

FUNCTIONAL REQUIREMENTS OF AN ELECTRONIC RECORDKEEPING SYSTEM



Government Records Service

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Version 1.3

Government Records Service

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FOREWORD

Government records are valuable assets to support effective decision making, meet operational requirements and protect the legal, financial and other interests of the Government and the public. Records management is an important function of government bureaux and departments (B/Ds). Good records management not only helps protect records but also enhances operational efficiency of B/Ds.

With the increasing use of electronic means to conduct government business, more and more government records have been created and received in electronic form. Existing paper-based recordkeeping systems are inadequate to address the challenges for managing records in electronic form. Electronic records management (ERM), applying records management principles to manage both electronic and non-electronic records through the use of electronic systems, notably an electronic recordkeeping system (ERKS) has been widely adopted in the public sector of a number of countries and regions such as Australia, Canada, New Zealand, the United States of America and some member states of the European Union.

Under the steer of the former ERM Working Group and now the Electronic Information Management (EIM) Steering Group, the Government Records Service (GRS) has been working in conjunction with the Office of the Government Chief Information Officer and the Efficiency Unit to formulate policy, strategies, and standards for the effective management of electronic records. The ultimate objective is to develop new records management practices and tools to assist B/Ds in managing both electronic and non-electronic records in an integrated, efficient and consistent manner.

With endorsement of the EIM Steering Group, an integrated and synergic approach has been adopted since February 2009 to take forward EIM and ERM in the Government. In the context of developing government EIM Strategy, this means that EIM should support efficient and effective records management which is an important common function of B/Ds, and the Government should take forward ERM as an integral part of EIM and B/Ds should adopt an ERKS to drive ERM in the Government. To support government-wide implementation of ERKS, GRS developed a set of ERKS functional requirements, namely ***Functional Requirements of an Electronic Recordkeeping System***. This was first promulgated in May 2011 for reference and compliance by B/Ds in developing or adopting an ERKS, either as a stand-alone system or as a part of an integrated EIM solution, under the government EIM Strategy.

The ERKS functional requirements will be updated as necessary to incorporate new requirements. The current version (version 1.3) has reflected the updated requirements of the **Recordkeeping Metadata Standard for the Government of the Hong Kong Special Administrative Region** (RKMS) (version 1.1) (accessible at <http://grs.host.ccg.hksarg/erm/s04/457.html>) and the requirements for management of records up to the security classification of “CONFIDENTIAL” level.



ACKNOWLEDGEMENTS

In drawing up the functional requirements of an ERKS, GRS has made extensive reference to international records management standards and best practices and taken into account experience gained through the implementation of a pilot project on an ERKS. In particular, the following publications have provided valuable reference in the development of the **Functional Requirements of an Electronic Recordkeeping System** by GRS –

- (a) Department of Defense, Government of the United States of America, *Design Criteria Standards for Electronic Records Management Software Applications*, April 2007;
- (b) European Commission, *Model Requirements for the Management of Electronic Records*, February 2008;
- (c) International Council on Archives, *Principles and Functional Requirements for Records in Electronic Office Environments*, July 2008;
- (d) ISO 15489-1:2001 *Information and documentation – Records management – Part 1: General*; and
- (e) ISO/TR 15489-2:2001 *Information and documentation – Records management – Part 2: Guidelines*.

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Chapter 1

INTRODUCTION



1.1 Purpose

This document sets out the functional requirements of an electronic recordkeeping system (ERKS) to assist government bureaux and departments (B/Ds) in designing, developing and implementing an ERKS either as a stand-alone system or as a part of an integrated electronic information management (EIM) solution to meet records management requirements in an unstructured computing environment.¹ The functional requirements represent the essential recordkeeping functionality of an ERKS. A glossary of key records management terms used in this document is at **Appendix 1** for reference.

1.2 Audience

This document is intended to be used by –

- (a) Departmental Records Managers who are responsible for, among others, overseeing the records management programme of B/Ds;
- (b) officers who are responsible for planning, developing and implementing an ERKS in B/Ds;
- (c) officers working in the Information Technology Management Units of B/Ds who are responsible for, among others, designing, developing and maintaining information technology (IT) infrastructure, information security, system integration, scalability of IT systems, etc.;
- (d) officers who are responsible for testing an ERKS for conformance to the functional requirements of an ERKS developed by the Government Records Service (GRS); and
- (e) software developers who develop and design an ERKS compliant with the functional requirements of an ERKS developed by GRS for the use of a B/D.

1.3 Electronic Recordkeeping System

An ERKS is an information/computer system with the necessary records management capabilities designed to electronically collect, organise, classify and control the creation, storage, retrieval, distribution, maintenance and use, disposal and preservation of records.² It aims to maintain the content, context and structure of records so as to

¹ The “unstructured” computing environment refers to situations where (i) business processes and workflow are not well-defined; (ii) the user has relative autonomy over what information is created, sent, and stored (e.g. e-mail and attachments); and (iii) accountability for recordkeeping has not been well defined.

² “Records” include electronic records and non-electronic records in this document unless specified otherwise.

protect the authenticity, integrity, reliability and usability of records over time to serve as reliable evidence of decisions and activities.

An ERKS may take the form of a stand-alone system or as a part of a packaged solution such as an ERKS module of the departmental EIM system of a B/D.

1.4 Need for Functional Requirements of an ERKS

As with the development of other IT systems and in line with the international best practices and experience of other countries/regions in taking forward electronic records management (ERM), including Australia, the United States of America and the European Union, it is incumbent upon the Government to develop a set of functional requirements which not only describes the characteristics of good ERKSs, but also helps B/Ds design, develop and implement an ERKS compliant with government records management policy and requirements. Accordingly, the rationale for developing a set of functional requirements of an ERKS in the Government is to –

- (a) set out the functionality that enables an ERKS to carry out and support records management functions and activities of B/Ds;
- (b) ensure the authenticity³, integrity, reliability and usability of records kept in an ERKS to support business, accountability, evidence and legal requirements;
- (c) ensure that records with archival value be properly managed by B/Ds before they are transferred to GRS for retention; and
- (d) guide ERKS software development.

“Functional requirements” refer to specific operations that an information/computer system needs to perform in order to achieve the desired objectives. In order that they serve the intended purposes, the functional requirements of an ERKS should be reasonably specific and contain sufficient details. For example, a blanket statement stating that “the ERKS must audit the use of records” cannot provide a software developer with sufficient information to provide the technical instructions necessary to allow the system to support the audit process. Instead, the functional requirements

³ The authenticity of a record can only exist if sufficient elements of the other three characteristics (i.e. integrity, reliability and usability) are present as authenticity in an electronic environment can only be established when the other characteristics are also present. A presumption of authenticity is an inference that is drawn from known facts about the manner in which a record has been created, handled, and maintained. A presumption of authenticity will be based upon the number of requirements that have been met and the degree to which each has been met. The requirements are, therefore, cumulative: the higher the number of satisfied requirements and the greater the degree to which an individual requirement has been satisfied, the stronger the presumption of authenticity. [The National Archives of the United Kingdom, *Generic Requirements for Sustaining Electronic Information over Time - (1) Defining the characteristics for authentic records*, 2003, page 7]

need to provide reasonable details on essential elements in the audit process. **In short, the functional requirements of an ERKS reflect the business needs in terms of records management and are de facto records management requirements.**

1.5 Technical and Non-functional Requirements

Technical and non-functional requirements of an ERKS relating to IT infrastructure, hardware, software, system performance, reliability, scalability, etc. fall outside the scope of the functional requirements. B/Ds may consult the Office of the Government Chief Information Officer (OGCIO) as appropriate in this regard.

1.6 Related Standards

To support further development and government-wide implementation of ERKS, GRS is in the process of developing a series of ERM and ERKS standards and guidelines. In this connection, the **Recordkeeping Metadata Standard for the Government of the Hong Kong Special Administrative Region** (RKMS) was first promulgated in May 2012 for reference and compliance by B/Ds. RKMS elaborates on what, when and how metadata should be created, captured, used, managed and maintained in an ERKS; specifies entities to which metadata are linked; and prescribes metadata to be exported or transferred for meeting various business and records management purposes.

B/Ds are required to adopt in full mandatory functional requirements of an ERKS and comply with other ERM and ERKS standards to ensure that an ERKS possesses the essential records management functionality to properly manage and store records throughout the life cycle of records. In case there are inconsistencies between this document and any ERM and ERKS standards, B/Ds should seek advice from GRS.

1.7 Updating of the Functional Requirements of an ERKS

The **Functional Requirements of an Electronic Recordkeeping System** is a living document. It will be updated and further improved as necessary in future having regard to the latest international records management standards and best practices, changes in government records management policy and requirements and technological advances.

Chapter 2

OVERVIEW OF THE FUNCTIONAL REQUIREMENTS



2.1 Common Recordkeeping Functions and ERKS Functional Requirements

The functional requirements of an ERKS, which are set out in **Chapter 3**, are grouped under the following nine broad categories of recordkeeping functions common to B/Ds –

| Category | Description of functions required |
|--|---|
| Mandatory Requirements | |
| Records classification and identification | Organising and classifying both electronic and non-electronic records in a structured and hierarchical records classification scheme(s) based on function and/or subject; and assigning a unique identifier to each aggregation of records and record |
| Capture | Capturing the content, context and structure of records in different formats and different media which were created, received or sent through a wide range of sources and managing them in the ERKS |
| Use of records | Supporting users to search, retrieve, print, download, charge-out/charge-in records, etc. in accordance with the security and access control of records |
| Security and access control | Protecting records from inadvertent or unauthorised alteration, deletion, access and retrieval; and monitoring the integrity of records through audit trails |
| Retention and disposal | Managing the retention periods and disposal actions of records in a managed, systematic and auditable way |
| Metadata | Capturing metadata and persistently linking metadata to the associated entity, e.g. a folder or a record |
| Language support | Supporting use of English and Chinese (including Traditional and Simplified Chinese) in the ERKS |
| Administration | Monitoring the ERKS repository(ies), producing records management reports and managing vital records |

| Category | Description of functions required |
|------------------------------|---|
| Optional Requirements | |
| Workflow | Supporting automation of business processes and records management activities; and facilitating distribution and routing of records |

The functional requirements specified in **Chapter 3** include **mandatory** and **optional** requirements. They are further explained in the ensuing paragraphs.

2.2 Mandatory Requirements

Mandatory requirements are compulsory requirements for an ERKS. In line with international best practices and experience of other countries/regions in taking forward ERM, an ERKS needs to have a set of complete, integrated and mandatory functionality. Specifically, ISO standards ISO 15489-1:2001 *Information and documentation – Records management – Part 1: General* and ISO/TR 15489-2:2001 *Information and documentation – Records management – Part 2: Guidelines* stipulate that a recordkeeping system should have the functionality that enables it to carry out and support the records management processes and controls⁴ described below –

- (a) records capture (to determine whether records should be made and kept and to establish a relationship between the record, creator and the business context that originated it);
- (b) registration (to provide evidence that records have been created or captured in a recordkeeping system);
- (c) classification (to link records with the business context under which they were created/received);
- (d) access and security classification (to assign rights or restrictions to access to records);

⁴ A full list of records management processes and controls is given in sections 9 and 4.3 of ISO 15489-1:2001 *Information and documentation – Records management – Part 1: General* and ISO/TR 15489-2:2001 *Information and documentation – Records management – Part 2: Guidelines* respectively. All the processes generate metadata that are linked to the record. The records management processes described in **Section 2.2** are necessarily described as if in a sequence, but it should be understood that they may take place simultaneously or in a different order from that described.

- (e) setting of retention and disposal arrangements (to assign the records retention and disposal schedules of records to ensure that records are kept for as long as they are required for B/Ds' business needs and are duly disposed of to meet legislative requirements (such as those of the Personal Data (Privacy) Ordinance) and to reduce storage and management costs);
- (f) storage (to determine the efficient and effective means of maintaining, handling and storing records);
- (g) use and tracking (to manage the use and track movement of records to prevent loss, detect unauthorised use and ensure ready use when required); and
- (h) implementation of disposal (to execute disposal of records, including destruction, transfer of custody or ownership of records).

