


Recordkeeping for Good Governance Toolkit

GUIDELINE 16: Systems and Software Checklists





The original version of this guideline was prepared by the Pacific Regional Branch of the International Council on Archives (PARBICA) for use by countries around the Pacific. This means that the guideline may refer to things that you are not familiar with or do not use in your country. You may find that you need to change some of the advice in this guideline to suit your own government's arrangements. To obtain an editable copy of this guideline, contact the national archives, public record office or other records authority in your country, or contact PARBICA at <http://www.parbica.org>.

Recordkeeping for Good Governance Toolkit
Guideline 16: Systems and Software Checklists

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INTRODUCTION

Guideline 16 is divided into three parts. Each part is designed to be used by different sections of an organisation:

- **16A** is a checklist that allows a records manager to see at a glance how well their **existing business systems meet core recordkeeping requirements**.
- **16B** allows assessment against high-level recordkeeping principles (ICA-Req statement of principles), and is designed to help **gain senior management approval for a business case or project to implement a digital recordkeeping strategy**.
- **16C** allows assessment of systems against detailed functional recordkeeping requirements, and is designed to be completed by an IT manager. The guideline provides additional background information on the nature of business systems and why it is important that they have adequate recordkeeping functionality. As well as allowing organisations to **test how well their existing business systems support good recordkeeping**, the tool can also be used to **build a design of preferred recordkeeping functionality for future systems**, or as a benchmark if a **systems audit is required**.

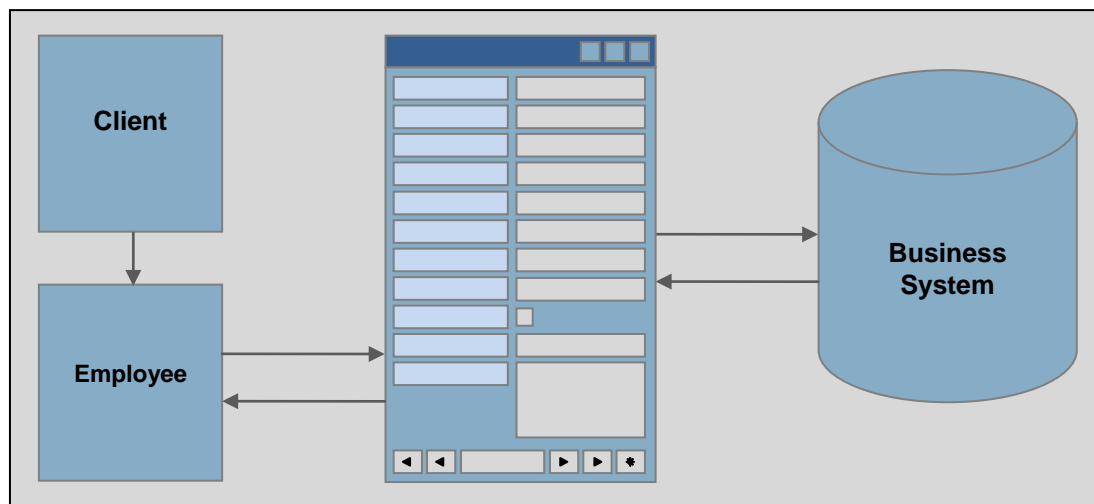
All tools are based upon principles and tools developed by the International Records Management Trust (IRMT) and ICA (International Council on Archives).

WHAT ARE BUSINESS SYSTEMS?

A business system is an automated system that creates or manages data about an organisation's activities. Business systems hold 'dynamic' data: data that is timely (and often subject to frequent updates), current, and able to be manipulated.

Examples of business systems may include:

- e-commerce systems
- client-relationship management systems
- purpose-built or customised databases
- finance or human resources systems.



Example of a simple process using a business system

WHY DO BUSINESS SYSTEMS NEED RECORDKEEPING FUNCTIONALITY?

When business systems are developed without considering recordkeeping functionality, these systems are unlikely to produce adequate records. If there is an issue, and users or managers need to explain or justify a decision, it may not be possible to configure the system's data into a credible record. Even if there are records in the system, they may not be able to exist separately outside of the system.

