Scalability	
Criteria	The ERMS must provide response times meeting reasonable user expectations. There must be no practical limit on the number of files and records nor size of record. The ERMS must be scalable in terms of numbers of users, geographical locations and total size of repository while maintaining response times.
Rationale	-

11.3   System Availability

Criteria and Rationale for Requirements on Systems Availability	
Criteria	The ERMS must be available to users through maximum working times subject to interruption below that from set numbers of incidents and recovery times also keeping maintenance activities to a non-disruptive level and out of normal working hours.
Rationale	-

11.4   Technical Standards

Criteria and Rationale for Requirements on Technical Standards	
Criteria	The ERMS should comply with relevant de facto and de jure standards and make use where possible of open, in preference to, proprietary specifications and formats.
Rationale	-

11.5 Legislative and Regulatory Requirements

Criteria and Rationale for Requirements on Legislative and Regulatory Requirements	
Criteria	The ERMS must comply with EU directives as introduced nationally, other national and local regulations, and sector codes of practice.
Rationale	Freedom of Information needs to be taken account of in most countries as do the EU directives on data protection, environmental information, copyright, electronic signatures and electronic commerce.

11.6 Outsourcing and Third Party Management of Data

Consider adding more detailed requirements for outsourcing the management of electronic records.

Criteria and Rationale for Requirements on Outsourcing and Third Party Management of Data	
Criteria	External providers must meet levels of service specified elsewhere in these requirements.
Rationale	

11.7 Preservation and Technology Obsolescence

Update to reflect changes in status of referenced works, and any additions. In particular review to meet ISO15489.

Include more detailed requirements for preservation in general and in particular for sustaining records in the original ERMS environment and in any successor ERMS; cover file format migration, and explain the relationship of this section with interoperability. Consider including migration of not only records but also of the index and metadata structures underpinning them.

Also consider adding desirable requirements intended to increase the medium-term usability of the software, such as:

- Open source code;
- Escrow versions of code.

Add requirements for the conversion to records from their origination format to one or more preservation format(s) at time of capture or subsequently, with the ERMS storing all formats of a record.

Criteria and Rationale for Requirements on Long Term Preservation and Technology Obsolescence	
Criteria	This section must address primarily the record lifecycle after creation and active use, and until final disposal. There are a number of issue areas: • Storage Media Management; There needs to be management of the digital objects and metadata across storage media and support for the administrator replicating records, It must be possible to carry out integrity checks. It must be possible to monitor and replace media. • Active preservation; The ERMS must support identification of the formats of records and to support migration of records to a different format. The ERMS should link to a scheme for format identification and naming such as DROID, and to a scheme for technology watch including format viability information, supplier support periods, such as PRONOM. The ERMS must maintain links between different manifestations of the same record content and should provide for the global retention or disposal of the previous manifestations of records.
Rationale	The semi-current/ 'semi-active' use period of a record (say typically 3 to 5 years until the appropriate retention periods are complete) needs to be central to the requirements. The file or volume it is contained in should have been closed to prevent further additions and so the aggregation of records is considered to be complete and to be managed together until final disposal. • Storage Media Management; Depending on the volumes created and the speed of disposal which determine the scaleability needed, there may be advantages in maintaining older records alongside current records over a distinct digital archiving facility. A single interface can give access, under the same classification scheme, with simpler disposal management and avoiding long term off-line storage where it is more difficult to avoid degradation. • Active preservation; this involves broadly categorising the records by their technical and logical characteristics and devising preservation actions, most likely to be migration.

12   METADATA REQUIREMENTS

Develop the metadata model further, with the intention of providing in the model as much detail as is possible at the generic level for a basic implementation.

Take into account ISO 23081 ("Metadata for records – Principles").

Review existing, and add new, mappings of the metadata model to the existing models:

■   Dublin Core ISO 15836;

■   ISO 23081 plus METS standard with schemes and control of metadata content with ISAD(G) and name authorities

■   (if feasible) EAD.

Note that such mappings need not be to a greater level of detail than those in the original MoReq.

12.1 Principles

Add the principle of inheritance of metadata values (through classes, files and volumes).

Add the principle of "tacit" metadata i.e. the idea that metadata need not be stored explicitly so long as it can be created from other data when needed, e.g. for transfer.

Add discussion of the "fixity" of metadata, i.e. the idea that some metadata values may be changed by users or by the system while it is held, while other metadata must not be changed.

Add mention of the potential benefits of compliance with ISAAR(CPF), and the associated EAC DTD, for metadata describing persons and organisations. The benefits will accrue especially to ERMS users that expect to transfer records to permanent or long-term archives (so long as the archives comply with ISAAR). In theory, there will also be benefits to using ISAAR(CPF) for persons and business units within organisation, to track changes. However, MoReq2 should recognise explicitly that requiring ISAAR compliance is beyond its scope, and also that the practical costs of such compliance will deter some organisations.

Criteria and Rationale for Requirements on Metadata Principles	
Criteria	The ERMS must support metadata at all the different levels of aggregation: class, file, volume and record. It must be possible to automate the capture and use of the vast majority of records management metadata but also to provide the ability for users to add and amend specified metadata elements.
Rationale	The metadata is needed for discovery and retrieval, protecting integrity, reliability and authenticity of digital objects and preservation and thus needs to be supported in comprehensive and flexible ways.

12.2 Organisation of the Remainder of this Chapter

Retain or rationalise the organisation which lists metadata for each object type (class, class and file, file, volume etc). For each element, provide at a minimum:

- A unique name;
- Description;
- Rationale;
- Cardinality;
- Obligation
- Default value (if appropriate);
- Way in which the value is captured;
- Rules governing changes to the value.