Accordingly, mandatory functional requirements of an ERKS have to be adopted in full to ensure that an ERKS possesses the essential records management functionality to properly manage and store records throughout the life cycle of records. A total of **58** high-level, mandatory functional requirements of an ERKS are defined. To reflect the flexibility on the choice of individual design features, each mandatory functional requirement has been allocated an obligation level with explanation as follows –

- (a) **non-conditional mandatory functional requirements (“M”)** – these requirements must be complied with when a B/D develops and implements an ERKS. There are a total of **49** non-conditional mandatory functional requirements; and
- (b) **conditional mandatory functional requirements (“C”)** – these requirements must be complied with when an ERKS to be developed and implemented by a B/D is intended to support specific records management functions and activities of the B/D concerned. Conditional mandatory functional requirements are identified by the use of the prefatory phrase “**Where...**” in the description. There are a total of **nine** conditional mandatory functional requirements.

2.3 Optional Requirements

To facilitate integration of non-records management business processes with records management functions thereby enhancing operational efficiency and facilitating efficient routing and distribution of records, we have included in the functional requirements one optional module – **workflow** which may be adopted as appropriate at the discretion of individual B/Ds having regard to their business needs. There are **three** optional requirements under this optional module.

Chapter 3

FUNCTIONAL REQUIREMENTS





MANDATORY REQUIREMENTS

The mandatory functional requirements of an ERKS are presented under eight broad categories of recordkeeping functions common to B/Ds, namely **records classification and identification, capture, use of records, security and access control, retention and disposal, metadata, language support** and **administration**. Each mandatory requirement has been allocated an obligation level, i.e. non-conditional mandatory (“**M**”) and conditional mandatory (“**C**”). Please see **Section 2.2** about the definition of non-conditional mandatory and conditional mandatory functional requirements. The essential elements of certain requirements may be repeated in different categories for clarity when they serve more than one purpose.

3.1 Records Classification and Identification

A records classification scheme is a key component of an ERKS since it defines the way in which individual records are grouped together and linked to the business context in which they were created or received. The system must have the capability to organise records in a structured and hierarchical records classification scheme(s) to facilitate capture, search, retrieval, security and access control, and retention and disposal of records. The functional requirements which give the system the necessary capability in this area are set out below –

| No. | Requirement | Obligation Level |
|-----|---|------------------|
| 1 | <p>The ERKS must –</p> <ul style="list-style-type: none"> (a) support the classification and organisation of records⁵ within a structured records classification hierarchy based on function and/or subject; (b) support a pre-defined records classification scheme in a hierarchical structure with at least five levels (down to folder level) below the root⁶ of the records classification scheme; and (c) support browsing and graphical navigation of the records classification scheme structure and records aggregations, and the selection, retrieval and display of aggregations and their contents through this mechanism. <p><i>[Note: Please read Requirement 2 in conjunction with this requirement. An illustration showing the hierarchical structure and the relationships of aggregations within a fictitious records classification scheme is at Appendix 2.]</i></p> | M |

⁵ Please see footnote 2.

⁶ The root level here represents the starting point where the records classification scheme is constructed.

| No. | Requirement | Obligation Level |
|-----|---|------------------|
| 2 | <p>Where B/Ds choose to adopt more than one records classification scheme in the ERKS⁷ to manage records, including administrative and programme records, the ERKS must support the definition and simultaneous use of multiple records classification schemes in the ERKS.</p> <p><i>[Note: Please read this requirement in conjunction with Requirement 1.]</i></p> | C |
| 3 | <p>The ERKS must –</p> <p>(a) support the initial and on-going construction, and modification of a records classification scheme, including re-classification of aggregations⁸, merging of records classification schemes⁹ and modification¹⁰ to classification codes and titles, etc.; and</p> <p>(b) notify an authorised individual if an action¹¹ under (a) will affect other levels in the hierarchy or other related records where appropriate.</p> | M |
| 4 | <p>The ERKS must –</p> <p>(a) automatically assign a unique system identifier to each aggregation and record and ensure that the identifier is persistently linked to the aggregation and the record; and</p> <p>(b) allow an authorised individual to assign a classification code and allocate a textual title for each aggregation.</p> | M |

7 If a B/D chooses to adopt a single departmental records classification scheme to manage records, including both administrative and programme records, it may consider selecting an ERKS to support only one records classification scheme. However, the B/D should note that it may be difficult to enhance such an ERKS to support multiple records classification schemes subsequently, e.g. division of the single departmental records classification scheme into two or more. The implications of adopting an ERKS that supports only one single records classification scheme should be critically assessed prior to taking such course of action and the Departmental Records Manager of the B/D should be consulted in this regard.

8 Re-classification of aggregations may involve movement of aggregations from one position in a records classification scheme to another position of the same records classification scheme or from one records classification scheme to another records classification scheme established in the ERKS where multiple records classification schemes are adopted. The ERKS must ensure that all electronic records already allocated remain allocated to the aggregations (including parts) being relocated.

| No. | Requirement | Obligation Level |
|-----|---|------------------|
| 5 | <p>The ERKS must support an authorised individual to define and create aggregations of different levels¹² and folders of different types, including but not limited to the following –</p> <ul style="list-style-type: none"> (a) electronic folder for electronic records only; (b) hybrid folder for both electronic and non-electronic records; and (c) physical folder for non-electronic records only <p>in the records classification scheme without a practical limit, and manage both electronic and non-electronic records in (b) above in an integrated manner.</p> | M |
| 6 | <p>The ERKS must support an authorised individual to perform on-going records management functions, including but not limited to the following –</p> <ul style="list-style-type: none"> (a) opening and closing aggregations including folders and parts; (b) monitoring and tracking the movement and locations of aggregations and records; (c) re-classifying aggregations and records in bulk or singly and modifying their classification codes and titles; and (d) adding, updating, modifying and deleting metadata of aggregations and records except for metadata specifically identified as not editable. | M |

9 The term “merge” used in this document is to be understood as when two records classification schemes are combined into one single records classification scheme.

10 The ERKS must support making changes (including add, modify and delete) to the classification codes and titles of aggregations.

11 For example, a change to the classification code of a sub-class will affect the classification code of all its child sub-classes.

12 Aggregations are created from the class (i.e. the highest level), sub-class, folder to the part (i.e. the lowest level). RKMS introduces one more type of aggregation, namely a sub-folder which is used primarily to classify records of a case nature into more refined groups of records based on the intellectual contents of the records for easy retrieval (see Chapter 3 of RKMS for details). The use of sub-folders is **optional**. **Where** B/Ds choose to implement sub-folders in an ERKS, all functionality applicable to a folder set out in this document applies to a sub-folder as well.

| No. | Requirement | Obligation Level |
|-----|---|------------------|
| 7 | <p>Where B/Ds choose to implement multiple repositories¹³ across multiple locations, the ERKS must –</p> <p>(a) support an authorised individual to efficiently manage multiple repositories with the required functionality including but not limited to the following –</p> <p>(i) supporting multiple records classification schemes where B/Ds adopt more than one records classification scheme across the repositories; or supporting a distributed records classification scheme across a network of repositories where B/Ds adopt a single records classification scheme¹⁴;</p> <p>(ii) adding a new repository and removing a repository;</p> <p>(iii) preventing or resolving any conflicts caused by changes made in different locations (such as different changes made to the metadata of the same class in different locations);</p> <p>(iv) supporting monitoring¹⁵ of the entire distributed ERKS both as a single entity and individual repositories;</p> <p>(v) supporting propagating any administrative changes across all repositories within reasonable response times¹⁶; and</p> <p>(vi) where the ERKS synchronises repositories, they must be synchronised of, including but not limited to, any change involving aggregations, records and their associated metadata; and</p> | C |

13 There are different architectural approaches to implement multiple repositories. For example, one instance of an ERKS controls multiple repositories or several instances of an ERKS, each has its own repository(ies), communicating with each other.

14 Please see footnote 7.

15 The monitoring may be conducted through a reporting tool.

16 The response times are system dependent.

| No. | Requirement | Obligation Level |
|-----|---|------------------|
| | (b) allow transfer of the records classification scheme and all associated data from a local repository to a central repository. ¹⁷ | |
| 8 | <p>The ERKS must -</p> <p>(a) support the creation of cross-reference¹⁸ among folders, among records; and among records and folders/parts; and</p> <p>(b) allow removal of the cross-references by an authorised individual.</p> | M |
| 9 | <p>The ERKS must -</p> <p>(a) support inheritance, system generation and automatic capturing of metadata for different levels of aggregations within a records classification scheme during their creation and at subsequent on-going records management activities¹⁹ involving them; and</p> <p>(b) support inheritance of metadata belonging to a higher level aggregation, e.g. a sub-class by all its lower level aggregations, e.g. folders and parts.</p> <p><i>[Note: The modes of creation, capturing and inheritance of a core set of aggregation level metadata as specified in RKMS are listed at Appendix 3.]</i></p> | M |

¹⁷ The number of repositories in an ERKS depends on the implementation approach of B/Ds.

¹⁸ The “cross-reference” must at least be a hyperlink between related folders, between records, and between records and folders/parts.

¹⁹ On-going records management activities include changes made to records retention and disposal schedules, security classification of aggregations, etc.

3.2 Capture

The system must have the capability to capture the content, context and structure of records²⁰ in different formats (e.g. e-mails, word-processed documents, spreadsheets, images and audio clips) and different media (e.g. paper, CDs and DVDs) which were created, received or sent through a wide range of sources²¹ and manage them in the ERKS. Metadata must be captured at the point of records capturing to provide contextual information of the records.

The ERKS must protect the contents of records from alteration and deletion during and after records capturing with the exceptions of destruction in accordance with an approved records retention and disposal schedule and deletion by an authorised individual under very exceptional cases²² and in a tightly controlled manner. The functional requirements which give the system the necessary capability in this area are set out below –

| No. | Requirement | Obligation Level |
|-----|---|------------------|
| 10 | The ERKS must enable integration with business applications, e.g. an e-mail system to facilitate records capturing. | M |
| 11 | The ERKS must – (a) support a user to capture electronic records ²³ including electronic records with multiple components, compound records ²⁴ and non-electronic records ²⁵ into aggregations ²⁶ of the ERKS through user-activated specific action (User Decided Filing) ²⁷ ; and (b) support a user to designate a record for capturing by a designated individual. | M |

²⁰ For non-electronic records such as books, oversized maps and drawings, their contents may not be stored in the ERKS while their contextual information (i.e. metadata) is kept in the ERKS to facilitate management of the records.

²¹ The sources include e-mail systems, fax, workflow (where applicable), etc.

²² In situations where records are required to be deleted to meet legal requirements or to rectify manual errors, e.g. capture of personal e-mails into the ERKS.

²³ Electronic records include e-mail records, digitised records (e.g. scanned paper and scanned microfilm records) and other records in digital form such as word-processed documents, spreadsheets, video, audio, etc. unless specified otherwise in this document.

²⁴ All components of a record and a compound record must be managed as a single unit to ensure the integrity of the record. The relationship between the constituent components of each record and the constituent records of a compound record must be retained.

| No. | Requirement | Obligation Level |
|-----|--|------------------|
| 12 | Where multiple repositories are implemented, the ERKS must provide a user with the option to capture a record in a selected repository and populate the specific metadata profile that matches the selected repository. | C |
| 13 | Where an electronic document management system is implemented together with an ERKS, the ERKS must support a user to capture a document with multiple versions as record during the records capturing process. ²⁸ | C |
| 14 | Where a workflow facility is implemented together with an ERKS, the ERKS must support a user to capture the workflow process (including records such as comments, views and approvals generated in the workflow process) as a record. | C |
| 15 | Where B/Ds choose to convert paper records and/or microfilm records into digitised records and capture them as records into the ERKS, the ERKS must enable integration with scanning solutions to provide the interface with the scanning equipment and allow an authorised individual to perform scanning. The ERKS scanning facility must support certain essential features, including but not limited to the following - (a) monochrome and colour scanning; (b) simplex and duplex scanning; | C |

25 Paper records may be converted into digital images through scanning and then captured into the ERKS as digitised records. For other non-electronic records that are not suitable for conversion into a digital form, the ERKS must support users to record their metadata in the ERKS.