Some of the key risks of business systems that have inadequate recordkeeping functionality are:

- failure to meet legislative, accountability, community and business expectations
- failure to capture fixed records
- failure to manage authentic, useable, reliable and complete records over time
- inefficiency and unnecessary spending of money.

GUIDELINE 16A – HIGH-LEVEL SYSTEMS CHECKLIST

The Systems Checklist allows organisations to undertake a high-level assessment of the recordkeeping functionality of their existing business systems. The checklist contains eight questions based on core recordkeeping requirements. The checklist's sliding scale is designed to give organisations a more complete picture of the strengths and weaknesses of recordkeeping functionality in their existing systems.

Name of system	
Assessed by:	
Date:	

1. Can the system capture full and fixed records in a variety of file formats¹?

Not at all	Sometimes	Mostly	Always

Comments

A paper filing system needs to be able to manage different formats of physical records, and an electronic business system needs to be able to capture records in a variety of formats. As business processes are increasingly carried out online, the digital information generated by these activities may be the only evidence of specific transactions or decisions.

2. Can the system create and maintain links between records and metadata that document the content, context and structure of the records?

Not at all	Sometimes	Mostly	Always

Comments

Like paper records, a digital record needs to be linked to its context – the environment in which it was created which gives it meaning – through the use of metadata. Sometimes this is done automatically by the system. Other times, such information must be added to the record which is necessary to increase its value and usefulness as evidence of business activity. As much metadata as possible should be generated automatically by the system.

¹ The file type. Examples of file formats include TIFF, JPEG, Adobe PDF and Microsoft Word.

3. Can the system index records for retrieval and access using a business classification scheme or file plan in use in the organisation?

Not at all	Sometimes	Mostly	Always

Comments

A hierarchical business classification scheme or file plan helps you to make decisions about the management of records at an aggregate² level. It allows your organisation to put into place disposal schedules or rules for deleting information, and apply these consistently across groups of records.

4. Can the system assign the appropriate retention and disposal rules to records?

Not at all	Sometimes	Mostly	Always

Comments

The retention and disposal of records – how long they are kept – should always be managed according to specified rules. Systems need to be able to dispose of records in an auditable and accountable way in line with business and legal requirements.

² An aggregation is a grouping of related records that may exist at a level above that of a single record object, eg a file or a series.

5. Can records be found, retrieved and displayed?

Not at all	Sometimes	Mostly	Always

Comments

Business systems must make sure that records can be found, retrieved and displayed in accessible formats and media for as long as they are required for business and legal purposes.

6. Are records secure from unauthorised alteration or deletion?

Not at all	Sometimes	Mostly	Always

Comments

Systems should maintain records and business information in a secure environment. They should be able to restrict the actions available to staff according to their roles and responsibilities (for example, viewing, printing, editing, copying or transmitting). They must not allow records (or metadata) to be changed or deleted without authorisation.

7. Can the system ensure the interoperability of records across platforms and domains of use over time?

Not at all	Sometimes	Mostly	Always

Comments

Interoperability refers to the ability of a system or product to work with other systems or products. As forms of evidence, records often need to be kept for periods of time that extend beyond the life of the hardware or software used to create them. Records should always be readable, and record information needs to be able to be modified, if necessary, for migration to other technology platforms. Use of open standards is recommended wherever possible to help ‘future-proof’ records and reduce dependence on technology.

8. Can the system provide back-up for all records and record metadata?

Not at all	Sometimes	Mostly	Always

Comments

In case of an emergency, back-up facilities make sure that records and their record management metadata can be recreated using a combination of restored back-ups and metadata.

Scoring system: If you wish to score your system apply 0 points for questions that were answered ‘Not at all’, 2 for questions answered ‘Sometimes’, 4 for questions answered ‘Mostly’ and 6 for questions answered ‘Always’. Systems should score at least 30 points out of a possible maximum of 48 to demonstrate adequate recordkeeping functionality.