Criteria and Rationale for Organisation of Metadata	
Criteria	The organisation of the metadata sections must be radically reorganised to provide a full scheme for metadata. The metadata elements must be comprehensive and each listed with details of about a page of specific definitions and descriptions. For example, obligation for each metadata element must show when values are to be present: mandatory; mandatory if applicable, recommended, optional.
Rationale	-

12.3 Classification Scheme Metadata Elements

12.4 Class and File Metadata Elements

12.5 Metadata Elements for File or File Volume or Sub File

12.6 Metadata Elements for Volume or Sub File

12.7 Record Metadata Elements

12.8 Record Extract Metadata Elements

12.9 User Metadata Elements

12.10 Role Metadata Elements

12.x Preservation Metadata Elements

Include metadata elements needed for digital preservation purposes. Ensure the model is compatible with ISO 14721 (OAIS) and ISO 23081 (Metadata principles).

12.11 Customisation Notes for Metadata Requirements

Revise for consistency with earlier sections.

Add forward reference to new appendix which relates metadata and requirements.

13 REFERENCE MODEL

13.1 Glossary

Add definitions for any new concepts (e.g. Record type and component).

Review all definitions for correctness and appropriateness. In particular, consider adding more rationale to clarify any contentious or possibly ambiguous definitions, such as (in particular) "record", "records management ", "medium term" and "long term".

Also, review against definitions in 13.3 to ensure consistency and remove duplication.

Note: Follow ISO 15489 definitions and concepts. In particular: ISO 15489 defines a "record" [section 3.15] as:

"information created, received and maintained as evidence and information by an organisation or person, in pursuance of a legal obligation or in the transaction of business".

It goes on to discuss the characteristics of a record in section 7 of ISO 15489.

13.2 Entity-Relationship Model

Review with a view to:
- Improving the modelling of physical files;
- Clarifying the applicability of retention schedules;
- Seeing whether a better layout is possible, to avoid the present possible (albeit incorrect) interpretation that "level" are related to electronic records while "classes" are related to physical records (possibly by removing "level" entirely);
- Adding entities which make up documents and records (sometimes called "components";
- Incorporating other changes in the specification since the original MoReq.

Consider whether the entities recognised by ISO 14721 (OAIS) should be included.

13.3 Entity-Relationship Diagram Narrative

13.4 Access Control Model

Consider how best to represent the access control requirements and provide a more granular approach which identifies more roles.

Consider also more complex and powerful access control functionality as desirable requirements. This would allow an access model which allows any arbitrary selection of requirements to be allocated to any of several arbitrarily defined roles.

Criteria and Rationale for Requirements on the Access Control Model	
Criteria	Comprehensive combinations of roles and rights to functions and access to areas of the classification scheme must be possible with also the ability to allocate users and user groups to roles.
Rationale	See section 4.1

APPENDICES

APPENDIX 1 - REFERENCE PUBLICATIONS

Update to reflect changes in status and versions of referenced works, and any additions.

APPENDIX 2 - DEVELOPMENT OF THIS SPECIFICATION

Describe briefly the development process.

APPENDIX 3 - USE OF THIS SPECIFICATION IN ELECTRONIC FORM

Consider the publication formats for MoReq2 ~ such as in the current Microsoft Word version, PDF, Open Office XML.

APPENDIX 4 – ACKNOWLEDGEMENTS

1   Project Team.

2   Validation Organisations

3   Trademarks

APPENDIX 5 - CORRESPONDENCE TO OTHER MODELS

1   Correspondence to Dublin Core Metadata Model

2   Correspondence to Pittsburgh metadata model

APPENDIX 6 - DATE PROCESSING

Retain this section to ensure that metadata for records of any age is handled correctly – unless a convincing argument to do otherwise is identified.

APPENDIX 7 – STANDARDS AND OTHER GUIDELINES

x   Graphical Model of Relationship with other Guidance

Include in this new section a graphical model which shows ERM-related standards and guidance, such as MoReq, OAIS (ISO 14721), ISO 15489, ISAAR, ISAD(G) etc., showing how they are related and what aspect(s) of electronic records management they address.

Consider the extent, if any, to which national standards (e.g. Germany's DOMEA, Norway's NOARK4, UK's e-GIF) should be included in the above.

1   Standards

Update to reflect changes in status of referenced works, and any additions.

2   Other Guidelines

Update to reflect changes in status of referenced works, and any additions.

3   Accessibility Guidelines

Update to reflect changes in status of referenced works, and any additions.

4   Preservation Guidelines

Update including in relation to ISO 15489.

APPENDIX X – CHANGES FROM THE ORIGINAL MOREQ

1   Changes which are not Backwards-Compatible

List here all requirements which are not compatible with requirements in the original MoReq (note it is desirable that as few requirements as possible should be incompatible).

2   Relationship between Sections

3   Requirements Reconciliation

A tabulation showing the relationship of each MoReq2 requirement to any corresponding requirement(s) in the original MoReq, e.g.:

- Identical to requirement in the original MoReq;
- Identical to requirement in the original MoReq but with minor change(s) of wording;
- Corresponds to requirement in the original MoReq, but with significant changes.
- New requirement.

APPENDIX X – METADATA/REQUIREMENTS RECONCILIATION

1 Metadata needed by requirement

A tabulation showing the metadata elements needed by each requirement. This is included so that users who customise the requirements can see what metadata elements might be affected.

2 Requirements using each metadata element

A tabulation showing the requirements which use (refer to or update) each metadata element. This is included so that users who customise the requirements can see what metadata elements might be affected, and so that users can evaluate the effect of an incomplete metadata model.