26 The ERKS must allow users to classify a record to multiple aggregations.

27 To support automatic capturing of records, B/Ds may consider, among other means, adopting forced filing under which the capturing process can be automatically initiated, e.g. upon receipt of or sending out an e-mail message.

28 B/Ds may prescribe to capture a document with multiple versions as a record(s) in the following ways: (i) all versions stored, held as a single record in the form of a compound record; (ii) all versions stored, held as separate but linked records; (iii) selected version or versions specified by the user, the latter either as a single record in the form of a compound record or as separate but linked records; and/or (iv) the most recent version. The principle is to ensure that records accurately and adequately document government policies, decisions, procedures, functions, activities and transactions but the creation/collection of records should not be excessive in order to contain the growth of records which require resources for storage and management.

| No. | Requirement | Obligation Level |
|-----|---|------------------|
| | <p>(c) capturing of scanned images as records immediately following the scanning process and quality inspection;</p> <p>(d) automatic capturing of metadata for the scanned image with an added facility allowing an authorised individual to select/input metadata that are unable to be automatically captured to complete the capturing process;</p> <p>(e) providing Optical Character Recognition (OCR) functionality to produce text from a scanned image to support full text searching for records based on the text. The OCR must at least support Traditional Chinese, Simplified Chinese and English simultaneously;</p> <p>(f) using lossless compression technique; and</p> <p>(g) saving images at different resolutions, in colour or greyscale and in a lossless compression format.</p> <p><i>[Note: The modes of creation, capturing and inheritance of a core set of record level metadata (including that for digitised records) as specified in RKMS are listed at Appendix 4.]</i></p> | |
| 16 | The ERKS must prevent the alteration and deletion of the contents of any electronic records during and after records capturing (subject to the exceptions listed in Requirement 23). | M |
| 17 | <p>The ERKS must –</p> <p>(a) populate the specific metadata profile according to the record form²⁹ of the record to be captured as an ERKS record and automatically capture, generate and inherit metadata, including but not limited to those listed at Appendix 4; and</p> <p>(b) automatically assign an identifier, unique within the entire ERKS, to each record at the point of capture.</p> | M |

29 Two record forms, namely “electronic” and “non-electronic” were defined to facilitate interoperability of records among B/Ds. Please see **Appendix 4**. B/Ds may create sub-forms of records under each record form to meet their specific business needs but should bear in mind the compatibility issues of different sub-forms of records and the associated metadata when there is an operational need to transfer records with their associated metadata to other B/Ds or GRS.

| No. | Requirement | Obligation Level |
|-----|--|------------------|
| 18 | <p>The ERKS must prompt the user to capture³⁰ metadata which cannot be captured automatically, system-generated or inherited from its parent aggregation at the time of capturing a record.</p> <p><i>[Note: The modes of creation, capturing and inheritance of a core set of record level metadata (for electronic records and non-electronic records) as specified in RKMS are listed at Appendix 4.]</i></p> | M |
| 19 | <p>The ERKS must support capture of e-mail messages and attachments (sent and received) and enable the attachments to always be relatable to the e-mail message to which they were attached in the form of a compound record.</p> | M |
| 20 | <p>The ERKS must allow, when capturing a record that has more than one manifestation, a user to choose to capture the record at least in one of the following ways –</p> <ul style="list-style-type: none"> (a) all manifestations as one record in the form of a compound record; (b) one specified manifestation as a record; and/or (c) each manifestation as an individual record. | M |

³⁰ The user may capture values of metadata elements by different means such as using “drag-and-drop” method to copy the values from the record and selecting proper metadata values from drop down menus.

| No. | Requirement | Obligation Level |
|-----|--|------------------|
| 21 | The ERKS must capture electronic records in their native file formats ³¹ and retain them in commonly-used file formats ³² as specified in the HKSARG Interoperability Framework [S18] (IF) and those specified by B/Ds. | M |
| 22 | The ERKS must – (a) support an authorised individual to import aggregations and electronic records with associated metadata into the ERKS in bulk and maintain the content, context and structure of the imported electronic records including the correct contextual relationships between individual electronic records and their metadata; and (b) support import of metadata in bulk for non-electronic records and maintain the relationship with the aggregations they are allocated to. | M |
| 23 | The ERKS must prevent deletion of records except – (a) destruction in accordance with an approved records retention and disposal schedule; and (b) deletion by an authorised individual under a very exceptional situation. Such deletion must be logged in the audit trails. | M |

31 As a good electronic records management practice, B/Ds must capture a record in its native file format to ensure that its content, context and structure remain intact to maintain the authenticity, integrity, reliability and usability of the record. However, there are cases under which B/Ds may need to render a record into another specified file format at the point of capture with a view to, among other reasons, fixing the record contents of dynamic nature, which challenges the on-going management of the authenticity, integrity, reliability and usability of the record. For instance, B/Ds may need to render records of HTML pages that include external links to graphics and other objects, or spreadsheets that include external links to a database into file formats such as PDF to preserve the static appearance and content of the records as at the point of capture, though it is likely to result in losing the links. B/Ds may document the rendering of the record in the metadata of the rendered record. Prior to implementing an ERKS, a B/D may conduct an exercise to review the file formats of its departmental records and assess the needs for rendering records into specified file formats at the point of capture and the implications, including whether the integrity of the records will be compromised and the degree of compromise if it is unavoidable.

32 To ensure that records stored in an ERKS can be viewed, used and transferred to other B/Ds as and when required, it is necessary to ensure that records stored therein are retained in commonly-used file formats as specified in the HKSARG Interoperability Framework [S18] (IF) and those specified by B/Ds. For records whose native file formats are not commonly-used file formats as specified in IF and those specified by B/Ds, B/Ds should consider using the functionality as set out in **Requirement 32** to render them into specified file formats.

3.3 Use of Records

The system must support users to use records by providing functions including search, retrieval, printing, downloading, etc. Use of records must be tightly integrated with the security and access control of records meaning that users must not be allowed to access aggregations and records to which they do not have the access rights. The functional requirements which give the system the necessary capability in this area are set out below –

| No. | Requirement | Obligation Level |
|-----|--|------------------|
| 24 | <p>The ERKS must provide a flexible and powerful range of search functions to support a user to search, retrieve and access –</p> <ul style="list-style-type: none"> (a) individual records; (b) aggregations; and/or (c) associated metadata <p>in an intuitive manner in the whole ERKS.</p> | M |
| 25 | <p>Where B/Ds implement a secondary storage³³ facility (e.g. near-line, off-line or off-site storage) for records in addition to the on-line storage of the ERKS, the ERKS must behave in an identical manner³⁴ (save that the mechanism and performance for presenting the aggregations and records may vary) when searching regardless of whether the aggregations and/or the records being searched for are stored on-line, near-line, off-line or off-site.</p> | C |

³³ Due to system capacity, B/Ds may select to store records that are no longer in constant use but may be required infrequently in secondary storage.

³⁴ For example, it is not expected that a user has to first ascertain, before conducting a search, as to whether an aggregation or a record to be searched for, is stored near-line, off-line or off-site.

| No. | Requirement | Obligation Level |
|-----|---|------------------|
| 26 | <p>The ERKS must –</p> <ul style="list-style-type: none"> (a) support efficient searches, including but not limited to, full text, wild card and Boolean searches on one or a combination of any of the metadata elements and on the contents (where they exist) of records in an integrated and consistent manner; (b) support efficient searches of records containing multiple languages including at least Traditional Chinese, Simplified Chinese and English; and (c) allow an authorised individual to configure and change the default search fields.³⁵ | M |
| 27 | <p>The ERKS must allow a user to specify whether a search is to find records or a specific level and/or type of aggregation and to limit the scope of any search to any repository (if more than one repository is implemented) at the time of search.</p> | M |
| 28 | <p>The ERKS must –</p> <ul style="list-style-type: none"> (a) launch the authoring applications (if the applications are available in the user’s workstation)³⁶ from within the retrieval function of the ERKS for the purpose of viewing or presenting³⁷ (“playing” on-screen) a record; (b) allow a user to select and retrieve one or more components from a record and one or more records from a compound record; and (c) ensure that the associated metadata of the record can be retrieved and displayed in an efficient manner. | M |

³⁵ For example, an authorised individual may specify any element of aggregation and record metadata, and optionally full record contents, as search fields.

³⁶ For the sake of user-friendliness, B/Ds may consider including a universal viewer in their ERKSs to facilitate viewing of records as some users may not have the authoring applications.

³⁷ “Presenting” here is applicable to audio and video records. They have to be presented through an appropriate output device.

| No. | Requirement | Obligation Level |
|-----|---|------------------|
| 29 | <p>Where an electronic document management system is implemented together with an ERKS, the ERKS must support a user to retrieve easily any version or multiple versions as specified by the user when multiple versions or all versions of the electronic record are stored.</p> <p><i>[Note: Please see also Requirement 13.]</i></p> | C |
| 30 | The ERKS must provide a user with flexible options for printing records (where text contents exist) and/or associated metadata and results list from all searches. | M |
| 31 | <p>The ERKS must allow a user to –</p> <p>(a) download electronic records; and</p> <p>(b) transmit links of ERKS-stored electronic records and metadata³⁸ to other users</p> <p>subject to any prevailing security restrictions set by an authorised individual.³⁹</p> | M |
| 32 | <p>The ERKS must support rendering of electronic records⁴⁰ into the following specified file formats⁴¹ for retrieval over time in addition to their native file formats and retrieval of the renditions –</p> <p>(a) text and spreadsheet records in Portable Document Format/Archive (PDF/A)⁴²; and</p> <p>(b) images in Tagged Image File Format (TIFF).</p> | M |

38 For a non-electronic record, a user may transmit a link of its associated metadata to other users.

39 B/Ds may impose restrictions to constrain users from downloading records stored in a specific aggregation, e.g. a folder containing sensitive personal data.

40 For audio and video records, B/Ds may use the Broadcast Wave Format (BWF) and Material eXchange Format (MXF) respectively.

41 The currently specified file formats are subject to changes from time to time having regard to the international records management standards and best practices and technological changes. They will be further reviewed in the context of studying strategies and solutions for long-term preservation of electronic records.

| No. | Requirement | Obligation Level |
|-----|---|------------------|
| 33 | <p>The ERKS must –</p> <p>(a) support a user to reserve, charge-out and charge-in physical and hybrid aggregations and non-electronic records (including those aggregations and records in off-site storage) managed by the ERKS (e.g. through automatic notification to registry staff) and provide appropriate information to the user such as the status of reservation of the physical and hybrid aggregations and non-electronic records; and</p> <p>(b) support a user to retrieve and access electronic and hybrid aggregations and electronic records that are stored off-line and managed by the ERKS (e.g. through automatic notification to registry staff) and provide appropriate information to the user such as time by which the user can expect to retrieve and access the electronic and hybrid aggregations and electronic records.⁴³</p> | M |

42 PDF/A provides a mechanism for representing electronic records in a manner that preserves their visual appearance over time, independent of the tools and systems used for creating, storing or rendering the files. There may be a loss of data, e.g. the formula of a spreadsheet will be lost after the spreadsheet is rendered into PDF/A format.

43 Upon receipt of a user's request for retrieving and accessing electronic aggregations and records that are stored off-line, an authorised individual may use different means to provide access to the requested electronic aggregations and records such as by uploading them into the ERKS or forwarding them to the user direct having regard to a number of considerations such as the quantity and size of requested aggregations and records. Therefore, there may not be a need for a user to charge-out and charge-in the electronic aggregations and records.

3.4 Security and Access Control

The ERKS must provide a self-contained security system designed to protect the integrity of aggregations and records within the ERKS environment and enable the system to work effectively together with general security products. The system must protect records captured into the ERKS against unauthorised access; intentional or accidental alteration and deletion of their content, context and structure throughout their life cycle.⁴⁴ Access to aggregations and records and system functions are granted to users, user groups and/or user roles based on the business needs.