GUIDELINE 16B – HIGH-LEVEL ASSESSMENT OF BUSINESS SYSTEMS AGAINST RECORDKEEPING PRINCIPLES

To meet their business needs and legal obligations, organisations need information systems in which records are created, used and kept. In the digital environment, the development and implementation of such systems should be informed by recordkeeping principles, as well as by the organisation's business needs.

Organisations can assess the recordkeeping functionality of existing or proposed business systems using the principles listed in the following pages. You may have other particular specifications and standards which should also be considered along with these requirements.

Name of system:	
Assessed by:	
Date:	

1	Principle	Explanation
	Electronic business information has to be actively managed and maintained as authentic evidence of business activity.	As business processes become more automated, the electronic information generated by such processes may serve as the only evidence of specific transactions or decisions. It is necessary to maintain this evidence in the form of fixed or unchangeable records, for the operational accountability of the organisation.

How well does the system comply with Principle 1?

Not at all	Sometimes	Mostly	Always

Comments

2	Principle	Explanation
	Business information has to be linked to its context through the use of metadata.	For information to be capable of functioning as a record, it needs to have additional data (known as metadata) that connects it to the business and computing environment in which it was created and is used. Sometimes the system automatically generates metadata. Other times, such contextual information must be added to the record which is necessary to maximise its value and usefulness as evidence of business activity.

How well does the system comply with Principle 2?

Not at all	Sometimes	Mostly	Always

Comments

3	Principle	Explanation
	Business information has to be kept and must remain accessible to those who need it for as long as required.	Design and implementation of business information software must ensure that records can be searched for, retrieved and rendered or displayed in accessible formats and media for as long as required for business and legal purposes.

How well does the system comply with Principle 3?

Not at all	Sometimes	Mostly	Always

Comments

4	Principle	Explanation
	Business information has to be able to be disposed of in a managed, systematic and auditable way.	Good recordkeeping manages the retention and disposal of records according to specified rules. Systems need to be able to dispose of records in a systematic, auditable and accountable way in line with operational and legal requirements.

How well does the system comply with Principle 4?

Not at all	Sometimes	Mostly	Always

Comments

5	Principle	Explanation
	Systems should support good business information management as a fundamental part of the business process.	Although it is not always appreciated as such, good recordkeeping practice is an integral part of any business process. When automating any business process, your organisation should always consider whether it is possible to integrate recordkeeping software at the same time.

How well does the system comply with Principle 5?

Not at all	Sometimes	Mostly	Always

Comments

6	Principle	Explanation
	Systems for capturing and managing business information have to rely on standardised metadata as an active, dynamic and integral part of the recordkeeping process.	Automated recordkeeping solutions such as electronic records management systems allow standardised contextual information or metadata to be linked to a record at different times during its life. This can be done using using thesaurus terms and other standardised types of descriptive information.

How well does the system comply with Principle 6?

Not at all	Sometimes	Mostly	Always

Comments

7	Principle	Explanation
	Systems have to ensure interoperability across platforms and domains and over time.	As forms of evidence, records often need to be kept for periods of time that extend beyond the life of the hardware or software that created them. Records should always be readable, and record information needs to be able to be modified, if necessary, for migration to other technology platforms.

How well does the system comply with Principle 7?

Not at all	Sometimes	Mostly	Always

Comments

8	Principle	Explanation
	Systems should rely as far as possible on open standards.	Many software products that create or manage records are developed using proprietary technology – technology that is exclusive to the creators and licence holders. Hardware or software dependencies can have a negative effect on the access and preservation of record material in the long term. Use of open standards reduces these technological dependencies.

How well does the system comply with Principle 8?

Not at all	Sometimes	Mostly	Always

Comments

9	Principle	Explanation
	Systems should have the capacity for bulk import and export using open formats.	Electronic records managed by recordkeeping software may contain hardware or software dependencies. Recordkeeping software should ideally reduce these dependencies by allowing bulk re-formatting as part of import (data coming in) or export (data going out) capability or, at a minimum, allowing record metadata to be read and understood without a need for proprietary software.