The functional requirements listed below aim to manage security and access control of records up to the security classification of CONFIDENTIAL level.

In respect of records containing personal data, B/Ds may consider implementing additional security measures to strengthen the system security to protect against unauthorised or accidental access, processing, erasure or other use.⁴⁵

As with other information systems, an ERKS has to meet certain security regulations/requirements, and circulars and guidelines issued by the Government Chief Information Officer to process and store classified information, e.g. requirements on storage of classified information. The functional requirements set out below will give the system the necessary capability to comply with security and access control requirements in relation to records management –

| No. | Requirement | Obligation Level |
|-----|---|------------------|
| 34 | The ERKS must provide a self-contained security system designed to protect the integrity of aggregations and records within the ERKS environment and enable the system to work effectively together with the security products specified by B/Ds. | M |

⁴⁴ Security of records also includes the ability to protect them from system failure by means of back-up, and the ability to recover the records from back-ups. The technical requirements of system back-up and recovery are beyond the scope of this document.

⁴⁵ Data Protection Principle 4 – Security of Personal Data of the Personal Data (Privacy) Ordinance (Cap. 486).

| No. | Requirement | Obligation Level |
|-----|---|------------------|
| 35 | The ERKS must provide proper management of user ID and password information, and deny a user's access to aggregations and records that have a higher security classification than the user's security clearance. | M |
| 36 | <p>The ERKS must support an authorised individual to -</p> <ul style="list-style-type: none"> (a) create, add, manage and delete users, user groups and user roles⁴⁶; (b) allocate users to and remove them from user groups and user roles⁴⁷; (c) assign access to system functions to a user according to the user groups or user roles; (d) modify the access rights and attributes⁴⁸ of individual users, user groups and user roles; (e) create, assign and modify⁴⁹ security classifications of aggregations and records⁵⁰; (f) create, assign and modify the security clearance of users; (g) deny access by users to system functions, aggregations or records after a specified date⁵¹; and (h) review the security classifications of aggregations and records, the access rights of users, user groups and user roles, and the security clearance of users on a routine or an ad hoc basis.⁵² <p>The ERKS must support the authorised individual to perform the above functions in an efficient and easy manner.⁵³</p> | M |

46 User roles, for example, include Departmental Records Manager, Records Manager, Records Officer, Records User and System Administrator.

47 A user must be allowed to be a member of more than one user group and/or one user role.

48 For example, they include login name and user password.

49 The ERKS must support the modification of security classification of all records within a part in one single operation and provide suitable warning and await confirmation before completing the operation.

50 A user must be allowed to assign the security classification of a record during the records capturing process.

| No. | Requirement | Obligation Level |
|-----|--|------------------|
| 37 | The ERKS must control access (including access to different system functions) at the level of the user, user group or user role as well as at the record and aggregation levels. | M |
| 38 | <p>The ERKS must automatically capture and keep unalterable⁵⁴ audit trails about –</p> <ul style="list-style-type: none"> (a) type of actions, including but not limited to those listed at Appendix 5; (b) the records classification scheme, aggregations and records or other entities (e.g. a records retention and disposal schedule) on which the action is taken; (c) administrative parameters and system activities, e.g. reconfiguration of audit trails; (d) the user who initiated and/or carried out the action; and (e) date and time of the action <p>for as long as required.</p> | M |

51 Where B/Ds have a large number of users, they may consider implementing the functionality “to allow access by users to system functions, aggregations or records after a specified date” to enhance efficiency in managing user accounts.

52 Users may be involved in the review, e.g. to give advice on whether the existing security classification of a record should be downgraded having regard to the sensitivity of the record after a period of time. The ERKS must support an authorised individual to seek comments from users for completion of the review.

53 For example, the ERKS must support an authorised individual to move a user from a user group to another user group without having to delete the user from the ERKS and re-enter the user’s details.

54 The term “unalterable” in this document means that it must be impossible for any user, authorised individual or system administrator to change or delete any part of the audit trails. The audit trail data may, however, be exported for off-line storage if required, so long as its integrity remains intact.

| No. | Requirement | Obligation Level |
|-----|---|------------------|
| 39 | The ERKS must support an authorised individual to manage audit trails, including but not limited to the following - (a) searching and retrieving audit trail data; (b) generating ad hoc or pre-defined reports on specified audit trail data; (c) reconfiguring ⁵⁵ audit trails; and (d) exporting, transferring and purging audit trail data under a strict and controllable manner. | M |

⁵⁵ Reconfiguration here includes making changes to the settings of audit trails so that the functions for which information is automatically stored can be selected. The system must ensure that such changes are stored in the audit trails.

3.5 Retention and Disposal

The system must have the capability to retain and dispose of records in a managed, systematic and auditable way according to pre-defined records retention and disposal schedules. The functional requirements which give the system the necessary capability in this area are set out below –

| No. | Requirement | Obligation Level |
|-----|--|------------------|
| 40 | The ERKS must support an authorised individual to create, maintain, modify, delete ⁵⁶ and manage records retention and disposal schedules indicating the period of time records (regardless of their physical form) are to be retained ⁵⁷ in an active and inactive state. | M |
| 41 | The ERKS must support an authorised individual to create, maintain, modify, delete and manage a listing with instructions for the authorised disposal of records (regardless of their physical form) including but not limited to destruction, transfer to another B/D (such as the Government Records Service), transfer outside the Government or review by the B/D or the Government Records Service. | M |
| 42 | The ERKS must – (a) link the retention periods and disposal actions for records, through the records classification scheme, to any aggregation (i.e. inheritance principle); and (b) support the application of the same records retention and disposal schedules to both electronic and non-electronic records managed by a hybrid folder. | M |

⁵⁶ Changes to, or deletions of, records retention and disposal schedules must be controlled carefully to minimise the risk of records being destroyed inappropriately.

⁵⁷ The retention period must be defined from one day to 99 years in accordance with RKMS.

| No. | Requirement | Obligation Level |
|-----|--|------------------|
| 43 | The ERKS must allow an authorised individual to change the default records retention and disposal schedules for aggregations and records therein, at any level of the records classification scheme and at any time, in order to support retention and disposal exceptions. | M |
| 44 | The ERKS must support an authorised individual to set and lift disposal hold on aggregations and records therein. | M |
| 45 | The ERKS must support an authorised individual to identify folders and parts due for disposal according to their authorised records retention and disposal schedules. | M |
| 46 | <p>The ERKS must allow an authorised individual to authorise an automatic execution of destruction of electronic records⁵⁸ according to the approved records retention and disposal schedule, from all repository media⁵⁹ such that the records cannot be reconstructed.</p> <p><i>[Note: For non-electronic records, of which the contents are stored outside the ERKS, it is necessary for an authorised individual to arrange destruction of the non-electronic records.]</i></p> | M |

⁵⁸ The ERKS must ensure that all components of a record and all records of a compound record are disposed of in an integrated manner.

⁵⁹ Media include physical media such as DVDs.

| No. | Requirement | Obligation Level |
|-----|---|------------------|
| 47 | <p>The ERKS must -</p> <p>(a) support an authorised individual to export and transfer aggregations and records in specified format(s) with associated metadata and audit trails. Specifically, the system must ensure that -</p> <ul style="list-style-type: none"> (i) the content and structure of the electronic records are not degraded; (ii) all components of an electronic record (when the record consists of more than one component) and all records of a compound record are exported as an integral unit; (iii) all links between the record and its metadata and audit trails are retained; and (iv) all links⁶⁰ between electronic records and aggregations are maintained; and <p>(b) support an authorised individual to export and transfer metadata and audit trails of non-electronic records in specified format and ensure that all links between the metadata of non-electronic records and the aggregations are maintained.⁶¹</p> | M |
| 48 | <p>The ERKS must support an authorised individual to review the records retention and disposal schedules of aggregations on a regular or an ad hoc basis and revise/change the records retention and disposal schedules applied to the aggregations and records therein after the review, if necessary.</p> | M |

⁶⁰ There may be cases in which the links between an electronic record and its related aggregation(s) may not be retained. For example, the cross-references of an electronic record to its related folder(s) will be delinked if the related folder(s) are not exported or transferred in connection with the electronic record to be exported or transferred. B/Ds should consider the implications of such loss of contextual information to the authenticity, integrity, reliability and usability of the electronic record and take appropriate remedial actions, e.g. provision of the contextual information in a printed format.

⁶¹ Similar to an electronic record, there may be cases in which the links between a non-electronic record and its related aggregation(s) may not be retained. Please see the example quoted in footnote 60.

3.6 Metadata

In the records management context, metadata are data describing the content, context and structure of records and their management through time. They must be captured and persistently linked to the associated entity including an aggregation or a record, and be managed and maintained properly. It is always preferable to have metadata which are either system-generated, automatically captured or inherited so as to minimise users' capturing efforts and avoid manual errors. For the core sets of metadata elements for different entities of an ERKS, B/Ds should make reference to RKMS. The functional requirements which give the system the necessary capability in this area are set out below -

| No. | Requirement | Obligation Level |
|-----|---|------------------|
| 49 | <p>The ERKS must -</p> <p>(a) support an authorised individual to create, modify and delete metadata elements and/or values (of metadata elements) of aggregations, records and other entities; and</p> <p>(b) in the case of creation, allow the authorised individual to define, and subsequently modify the formats⁶², sources, entry modes⁶³ of the metadata elements, and determine whether entry of a value is mandatory or optional.</p> | M |
| 50 | <p>The ERKS must -</p> <p>(a) support an authorised individual to create and define different metadata profiles for different levels and types of aggregations, records and other entities⁶⁴; and</p> <p>(b) allow an authorised individual to restrict the viewing or modification of metadata values by user, user group, or user role.</p> | M |

⁶² The formats include alphabetic, alphanumeric, numeric, date and logical (i.e. Yes/No, True/False).

⁶³ Entry modes here refer to whether the metadata element values are to be entered and maintained by manual entry, from selection or automatic capture by the system.

⁶⁴ The ERKS must not present any practical limitation on the number of metadata elements allowed for an aggregation, a record and other entities.

| No. | Requirement | Obligation Level |
|-----|--|------------------|
| 51 | <p>The ERKS must -</p> <p>(a) ensure metadata to be persistently linked to the associated aggregations, records and other entities⁶⁵ as specified in RKMS and by the B/D concerned; and</p> <p>(b) support validation of metadata values⁶⁶ and prevent the alteration of metadata elements and values, unless authorised (Please see Requirements 49 and 50).</p> | M |
| 52 | <p>The ERKS must maintain and manage metadata associated with records and aggregations throughout the whole life cycle of records and support the retention of a range of metadata beyond the life of aggregations and records therein.</p> <p><i>[Note: A set of aggregation level metadata to be retained after destruction or transfer of the aggregations and records therein is specified in RKMS.]</i></p> | M |

⁶⁵ Examples of other entities specified in RKMS include a user and a records retention and disposal schedule.

⁶⁶ For example, the system provides validation of date format of the metadata values.

3.7 Language Support

The functional requirement which gives the system the necessary capability in this area is set out below –

| No. | Requirement | Obligation Level |
|-----|--|------------------|
| 53 | The ERKS must support the full Chinese language character set for all software applications, utilities, viewers, drivers, Application Programme Interfaces (APIs), etc. The relevant design should be based on the ISO 10646/Unicode (i.e. to permit the system to index and manage Traditional and Simplified Chinese as well as any other characters specific to the recording of information in Hong Kong both in the past and the present) and also support the Hong Kong Supplementary Character Set. | M |

3.8 Administration

Other than the capability to manage system parameters, back-up and restore data similar to other information systems, the system must have the capability to compile statistics and produce records management reports, manage vital records, and protect and store ERKS data properly. The functional requirements which give the system the necessary capability in this area are set out below -

| No. | Requirement | Obligation Level |
|-----|---|------------------|
| 54 | <p>The ERKS must -</p> <p>(a) provide flexible reporting facilities for an authorised individual to request for reports on statistics and management information based on selected criteria⁶⁷, on a regular or an ad hoc basis. Such reports and information must include but are not limited to the following -</p> <ul style="list-style-type: none"> (i) quantity, movement, location and transaction statistics⁶⁸ of aggregations and records; (ii) metadata and audit trails; (iii) records classification; (iv) records retention and disposal; (v) users' activities; (vi) security and access control; and (vii) system management⁶⁹, administrative parameters⁷⁰, etc. of the system; and | M |

⁶⁷ For example, an authorised individual may compile statistics on the quantity of records based on any selected security classification.

⁶⁸ For example, an authorised individual may compile statistics on the quantity of records captured into a folder within a period of time.

⁶⁹ For example, an authorised individual may generate a report detailing any failure during a transfer, export or destruction operation.

⁷⁰ For example, an authorised individual may generate a report about the changes to users' access rights.

| No. | Requirement | Obligation Level |
|-----|--|------------------|
| | (b) include features of sorting, totalling and summarising report information and support an authorised individual to print and export reports into pre-defined formats for use in other applications and restrict users' access to selected reports. | |
| 55 | The ERKS must support an authorised individual to - (a) print administrative information of the ERKS such as records retention and disposal schedules, lists of user groups, records classification scheme, metadata profiles, etc.; and (b) specify printing settings for records, metadata and other data within the ERKS that can meaningfully be printed. ⁷¹ | M |
| 56 | The ERKS must - (a) support an authorised individual to indicate ⁷² that selected aggregations and records contain, or are considered to be, vital records ⁷³ ; and (b) support replication of vital records onto other storage media for off-site storage separated from "full" back-ups ⁷⁴ of ERKS data and restoration of vital records ("vital" back-up) entirely independently of, and at a different time to, "full" restoration, to cope with emergency or a disaster. ⁷⁵ | M |

⁷¹ For example, an authorised individual may specify the format and sequence of the selected metadata for printing.

⁷² This indication should be included as a metadata element.

⁷³ The ERKS must allow an authorised individual to indicate that selected aggregations and records no longer contain, or are considered to be, vital records. This action must be logged in the audit trails.

⁷⁴ The ERKS must provide scheduled and automated regular back-up of all or specified ERKS data and support recovery if needed.

⁷⁵ After recovering from a "vital" back-up, the ERKS must be fully operational to facilitate access to vital records.

| No. | Requirement | Obligation Level |
|-----|--|------------------|
| 57 | The ERKS must store and protect records, aggregations, record indices, associated metadata and all other information required to manage them in the ERKS. | M |
| 58 | Where multiple repositories (in multiple physical locations) are implemented, the ERKS must store and protect records, aggregations, record indices, associated metadata and all other information required to manage them in the repositories of the ERKS. | C |



OPTIONAL REQUIREMENTS

The optional requirements of an ERKS may be adopted at the discretion of individual B/Ds having regard to their business needs. B/Ds should, prior to the implementation of an ERKS, assess whether they have the need to adopt these requirements so as to avoid incurring subsequent abortive efforts and costs.

3.9 Workflow

Workflow automates business processes to improve efficiency in performing business tasks. If a workflow facility is implemented together with an ERKS, it will provide a very useful tool to enable users to initiate workflows to pass documents, records or tasks to other user(s) for specific actions and to support specific business processes. Moreover, the workflow functions can facilitate the automation of records management activities such as seeking approval for disposal of folders that are due for destruction, and integration of records management processes with business processes, e.g. automatic capture of records.

The functional requirements which give the system the necessary capability in respect of the workflow functionality are set out below –

| No. | Requirement |
|-----|---|
| 59 | The ERKS should support a user to route aggregations and/or records in a controlled way to user(s), user group(s), user role(s), etc. for specific actions, e.g. seek approval. |
| 60 | The ERKS should support an authorised individual and a user to initiate and/or perform records management functions. ⁷⁶ |
| 61 | The ERKS should support an authorised individual to define, add, amend and maintain pre-programmed workflows involving the use of records. |

⁷⁶ For example, an authorised individual in the position of a Records Manager may initiate a workflow to route folders (in the form of a hyperlink) that are due for a review of their records retention and disposal schedules to users for the latter to review the cases from business perspective.

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APPENDICES





APPENDICES

Appendix 1 Glossary

Appendix 2 A Fictitious, Hierarchical Records Classification Scheme

Appendix 3 Creation, Capturing and Inheritance of Aggregation Level Metadata

Appendix 4 Creation, Capturing and Inheritance of Record Level Metadata

Appendix 5 Audited Activities in the ERKS

Appendix 1

Glossary

| Term | Definition |
|-------------------------------|--|
| Access | The right, opportunity, or means of finding, using or retrieving information. |
| Administrative records | Administrative records are records created or received during the course of day-to-day administrative activities that deal with finance, accommodation, procurement and supplies, establishment, human resources and other general administrative activities. Records of this nature are common to B/Ds. |
| Aggregation | <p>Any accumulation of records at a level above record. Aggregations are controlled within a records classification scheme. It means a class, sub-class, folder or part.</p> <p><i>Note: Chapter 3 of the Recordkeeping Metadata Standard for the Government of the Hong Kong Special Administrative Region introduces one more type of aggregation, namely a sub-folder, which is used primarily to classify records of a case nature into more refined groups of records based on the intellectual contents of the records for easy retrieval. The use of sub-folders is optional. Where B/Ds choose to implement sub-folders in an ERKS, all functionality applicable to a folder set out in this document applies to a sub-folder as well.</i></p> |
| Audit trails | Data that allows the reconstruction of a previous activity, or which enables attributes of a change (such as date/time, operator (i.e. responsible user)) to be stored so that a sequence of events can be reconstructed in their correct chronological sequence. |
| Authenticity | An authentic record is one that can be proven to (a) be what it purports to be; (b) have been created or sent by the agent purported to have created or sent it; and (c) have been created or sent when purported. |

| Term | Definition |
|------------------------------|--|
| Authorised individual | <p>A user who has permission to carry out the action be described. Such person can be an administrator or a user. There may be more than one authorised individual in a B/D.</p> <p><i>Note: The use of a singular noun “an authorised individual” does not imply that only one single person can implement the function. B/Ds may assign more than one person to exercise the relevant functions in the ERKS according to their business needs.</i></p> |
| Capture (verb) | <p>Capturing records is used to mean all of the processes involved in getting a record into an ERKS, namely registration, classification and addition of metadata.</p> |
| Charge-in | <p>A process to register the return of physical and hybrid aggregations and non-electronic records after use. This process signifies that the custody of the physical and hybrid aggregations and non-electronic records will revert back to the departmental records management personnel.</p> |
| Charge-out | <p>A process to register the borrowing of physical and hybrid aggregations and non-electronic records by a user. This process signifies that the custody of the physical and hybrid aggregations and non-electronic records will be temporarily transferred to the user requesting the aggregations and records.</p> |
| Class (noun) | <p>A class is a subdivision of the overall records classification scheme by which the electronic “file plan” is organised. A class may be subdivided into one or more sub-classes; and this relationship may be repeated down the hierarchy. A class does not itself contain folders and records.</p> |
| Classification | <p>See Records classification.</p> |

| Term | Definition |
|----------------------------|---|
| Classification code | <p>An identifier given to an aggregation in a records classification scheme. The classification code is usually relatively short and simple, e.g. 001-020-030 and NT030-022-001 and is intended for users' usage to distinguish aggregations. Except for a part (a subdivision of a folder), the classification codes must be unique within the records classification scheme.</p> <p><i>Note: Please refer to the Recordkeeping Metadata Standard for the Government of the Hong Kong Special Administrative Region for guidelines on assigning classification codes to aggregations.</i></p> |
| Close (verb) | <p>(a) To prevent a class, sub-class and folder from accepting the addition of aggregations.</p> <p>(b) To prevent a part from accepting the addition of records.</p> |
| Component | <p>Distinct bit stream that, alone or with other bit streams, makes up a record. Examples may include –</p> <p>(a) an HTML document and JPEG images that make up a web page; and</p> <p>(b) a word processing document and a spreadsheet, where the spreadsheet is a linked object of the word processing document.</p> |
| Compound record | <p>Set of two or more records that are related together by virtue of including enclosures or attachments, or by virtue of expressing the same or similar intellectual content in different languages and/or scripts and/or dialects or versions or file formats, e.g. an e-mail record with one or multiple attachments.</p> <p><i>Note: Please refer to Chapter 3 of the Recordkeeping Metadata Standard for the Government of the Hong Kong Special Administrative Region for details about compound records.</i></p> |
| Content | <p>Information or ideas the record contains.</p> |

| Term | Definition |
|-------------------------|--|
| Context | Information about the circumstances in which the record is created, transmitted, maintained and used (e.g. who created it, when, to whom was it sent, why). |
| Cross-reference | An entry directing attention to one or more related record(s) and/or aggregation(s). |
| Destruction | Process of eliminating records, beyond any possible reconstruction. |
| Digitised record | A record which is converted from a paper document, a microfilmed document or other records, e.g. a cassette tape into a digital form. |
| Disposal hold | A rule that prevents the execution of disposal actions of records including destruction or transfer of records. |
| Document (noun) | <p>Recorded information or object which can be treated as a unit.</p> <p>Notes:</p> <p>(a) <i>A document may be on paper, microform, magnetic or any other electronic medium. It may include any combination of text, data, graphics, sound, moving pictures or any other forms of information. A single document may consist of one or several components. Documents differ from records in several important respects. The term is used to mean information that has not been captured as a record.</i></p> <p>(b) <i>The expression “this document” used throughout Chapters 1 - 3 and the Appendices denotes the Functional Requirements of an Electronic Recordkeeping System.</i></p> |

| Term | Definition |
|---|--|
| E-mail record | <p>An e-mail message generated or received through an e-mail system and captured as a record into an ERKS.</p> <p><i>Note: All functionality applicable to an e-mail record set out in this document is also applicable to an e-Memo record as well.</i></p> |
| Electronic document | <p>A document which is in electronic form.</p> <p><i>Note: Use of the term “electronic document” is not limited to the text-based documents typically generated by word processors. It also includes e-mail messages, spreadsheets, graphics and images, HTML/XML documents, multimedia and compound documents, and other types of office documents.</i></p> |
| Electronic document management system (EDMS) | <p>Computer-based application dealing with the management of documents throughout the document life cycle.</p> |
| Electronic folder | <p>A folder in the ERKS for the storage of electronic records only.</p> |
| Electronic record | <p>A record generated in digital form by an information system, which can be (a) transmitted within an information system or from one information system to another, and (b) stored in an information system or other medium.</p> |
| Electronic recordkeeping system (ERKS) | <p>An information/computer system with the necessary records management capabilities designed to electronically collect, organise, classify and control the creation, storage, retrieval, distribution, maintenance and use, disposal and preservation of records.</p> |

| Term | Definition |
|----------------------------|--|
| Entity (in an ERKS) | <p>A complete, separate thing in the ERKS, e.g. a class, sub-class, folder, part, record and a records retention and disposal schedule.</p> <p><i>Note: The Recordkeeping Metadata Standard for the Government of the Hong Kong Special Administrative Region specifies a core set of entities for an ERKS. For details, please refer to Annex 2 of the standard.</i></p> |
| Export (noun) | <p>A disposal process, whereby copies of records (or groups of records) are passed with their metadata from one system to another system. Export does not involve removing records from the first system.</p> <p><i>Note: The records remain in the ERKS after export, unlike transfer. For non-electronic records of which the contents are stored outside the ERKS, the system can only export their metadata and audit trails to another system.</i></p> |
| Export (verb) | <p>To produce a copy of records (or copies of groups of records), along with their metadata, for another system.</p> <p><i>Note: The records remain in the ERKS after export, unlike transfer. For non-electronic records of which the contents are stored outside the ERKS, the system can only export their metadata and audit trails to another system.</i></p> |
| File format | <p>The internal structure and/or encoding of a record or component which allows it to be presented into human-accessible form.</p> <p><i>Note: Examples include –</i></p> <ul style="list-style-type: none"> (a) HTML v3.2 (a file format for web pages); (b) PDF/A v1 (an archival file format for portable documents); (c) TXT (ASCII plain text file format); (d) XML v1.0 (a file format for extensible markup language which itself relies on ASCII plain text); and (e) Many proprietary file formats produced by desktop applications such as office suites. |