How well does the system comply with Principle 9?

Not at all	Sometimes	Mostly	Always

Comments

10	Principle	Explanation
	Systems must maintain business information in a secure environment.	Business systems often have safeguards that limit what particular individuals can do with electronic information (for example, viewing, printing, editing, copying or transmitting). Systems must not allow any records (including metadata) to be altered without authorisation, and any authorised modifications must be fully documented.

How well does the system comply with Principle 10?

Not at all	Sometimes	Mostly	Always

Comments

11	Principle	Explanation
	As much metadata as possible should be generated by the system.	Systems should be designed and implemented to enable record metadata fields to be automatically populated. It may be impractical and/or unnecessary to expect end users to supply much of the metadata.

How well does the system comply with Principle 11?

Not at all	Sometimes	Mostly	Always

Comments

12	Principle	Explanation
	It should be as easy as possible for users to create/capture records of business activity.	Systems and software should be designed so that recordkeeping is automated as much as possible.

How well does the system comply with Principle 12?

Not at all	Sometimes	Mostly	Always

Comments

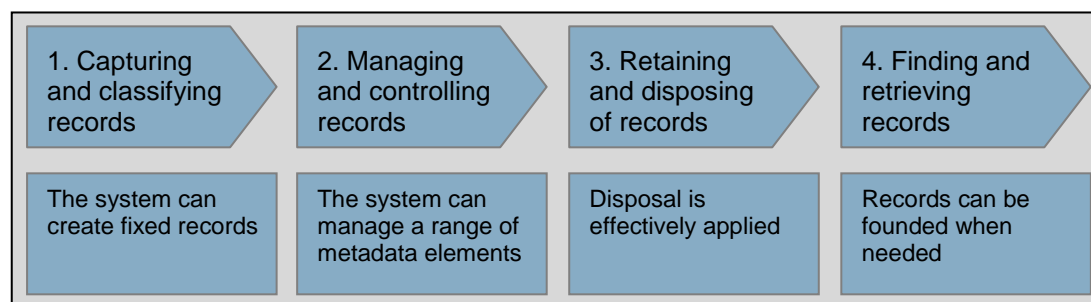
Scoring system: If you wish to score your system apply 0 points for questions answered 'Not at all', 2 for questions answered 'Sometimes', 4 for questions answered 'Mostly' and 6 for questions answered 'Always'. Systems should score at least 44 points out of a possible maximum of 72 to demonstrate adequate recordkeeping functionality.

GUIDELINE 16C – CHECKLIST FOR ASSESSING FUNCTIONAL RECORDS REQUIREMENTS IN BUSINESS SYSTEMS

WHAT ARE FUNCTIONAL REQUIREMENTS?

Functional requirements define what a system should be able to do. For records in business systems, functional recordkeeping requirements may be defined as the things (or functions) that are required of the business system in order for it to meet the recordkeeping needs of the organisation. One example of a functional recordkeeping requirement might be that the business system be able to capture digital records in all digital formats.

Functional requirements are often graded according to how vital it is to the overall goal of the business system that the system be able to do a particular thing. The functional requirements in this guideline, however, are presented in a checklist format to allow the user to easily gain an overall picture of how well a particular business system meets recordkeeping requirements.



The blue arrows in the diagram above show some key recordkeeping activities, with examples of functional recordkeeping requirements related to those processes in the boxes below.

1. Capturing and classifying records

Functional requirements related to record creation, capture and classification should make sure that:

A fixed record is created. At each stage of a business process, the system being used to carry out that process generates information. Some of this information – which will have been identified earlier by the organisation according to particular business requirements – will be kept as a record.

This record should be ‘fixed’ or unchangeable. Further processes that happen in the system should result in new records, rather than changes to existing ones. A system, however, shouldn’t be ‘locked down’ to such an extent that simple mistakes (such as spelling a name incorrectly) cannot be corrected.