| Term | Definition |
|---------------------------|--|
| Folder (i.e. file) | <p>An organised unit of records grouped together because they relate to the same subject, activity or transaction.</p> <p>Notes:</p> <p>(a) <i>This is the records management usage of the term “file”. It differs from the IT usage, for which the term “component” is used. Where this term is used in isolation in the context of this document, it refers to electronic folders, hybrid folders and physical folders unless specified otherwise.</i></p> <p>(b) <i>Records are not directly stored in a folder in an ERKS. They are stored in a part of a folder.</i></p> <p>(c) Where B/Ds choose to implement sub-folders in an ERKS, records should be stored in a part of a sub-folder.</p> |
| Group (noun) | See User group . |
| Hybrid folder | A folder in the ERKS for the storage of a combination of electronic and non-electronic records. |
| Import (noun) | The process of capturing a set of electronic records, usually from another application and usually with some or all of their metadata. |
| Inheritance | To take on a metadata attribute from a “parent” entity, either by inheritance on creation where the subordinate (or “child”) object takes the value of that attribute when it is created; or by retrospective inheritance where either the attribute of the “parent” object is changed or the “parent” object is altered (e.g. by moving a folder in the file plan so that it has a new “parent” object). |
| Integrity | A record that has integrity is one that is complete and unaltered. |

| Term | Definition |
|------------------------------|---|
| Life cycle | (of records) Life cycle of a record begins from record creation or receipt, through its useful life to final disposal (e.g. destruction or permanent retention as archival record). |
| Manifestation | A presentation of a record. A record may have more than one presentation but with the same intellectual content. For example, a report in PDF, MS Word and HTML formats. |
| Metadata | <p>Literally defined as “data about data”. In the records management context, they are data describing the context, content and structure of records and their management through time. Metadata will accrue during the life cycle of records.</p> <p>Metadata is used to mean two concepts -</p> <p>(a) A data structure, or “container” for information. Examples of this for records are “title” and “date created”. The common term for this is “metadata element”.</p> <p>(b) Specific values (i.e. metadata values) of information that apply to a record or other entity. Examples of this for records, to match the above examples, are “Arrangements for initiating the ABC project” and “2011-04-30”.</p> |
| Metadata element | A data structure, or “container” for information, e.g. “title” and “recipient name”. |
| Metadata profile | A set of metadata elements specified for aggregations, records and other entities such as a records retention and disposal schedule. |
| Native file format | The file format in which the record was created, or in which the originating application stores records. |
| Non-electronic record | A record that is in hardcopy form such as paper record, microfilm and audio recording. |

| Term | Definition |
|-------------------------------|--|
| Open (verb) | <p>(a) To allow a class, sub-class and folder to accept the addition of aggregations.</p> <p>(b) To allow a part to accept the addition of records.</p> |
| Part (i.e. volume) | <p>A subdivision of a folder. Records are stored in a part.</p> <p><i>Note: The subdivisions are created to improve manageability of the folder contents by creating units which are not too large to manage successfully. The subdivisions are mechanical (for instance, based on number of records or ranges of numbers or time spans) rather than intellectual.</i></p> |
| Physical folder | <p>A folder in the ERKS for storage of metadata of non-electronic records only.</p> |
| Programme records | <p>Programme records are records created or received by a B/D whilst carrying out the primary functions, activities or mission for which the B/D was established. Records of this nature are unique to each B/D.</p> |
| Record (noun) | <p>A record refers to a government record which is any recorded information in any physical format or media created or received by a B/D during its course of official business and kept as evidence of policies, decisions, procedures, functions, activities and transactions.</p> <p><i>Note: A key feature of a record is that its contents cannot be changed.</i></p> |
| Record form | <p>The form of a record, i.e. electronic or non-electronic.</p> |
| Records classification | <p>A systematic identification and arrangement of records into categories according to logically structured conventions, methods, and procedural rules represented in a classification system.</p> |

| Term | Definition |
|--|---|
| Records classification scheme | Also known as file plan. A records classification scheme is a plan or list in which records of an organisation are categorised according to its business functions and/or contents of the records and a coding system expressed in symbols (i.e. alphabetical, numerical, alphanumeric, or decimal, etc.) that correspond to aggregations of records and are affixed to the records so categorised. |
| Records retention and disposal schedule | A systematic listing or description of an organisation's records which indicates the arrangements to be made for their custody, retention, and final disposition. <i>Note: Records retention and disposal schedules of programme records of government agencies should be drawn up with the concurrence of the Government Records Service Director. For the records retention and disposal schedules of administrative records, please refer to the Government Records Service's Records Management Publication No. 4 - General Administrative Records Disposal Schedules.</i> |
| Reliability | A reliable record is one (a) whose contents can be trusted as a full and accurate representation of the transactions, activities or facts to which they attest; and (b) which can be depended upon in the course of subsequent transactions or activities. |
| Render | The process of producing a rendition. |
| Rendition | A manifestation of a record or component in or using one or more file format(s) different from the record's native file format(s). |
| Repository | (for electronic records) A direct access device on which the electronic records and associated metadata are stored. |

| Term | Definition |
|--------------------------------|---|
| Retention period | The time the records are to be kept after the records become inactive but before their final disposal. |
| Role | See User role . |
| Security classification | One or several terms, e.g. RESTRICTED, UNCLASSIFIED associated with a record or aggregation which defines rules governing access to it. |
| Security clearance | One or several terms, e.g. RESTRICTED associated with a user which defines the security categories to which the user is granted access. |
| Structure | Physical and/or logical format of the record, and the way parts of the record relate to each other (e.g. the structure of an e-mail record covers its header, body, attachments and corresponding reply). |
| Sub-class | A subdivision of a class. A sub-class may contain one or more lower level sub-classes (depending on the total number of levels permissible), or folders, but not both. |
| Sub-folder | <p>An optional sub-division of folders. It is used primarily to classify records of a case nature into more refined groups of records based on the intellectual contents of the records for easy retrieval. Sub-folders are made up of one or more parts.</p> <p><i>Note: Please refer to Chapter 3 of the Recordkeeping Metadata Standard for the Government of the Hong Kong Special Administrative Region for business rules to use a sub-folder. Where B/Ds choose to implement sub-folders in an ERKS, all functionality applicable to a folder set out in this document applies to a sub-folder as well.</i></p> |

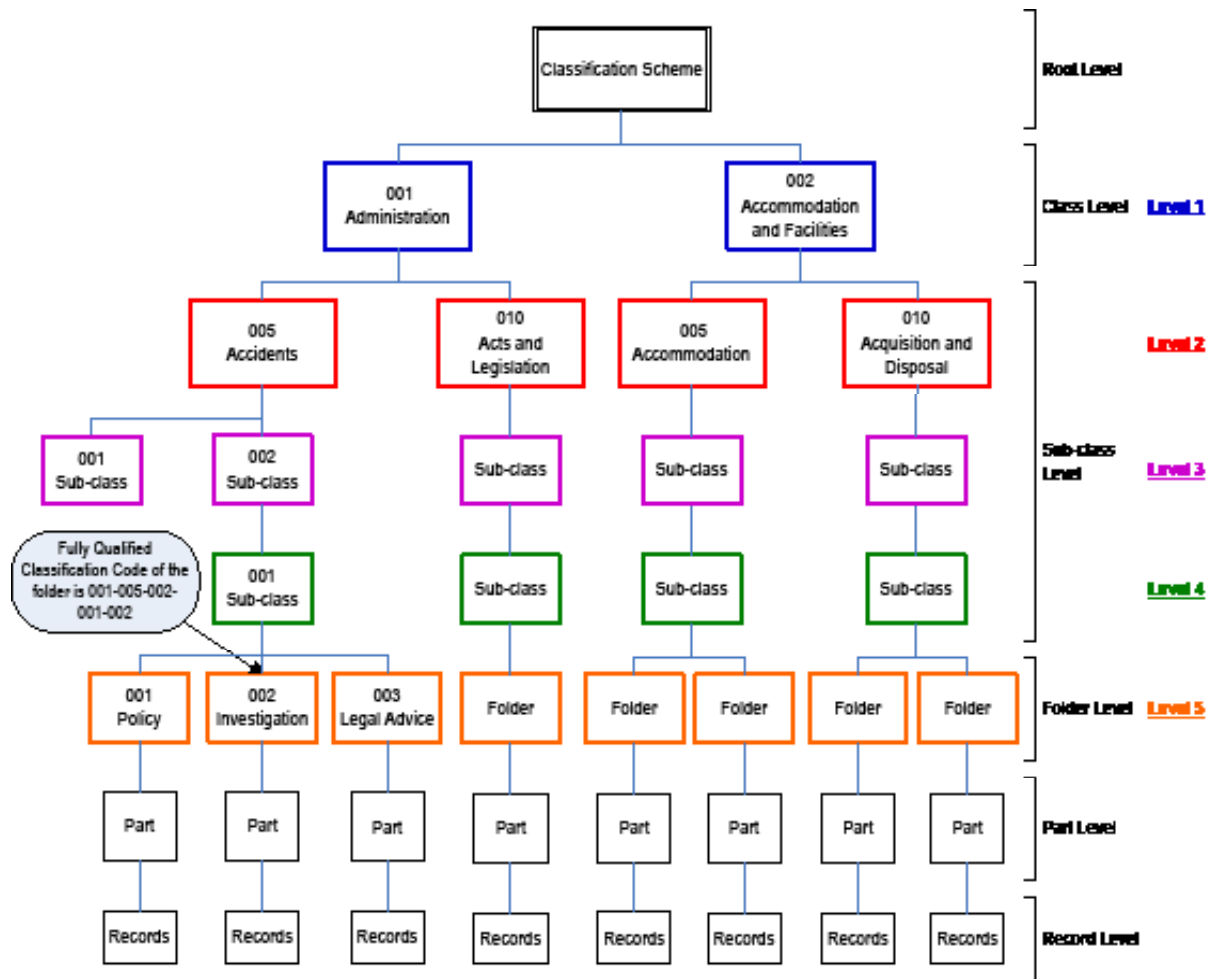
| Term | Definition |
|--|--|
| System identifier | <p>The system identifier is intended for system usage. It is usually long and not user-friendly, e.g. 0c7220e3-5646-44c4-82b0-67832c1efa1c. The system identifiers must be unique and unduplicated within the entire ERKS.</p> <p><i>Note: For export or transfer of records from one B/D to another B/D and from B/Ds to the Government Records Service, a uniform resource identifier (URI) in the form of a metadata element must be assigned to each entity, e.g. an aggregation or a record to be exported or transferred. For details, please refer to the Recordkeeping Metadata Standard for the Government of the Hong Kong Special Administrative Region.</i></p> |
| Track (verb) | Create, capture and maintain information about the movement and use of records. |
| Transfer (noun) | <p>A disposal process, consisting of a confirmed export of aggregations, records and associated metadata, followed by their destruction within the exporting ERKS.</p> <p><i>Note: Records may be transferred from one B/D to another B/D following administrative or organisational changes, from one B/D to the Government Records Service, from one B/D to a non-government body, etc. For non-electronic records of which their contents are stored outside the exporting ERKS, the ERKS can only transfer their metadata and audit trails to another system or another B/D.</i></p> |
| Transfer (verb) | To move aggregations and records, along with their metadata, to another system or another organisation(s). |
| Uniform resource identifier (URI) | An identifier which is unique across HKSARG and is assigned to an entity, e.g. an aggregation or a record of an ERKS to facilitate export or transfer of records among B/Ds and from B/Ds to the Government Records Service. |

| Term | Definition |
|---|--|
| Unstructured computing environment | The “unstructured” computing environment refers to situations where (i) business processes and workflow are not well-defined; (ii) the user has relative autonomy over what information is created, sent, and stored (e.g. e-mail and attachments); and (iii) accountability for recordkeeping has not been well defined. |
| Usability | A usable record is one that can be located, retrieved, presented and interpreted within a time period deemed reasonable by stakeholders. |
| User | An individual who uses an ERKS. |
| User group | <p>A set of users.</p> <p><i>Note: A user group may include users with the same, or different, user roles. A user group is sometimes used to define users’ affiliation to an organisational unit such as a department (in which case it typically will include several user roles); it is sometimes used to define membership of a virtual team that crosses organisational boundaries, such as all Procurement Officers (in which case it may consist of only users with a specified user role); or it may be used in other ways.</i></p> |
| User profile | The profile of a user. |
| User role | A set of functional permissions allocated to users allowed to perform actions that manage records. A user may have several user roles but has only one user profile. |
| Version | (of a document) The state of a document at some point during its development. |

| Term | Definition |
|---------------------|---|
| Vital record | A record containing information essential to the continued and effective operation of a B/D during and after an emergency or a disaster. |
| Workflow | The automation of a business process, in whole or part, during which documents, information or tasks are passed from one participant to another for action, according to a set of procedural rules. |

Appendix 2

A Fictitious, Hierarchical Records Classification Scheme



Note: In this example, there are five levels below the root level, and down to folder level.

Appendix 3

Creation, Capturing and Inheritance of Aggregation Level Metadata**Legends**

I. Obligation level of metadata –

- Mandatory:** A metadata element must have a value
- Conditional mandatory:** A metadata element must be given a value if the condition stated in the element property “use conditions” for the metadata element as set out at Annex 3 of the **Recordkeeping Metadata Standard for the Government of the Hong Kong Special Administrative Region** (RKMS) is met
- Recommended:** A metadata element is useful and should be given a value as far as practicable when the information is available
- Optional:** A metadata element may be given a value if the information is available and if the B/D considers it useful

II. Modes of creation, capturing and inheritance of metadata –

- A:** automatically captured (the value is taken automatically from an existing piece of information)
- I:** inherited (the value is inherited from a parent aggregation)
- M:** manually entered or selected
- S:** system-generated (the value is generated internally by the ERKS such as a “system identifier”)
- NA:** not applicable to the aggregation

Notes:

- (1) **An ERKS must have the capability to support inheritance, system generation and automatic capturing of values for metadata elements as well as supporting manual means to enter or select values for metadata elements. As a matter of principle, it is always preferred to have metadata values either be system-generated, automatically captured or inherited to minimise users’ capturing efforts and avoid manual errors.**
- (2) *The following table illustrates the modes of creation, capturing and inheritance of values for metadata elements of aggregations set out in RKMS for easy reference. Condition(s) under which a specific mode of creation, capturing and inheritance of value(s) for each metadata element should be adopted have been specified at Annex 3 of RKMS.*
- (3) *In RKMS, a total of **28** metadata elements of different obligation levels are defined for aggregations, e.g. a sub-class or a folder. Each type of aggregation has different number of metadata elements. The following table shows the full set of metadata elements for each type of aggregation respectively.*

(4) Please note the following explanations for the table shown below -

- i. The column “Metadata element” shows the simple name (element name) of a metadata element in RKMS.
- ii. The column “Definition” sets out the definition of each metadata element which may be applied to multiple entities of an ERKS defined in RKMS (equivalent to the element property “definition” as shown at Annex 3 of RKMS).
- iii. The column “Obligation level” sets out the levels of obligation for a metadata element in an ERKS, which is equivalent to the element property “Application Profile 1” at Annex 3 of RKMS. Application profiles (APs) are different subsets of metadata elements defined for specific business and/or records management purposes, e.g. transfer of metadata together with associated records with archival value to GRS for permanent retention. Four APs have been specified in RKMS and the obligation level of a metadata element may be different under respective APs. Please refer to Chapter 3 of RKMS for details of APs and its Annex 3 for the obligation level of each metadata element under respective APs.
- iv. Information provided in the column “Mode of creation, capturing and inheritance of metadata for aggregations” is extracted from the element properties of “capturing mode” and “inheritance” for metadata elements applicable to aggregations set out in RKMS.
- v. Except for a sub-folder which is **optional** for use, other aggregations listed in the following table are **mandatory** for use in an ERKS.

| Metadata element | Definition | Obligation level in an ERKS | Mode of creation, capturing and inheritance of metadata for aggregations | | | | |
|---------------------|---|-----------------------------|--|-----------|--------|------------|---------|
| | | | Class | Sub-class | Folder | Sub-folder | Part |
| Case identifier | The identifier of a case | Optional | NA | NA | A/M/S | A/I/M/S | A/I/M/S |
| Classification code | The classification code applied to an aggregation or a stub [Note: Please refer to Chapter 3 of RKMS for definition of the entity “stub”.] | Mandatory | A/M | A/M | A/M | A/M | A/M |
| Classification path | The full path of an aggregation or stub within the records classification scheme | Optional | A | A | A | A | A |

| Metadata element | Definition | Obligation level in an ERKS | Mode of creation, capturing and inheritance of metadata for aggregations | | | | |
|------------------------|--|-----------------------------|--|-----------|--------|------------|------|
| | | | Class | Sub-class | Folder | Sub-folder | Part |
| Date closed | The date on which the aggregation was closed | Conditional mandatory | M/S | M/S | M/S | M/S | M/S |
| Date opened | The date on which the aggregation was opened | Conditional mandatory | M/S | M/S | M/S | M/S | M/S |
| Description | A free-text description of the entity | Optional | M | M | M | M | M |
| Folder type | The type of folder, sub-folder or part, i.e. whether it contains electronic, non-electronic or hybrid record sets | Mandatory | NA | NA | A/M | A/M | A/M |
| GRS box item number | A sequential number assigned according to GRS' guidelines to identify a specific part within a box by the Records Centres of GRS | Optional | NA | NA | NA | NA | M |
| GRS box number | A serial number assigned according to GRS' guidelines to identify a specific box containing parts | Optional | NA | NA | NA | NA | A/M |
| GRS deposit identifier | A serial number assigned according to GRS' guidelines to identify a specific batch of inactive records by the Records Centres of GRS | Optional | NA | NA | M | NA | M |
| Keyword | Keyword(s) or phrase(s) describing the subject content of the aggregation or record | Optional | M | M | M | M | M |

| Metadata element | Definition | Obligation level in an ERKS | Mode of creation, capturing and inheritance of metadata for aggregations | | | | |
|--------------------------------|--|-----------------------------|--|-----------|--------|------------|------|
| | | | Class | Sub-class | Folder | Sub-folder | Part |
| Location - current | The current location of non-electronic records, and physical and hybrid parts | Conditional mandatory | NA | NA | NA | NA | A/M |
| Location - home | The home location of non-electronic records, and physical and hybrid parts | Conditional mandatory | NA | NA | NA | NA | A/M |
| Owner | The name of the division or section which is the owner of the aggregation or stub | Mandatory | M | M | I/M | I/M | I/M |
| Part barcode | A unique barcode assigned to physical and hybrid parts | Optional | NA | NA | NA | NA | A/M |
| Part number | A serial number assigned incrementally to parts within a folder or sub-folder or to a part stub <i>[Note: A part stub refers to a stub which replaces a part that has been transferred or destroyed.]</i> | Conditional mandatory | NA | NA | NA | NA | M/S |
| Public access review indicator | An indicator to show whether a classified folder, sub-folder or part needs to be reviewed by B/Ds to determine if the subject entity can be open for public access 30 years after its closure | Optional | NA | NA | M | M | M |

| Metadata element | Definition | Obligation level in an ERKS | Mode of creation, capturing and inheritance of metadata for aggregations | | | | |
|---|--|-----------------------------|--|-----------|--------|------------|------|
| | | | Class | Sub-class | Folder | Sub-folder | Part |
| Relation - entity | A link from the subject entity to another entity. For example, a class may be related to a retention and disposal schedule and vice versa, a record will be linked to event history objects and vice versa, a folder may be closely related to another folder. The nature of the relation is apparent from the combination of the two entities involved <i>[Note: Please refer to Chapter 3 of RKMS for definition of "event history objects".]</i> | Conditional mandatory | A | A | A | A | A |
| Relation - GRS disposal schedule identifier | A unique number assigned by GRS for approved records retention and disposal schedules for programme records and specified records retention and disposal schedules as prescribed in General Administrative Records Disposal Schedules (GARDS) (GRS Records Management Publication No. 4) | Conditional mandatory | M | M | M | M | M |
| Relation - pre-ERKS folder | The folder title(s) and classification code(s) of the subject folder before the ERKS was implemented | Recommended | NA | NA | M | NA | NA |
| Remark | Additional information about the entity which is not contained in other metadata fields | Optional | M | M | M | M | M |

| Metadata element | Definition | Obligation level in an ERKS | Mode of creation, capturing and inheritance of metadata for aggregations | | | | |
|-----------------------------------|---|-----------------------------|--|-----------|--------|------------|------|
| | | | Class | Sub-class | Folder | Sub-folder | Part |
| Responsible officer | Name and/or post title of the officer responsible for carrying out records management activities on the sub-class, folder, sub-folder or part | Mandatory | NA | M | M | I/M | I/M |
| Security classification | The security classification applied to the aggregation, record or stub | Mandatory | M | I/M | I/M | I/M | I/M |
| Security classification type | The refinement (suffix) of the security classification applied to the aggregation, record or stub | Conditional mandatory | M | I/M | I/M | I/M | I/M |
| System identifier | The identifier generated by an ERKS to identify individual instances of entities (records, users, folders etc.), which will be unique within the system | Mandatory | S | S | S | S | S |
| Title | The title of the entity | Mandatory | M | M | M | M | M |
| Uniform resource identifier (URI) | An identifier which is unique across HKSARG and applied to each entity as defined in RKMS | Optional | S | S | S | S | S |
| Vital record status | An indicator to show whether the records are designated as vital records | Mandatory | NA | I/M | I/M | I/M | I/M |

Appendix 4

Creation, Capturing and Inheritance of Record Level Metadata**Legends**

I. Obligation level of metadata –

- Mandatory:** A metadata element must have a value
- Conditional mandatory:** A metadata element must be given a value if the condition stated in the element property “use conditions” for the metadata element as set out at Annex 3 of the **Recordkeeping Metadata Standard for the Government of the Hong Kong Special Administrative Region** (RKMS) is met
- Recommended:** A metadata element is useful and should be given a value as far as practicable when the information is available
- Optional:** A metadata element may be given a value if the information is available and if the B/D considers it useful

II. Modes of creation, capturing and inheritance of metadata –

- A:** automatically captured (the value is taken automatically from an existing piece of information)
- I:** inherited (the value is inherited from a parent aggregation)
- M:** manually entered or selected
- S:** system-generated (the value is generated internally by the ERKS such as a “system identifier”)
- NA:** not applicable to the record

Notes:

- (1) **An ERKS must have the capability to support inheritance, system generation and automatic capturing of values for metadata elements as well as supporting manual means to enter or select values for metadata elements. As a matter of principle, it is always preferred to have metadata values either be system-generated, automatically captured or inherited to minimise users’ capturing efforts and avoid manual errors.**
- (2) *The following table illustrates the modes of creation, capturing and inheritance of values for metadata elements of records set out in RKMS for easy reference. Condition(s) under which a specific mode of creation, capturing and inheritance of value(s) for each metadata element should be adopted have been specified at Annex 3 of RKMS.*
- (3) *In RKMS, a total of **45** metadata elements of different obligation levels are defined for records. The number of metadata elements for electronic records and non-electronic records is different. The following table shows the full set of metadata elements for electronic records and non-electronic records respectively.*