Different business systems will create different record types and volumes. Some business systems will be able to create a wide range of digital records using complex data formats (for example, geospatial data

systems); while other systems may only create one type of basic digital record.

Metadata³ for records are captured. To be meaningful as evidence of a business activity, records must be linked to metadata which is data about the context or business environment in which they were created. The functional requirements in this checklist that relate to metadata don't list every metadata element that should be captured when managing records. Instead they highlight what business systems should be capable of regarding creating, capturing and maintaining adequate metadata elements. Organisations should capture metadata for records according to an identified metadata standard, in line with organisational and/or jurisdictional requirements.

Where relevant, aggregations⁴ of records can be managed and a records classification tool can be supported. Metadata about the business may be in the form of data values selected from a business or records classification scheme, which can be used to classify records. For business systems that undertake limited processes, this metadata may be found in the system documentation⁵, rather than directly associated with every record within the system.

2. Managing and controlling records

Functional requirements relating to managing and controlling records should make sure that:

Metadata for records can be configured. The system can handle and manage a range of metadata elements.

Records can be reassigned or reclassified and if required, duplicated and extracted. Records may be classified for management and retrieval purposes. As circumstances change, there must be mechanisms in the business system that allow the reassignment or reclassification of these records. Organisations may want to create a copy of the contents of an existing record in order to create a new and separate record. They may also want to create a copy of a record and remove or permanently mask some of the material. This is made when the full record cannot be released for access, but part of the record can. If required, the business system should support these processes.

Reports can be produced on records and the management of those records.

³ Metadata is data describing the context, content and structure of records and their management through time.

⁴ An aggregation is a grouping of related records that may exist at a level above that of a single record object, eg a file or a series.

⁵ System documentation may include schemas, data dictionaries, and data and class models.

The functional requirements in the checklist are not enough to make sure that records in business systems have the characteristics considered essential to records. These characteristics are:

- **Authenticity** – the record can be proven to be what it says it is, have been created or sent by the person supposed to have created or sent it; and have been created or sent at the time stated;
- **Reliability** – the record can be trusted as a full and accurate representation of the transactions depicted, and can be depended on in the course of subsequent transactions;
- **Integrity** – the record is complete and unaltered, and protected against unauthorised alteration; and
- **Usability** – the record can be located, retrieved, preserved and interpreted⁶.

Normal system controls over access and security (which support the maintenance of authenticity, reliability, integrity and usability) should be appropriately implemented.

A risk assessment can help decide how strict these system controls need to be. In a high-risk environment for example, it may be necessary to prove exactly what happened, when and by whom. This links to the system's permissions and audit logging to prove that approved actions are undertaken by authorised people. For example, security, audit logs, access controls (including limits on who can edit and amend information) and search tools are common system requirements that ensure records have the necessary characteristics.

3. Retaining and disposing of records

Functional requirements relating to the retention and disposal of records should make sure that:

There is compliance with disposal authorisation regimes. Part of the process of assessing records management involves determining how long the records should be kept to fulfil legal obligations, business needs and community expectations. A disposal authority sets out the retention periods for various groups of records. These functional requirements assume that a disposal authority covering the records in the business system exists.

Disposal is effectively applied. Retention and disposal should be handled either by the system, or through integration with external software components. Keeping everything for the entire life span of the system can be expensive and interfere with the operations of the system. There may be some circumstances where a cost-benefit analysis and risk analysis

⁶ ISO 15489.1 Records Management, Section 7.2 Characteristics of records.

conclude that records should be retained for the life span of the system. However, this simply postpones decision-making about the appropriate retention of records until the time of decommissioning⁷.

Records ready for disposal can be reviewed. Before any disposal action is taken users must be able to review the action and amend it or apply a different action.

Records are appropriately destroyed. It should not be possible to delete records except according to a disposal authority, and then only after agreed sign-off by authorised staff.

Metadata of the destroyed records is retained. Evidence of the implementation of disposal actions must also be maintained, either through metadata within the business system or through integration with another system.

Reporting can be undertaken on the disposal activity.

4. Finding and retrieving records

Functional requirements relating to finding and retrieving records should make sure that:

The record can be accessed, retrieved and used when it is needed.

⁷ While tailored to a particular jurisdiction, Queensland State Archives, *Public Records Brief: Decommissioning Business Systems* outlines some issues that may need to be considered when planning for system decommissioning, <http://www.archives.qld.gov.au/publications/PublicRecordsBriefs/DecommissioningBusinessSystems.pdf>

16C CHECKLIST TOOL

Name of system	
Assessed by:	
Date:	

Functional recordkeeping requirements			
1. Capturing records in context			
Is the system able to:		Y/N	Comments
1.1	Ensure that records created or received by the system can be captured and stored along with associated metadata, regardless of the format and technical characteristics of the records?		
1.2	Assign unique identifiers that will remain with the records as long as the records exist?		
1.3	Create links between a record and its contextual information? (A metadata profile)		
1.4	Associate captured records with at least one aggregation?		
1.5	Capture individually and in bulk, records exported or received from other systems?		
1.6	Support and apply security and access controls during the process of capture to protect records from unauthorised access, tampering or deletion?		
1.7	Capture records into a trusted recordkeeping repository or system with recordkeeping capabilities that maintains the authenticity, completeness and usability of the records?		
1.8	Support the use of a records classification scheme or taxonomy?		

2. Managing and controlling records		
Is the system able to:	Y/N	Comments
2.1	Draw together all elements of metadata to create a metadata profile for the record?	
2.2	Manage a metadata profile over time – creating permanent links between metadata and records and adding metadata to document recordkeeping actions?	
2.3	Have access controls for users assigned by an administrator according to roles and responsibilities?	
2.4	Allow security classifications to be assigned to records?	
2.5	Prevent records being changed or destroyed except when authorised?	
2.6	Allow the capture and maintenance of metadata relating to physical/paper records? (To support hybrid records management)	
2.7	Provide a reliable storage repository that meets the records' requirements for file formats, storage volume, and retrieval time?	
2.8	Establish version control and differentiate original records from drafts and copies?	
2.9	Track the current location and custody of records, including checked-out records or copies of records?	
2.10	Provide back-up and disaster recovery functionality for the record and records metadata storage repository?	
2.11	Support the export/migration of records and associated metadata to another system?	
2.12	Capture metadata documenting all data format and media migrations that are carried out on the records as part of their preservation history?	


2.13	Allow the administrator to allocate and re-allocate user roles, and re-configure system parameters?		
2.14	Report the actions carried out on records during a specified period of time?		

3. Retaining and disposing of records			
Is the system able to:		Y/N	Comments
3.1	Assign appropriate retention and disposal rules and actions to classes of records?		
3.2	Support the controlled disposal of records where disposal is authorised according to rules?		
3.3	Restrict the ability to create, edit, delete and apply disposal rules, actions and classes to the system administrator or other authorised user?		
3.4	Create and maintain an audit trail or metadata of all disposal actions?		
3.5	Provide a means by which the content of a record, or where applicable, an aggregation of records, identified for disposal can be reviewed before a disposal action is applied?		
3.6	Produce reports on all disposal activity undertaken by or in the system?		

4. Finding and retrieving records			
Is the system able to:		Y/N	Comments
4.1	Allow for searching, retrieval and display of records and their metadata?		
4.2	Allow the administrator to create, define and delete metadata elements, including custom fields?		
4.3	Retrieve digital records by their unique identifiers?		

Scoring

To deliver sound recordkeeping functionality, all the requirements listed in this checklist should be met. If there are requirements your organisation is unable to meet, it should take the necessary steps to try and do so. Failing that, you should conduct a risk analysis that identifies the risks associated with the lack of existing recordkeeping functionality of the system, the likely consequences if the listed recordkeeping requirements are not met, and the risk treatments that will be put in place to manage those risks carrying significant potential consequences.



The Recordkeeping for Good Governance Toolkit is produced by the Pacific Regional Branch of the International Council on Archives with assistance from the National Archives of Australia and AusAID.