(4) Please note the following explanations for the table shown below -

- i. The column "Metadata element" shows the simple name (element name) of a metadata element in RKMS.
- ii. The column "Definition" sets out the definition of each metadata element which may be applied to multiple entities of an ERKS defined in RKMS (equivalent to the element property "definition" as shown at Annex 3 of RKMS).
- iii. The column "Obligation level" sets out the levels of obligation for a metadata element in an ERKS, which is equivalent to the element property "Application Profile 1" at Annex 3 of RKMS. Application profiles (APs) are different subsets of metadata elements defined for specific business and/or records management purposes, e.g. transfer of metadata together with associated records with archival value to GRS for permanent retention. Four APs have been specified in RKMS and the obligation level of a metadata element may be different under respective APs. Please refer to Chapter 3 of RKMS for details of APs and its Annex 3 for the obligation level of each metadata element under respective APs.
- iv. As the condition(s) under which a specific mode of creation, capturing and inheritance of value(s) should be adopted for e-mail and e-Memo records are different from those for other electronic records, the modes of creation, capturing and inheritance of metadata for e-mail and e-Memo records are illustrated separately from those of other electronic records in the following table for easy reference.
- v. Information provided in the column "Mode of creation, capturing and inheritance of metadata for records" is extracted from the element properties of "capturing mode" and "inheritance" for metadata elements applicable to a record set out in RKMS.

| Metadata element | Definition | Obligation level in an ERKS | Mode of creation, capturing and inheritance of metadata for records | | |
|-----------------------------|--|-----------------------------|---|-------------------------------------|------------------------|
| | | | Electronic records | | Non-electronic records |
| | | | E-mail and e-Memo records (a) | Electronic records (other than (a)) | |
| Blind carbon copy recipient | The name, post title, email address and/or organization name of the blind carbon copy (bcc) recipient(s) of a piece of correspondence or other record having bcc recipients, where available | Conditional mandatory | A | A/M | M |

| Metadata element | Definition | Obligation level in an ERKS | Mode of creation, capturing and inheritance of metadata for records | | |
|---------------------------|--|-----------------------------|---|-------------------------------------|------------------------|
| | | | Electronic records | | Non-electronic records |
| | | | E-mail and e-Memo records (a) | Electronic records (other than (a)) | |
| Carbon copy recipient | The name, post title, email address and/or organization name of carbon copy (cc) recipient(s) of a piece of correspondence or other record having cc recipients, where available | Conditional mandatory | A | A/M | M |
| Creator name | The name (and/or post title) of the person responsible for the intellectual content of the record | Mandatory | A/M | A/M | M |
| Creator organization name | The name of the organization that has created the record. This will be either the B/D to which the named creator belongs, or the B/D itself as creator, or an external organization as creator | Conditional mandatory | A/M | A/M | M |
| Date created | The date on which the record was created | Conditional mandatory | A | A/S | M |
| Date received | The date on which the record was received | Conditional mandatory | A | A/M | M |
| Date sent | The date on which the record was sent | Conditional mandatory | A | A/M | M |
| Date time captured | The date and time at which the record was captured in an ERKS | Mandatory | S | S | S |
| Description | A free-text description of the entity | Optional | M | M | M |

| Metadata element | Definition | Obligation level in an ERKS | Mode of creation, capturing and inheritance of metadata for records | | |
|--------------------------------|---|-----------------------------|---|-------------------------------------|------------------------|
| | | | Electronic records | | Non-electronic records |
| | | | E-mail and e-Memo records (a) | Electronic records (other than (a)) | |
| Electronic signature indicator | An indicator to show the existence of an electronic signature associated with an email or e-Memo sent from and received by Lotus Notes following a verification process | Conditional mandatory | A | NA | NA |
| Encryption indicator | An indicator to show whether an email or e-Memo is transmitted in encrypted form through Lotus Notes | Conditional mandatory | A | NA | NA |
| Keyword | Keyword(s) or phrase(s) describing the subject content of the aggregation or record | Optional | M | M | M |
| Location - current | The current location of non-electronic records, and physical and hybrid parts | Conditional mandatory | NA | NA | A/I/M |
| Location - home | The home location of non-electronic records, and physical and hybrid parts | Conditional mandatory | NA | NA | A/I/M |
| Medium | The physical carrier on which a record is stored | Conditional mandatory | NA | NA | M |
| Recipient email | The email address of the recipient(s) to whom an email/e-Memo was sent | Conditional mandatory | A | NA | NA |
| Recipient name | The name and/or post title of the recipient(s) to whom a record is addressed | Conditional mandatory | A/M | A/M | M |

| Metadata element | Definition | Obligation level in an ERKS | Mode of creation, capturing and inheritance of metadata for records | | |
|-----------------------------|--|-----------------------------|---|-------------------------------------|------------------------|
| | | | Electronic records | | Non-electronic records |
| | | | E-mail and e-Memo records (a) | Electronic records (other than (a)) | |
| Recipient organization name | The name of the organization that has received the record, other than carbon copy recipients or blind carbon copy recipients. This will be either the B/D to which the named recipient belongs, or the B/D itself as recipient, or an external organization as recipient | Conditional mandatory | A/M | A/M | M |
| Record content type | The nature of the content of the record type | Optional | A/M | A/M | M |
| Record form | The form of the record, i.e. electronic or non-electronic | Mandatory | A | A | A/M |
| Record number | A unique identifier assigned to records within a part | Conditional mandatory | S | S | S |
| Record reference | The file reference assigned to a record (usually correspondence) by the issuing B/D or organisation (typically recognised as the 'Our Reference' for incoming correspondence) | Recommended | A/M | A/M | M |
| Relation - entity | A link from the subject entity to another entity. For example, a class may be related to a retention and disposal schedule and vice versa, a record will be linked to event history objects and vice versa, a folder may be closely related to another folder. The nature of the relation is apparent from the combination of the two entities involved <i>[Note: Please refer to Chapter 3 of RKMS for definition of "event history objects".]</i> | Conditional mandatory | A | A | A |

| Metadata element | Definition | Obligation level in an ERKS | Mode of creation, capturing and inheritance of metadata for records | | |
|-----------------------------|---|-----------------------------|---|-------------------------------------|------------------------|
| | | | Electronic records | | Non-electronic records |
| | | | E-mail and e-Memo records (a) | Electronic records (other than (a)) | |
| Relation - has attachment | A link to an electronic record that is an attachment of the subject electronic record | Conditional mandatory | A | A | NA |
| Relation - has enclosure | A link to a non-electronic record that is an enclosure of the subject record | Conditional mandatory | M | M | M |
| Relation - has format | Where the subject entity is a 'virtual record' containing records of the same intellectual content but in different manifestations or file formats, a link from the subject 'virtual record' to these records <i>[Note: Please refer to Chapter 3 of RKMS for definition of "virtual record".]</i> | Conditional mandatory | NA | A/M | NA |
| Relation - has language | Where the subject entity is a 'virtual record' containing records of the same intellectual content but in different languages, dialects or scripts, a link from the subject 'virtual record' to those records | Conditional mandatory | NA | M | NA |
| Relation - has version | Where the subject entity is a 'virtual record' containing multiple versions, for example when version 1 of a report is updated to become version 2, or version 3, etc., a link from the subject 'virtual record' to those records | Conditional mandatory | NA | A/M | NA |
| Relation - is attachment of | A link from the electronic record that was attached to the containing (parent) record | Conditional mandatory | A | A | NA |

| Metadata element | Definition | Obligation level in an ERKS | Mode of creation, capturing and inheritance of metadata for records | | |
|------------------------------|---|-----------------------------|---|-------------------------------------|------------------------|
| | | | Electronic records | | Non-electronic records |
| | | | E-mail and e-Memo records (a) | Electronic records (other than (a)) | |
| Relation - is enclosure of | A link to a record of which the subject record is an enclosure in non-electronic form | Conditional mandatory | NA | NA | A |
| Relation - is format of | A link from the subject record to the 'virtual record' which is a conceptual container for records containing the same content in different manifestations or file formats | Conditional mandatory | A | A | A |
| Relation - is language of | A link from the subject record to the 'virtual record', which is a conceptual container for records containing the same content in different languages, dialects or scripts | Conditional mandatory | A | A | A |
| Relation - is version of | A link from the subject record to the 'virtual record' which is a conceptual container for a document with multiple versions | Conditional mandatory | A | A | A |
| Remark | Additional information about the entity which is not contained in other metadata fields | Recommended | M | M | M |
| Security classification | The security classification applied to the aggregation, record or stub <i>[Note: Please refer to Chapter 3 of RKMS for definition of "stub".]</i> | Mandatory | A/I/M | A/I/M | I/M |
| Security classification type | The refinement (suffix) of the security classification applied to the aggregation, record or stub | Conditional mandatory | A/I/M | A/I/M | I/M |

| Metadata element | Definition | Obligation level in an ERKS | Mode of creation, capturing and inheritance of metadata for records | | |
|-----------------------------------|---|-----------------------------|---|-------------------------------------|------------------------|
| | | | Electronic records | | Non-electronic records |
| | | | E-mail and e-Memo records (a) | Electronic records (other than (a)) | |
| Sender email | The email address of the sender sending out an email or e-Memo | Conditional mandatory | A | NA | NA |
| Sender name | The name and/or post title of the person responsible for sending the record | Recommended | A/M | A/M | M |
| System identifier | The identifier generated by an ERKS to identify individual instances of entities (records, users, folders etc.), which will be unique within the system | Mandatory | S | S | S |
| Time created | The time at which the record was created | Conditional mandatory | A | A/S | M |
| Time received | The time at which the record was received | Conditional mandatory | A | A/M | M |
| Time sent | The time at which the record was sent | Conditional mandatory | A | A/M | M |
| Title | The title of the entity | Mandatory | A/M | A/M | M |
| Uniform resource identifier (URI) | An identifier which is unique across HKSARG and applied to each entity as defined in RKMS | Optional | S | S | S |
| Vital record status | An indicator to show whether the records are designated as vital records | Mandatory | I/M | I/M | I/M |

Appendix 5

Audited Activities in the ERKS

| Item | Actions |
|--|---|
| <i>Creation, Use and Modification of Records Classification Scheme and Aggregations</i> | |
| (1) | Creation of aggregations |
| (2) | Access and use of aggregations, including but not limited to close and re-open folders/parts |
| (3) | Changes made to the records classification scheme, e.g. merging of two records classification schemes and re-classification of aggregations |
| <i>Capturing, Access and Use of Records</i> | |
| (4) | Capturing of records |
| (5) | Access and use of record, including but not limited to read, charge-out, charge-in, render, print and download records |
| (6) | Re-classification of record |
| <i>Security and Access Control</i> | |
| (7) | Changes made to the access rights of a user, user group or user role, and to the security clearance of a user |
| (8) | Changes made to the security classification of aggregations and records |
| (9) | Export, transfer and purge of audit trail data |
| (10) | Where applicable, any attempted violations of access control of the ERKS (i.e. a user's attempts to access a record or an aggregation to which he is denied access) |
| (11) | Creation, amendment or deletion of a user, user group or user role |

| Item | Actions |
|---------------------------------------|--|
| Records Retention and Disposal | |
| (12) | Application of records retention and disposal schedules to aggregations and records therein and changes of the application |
| (13) | Changes made to any records retention and disposal schedules |
| (14) | Retention and disposal review actions carried out by an authorised individual |
| (15) | The placing or removal of a disposal hold on aggregations and records therein |
| (16) | Disposal action of aggregations and records <i>[Note: Deletion is also included.]</i> |
| (17) | Export and transfer of aggregations, records and metadata |
| Metadata | |
| (18) | Changes, including creation, addition, modification and deletion of any metadata and/or metadata values associated with aggregations, records and other entities <i>[Note: Changes should include actions taken by a user and an authorised individual.]</i> |
| Administration | |
| (19) | Changes made to administrative parameters, e.g. reconfigure the audit trails <i>[Note: It should never be possible to turn off the auditing of changes to audit trail parameters so that the ERKS does not record in the audit trails who changed them and when.]</i> |
| (20) | Indication that selected aggregations (or part of an aggregation) and records are considered to be vital records |
| (21) | Indication that selected aggregations (or part of an aggregation) and records previously designated as vital records are no longer considered to be vital records |