TECHNICAL REPORT

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Information and documentation — Managing metadata for records —

Part 3: Self-assessment method

Information et documentation — Gestion des métadonnées pour l'information et les documents —

Partie 3: Méthode d'auto-évaluation

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TR 23081-3 was prepared by Technical Committee ISO/TC 46, *Information and documentation*, Subcommittee SC 11, *Archives/records management*.

ISO/TR 23081 consists of the following parts, under the general title *Information and documentation — Managing metadata for records*:

— *Part 1: Principles*

— *Part 2: Conceptual and implementation issues*

— *Part 3: Self-assessment method*

Introduction

This Technical Report provides records professionals and IT professionals with a self-assessment method to evaluate the current state of records metadata capture and management in or across their organization, and provides direction on how to improve on the current state. The self-assessment method aligns with ISO 23081-1 and ISO 23081-2. A software tool (spreadsheet) that supports the self-assessment method is annexed to this Technical Report.

Metadata management is an inextricable part of records management, serving a variety of functions and purposes. In a records management context, metadata are defined as data describing the context, content and structure of records and their management through time (see ISO 15489-1:2001, 3.12). As such, metadata are structured or semi-structured information, enabling the creation, registration, classification, access, preservation and disposition of records through time and within and across domains. Each of these domains represents an area of intellectual discourse and of social and/or organizational activity with a distinctive or limited group of people who share certain values and knowledge. Records management metadata can be used to identify, authenticate and contextualize records and the people, processes and systems that create, manage, maintain and use them and the policies that govern them.

NOTE The paragraph above is adapted from ISO 23081-1:2006, Clause 4.

All organizations, regardless of their size or the nature of their business, exist and act to achieve certain goals and objectives. Every organization generates records from its business processes. These records constitute evidence of the organization's goals and objectives, of its decisions and of its transactions. For a full understanding of these business records, contextual and management metadata are needed. This understanding facilitates several key functions, including the identification, management, access, use, and preservation of records as an asset of the organization.

To realize its own specific goals and objectives, each organization determines and applies appropriate metadata creation which supports the ongoing business and records management processes of the organization.

This Technical Report is intended for:

— records professionals (or persons within an organization assigned to managing records) responsible for creating and managing records (and their metadata) in either a business system or dedicated records application software;

— system or business analysts responsible for designing business and records systems that will create, manage, store, and preserve records and their metadata;

— auditors responsible for ensuring compliance with regulatory policies and procedures;

— risk managers responsible for managing risks associated with business operations.

For the purposes of this Technical Report, metadata self-assessment involves:

a) defining and communicating a policy and objectives for records management;

b) determining strategies necessary to achieve the records management objectives;

c) establishing processes and practices necessary to achieve the records management objectives;

d) determining and providing the resources necessary to achieve the records management objectives;

e) designing and implementing records processes and systems;

f) establishing and applying methods to measure the effectiveness and efficiency of processes and systems;

g) determining means of preventing nonconformities and eliminating their causes; and

h) establishing and applying a process for continual improvement of the records management system.

Information and documentation — Managing metadata for records —

Part 3: Self-assessment method

1 Scope

This Technical Report provides guidance on conducting a self-assessment on records metadata in relation to the creation, capture and control of records.

The self-assessment helps to:

a) identify the current state of metadata capture and management in or across organizations;

b) identify priorities of what to work on and when;

c) identify key requirements from ISO 23081-1:2006 and ISO 23081-2:2009;

d) evaluate progress in the development of a metadata framework for the implementation of specific systems and projects;

e) evaluate system and project readiness (move to the next phase in a system or project) when including records metadata functionality in a system. A records metadata readiness evaluation is provided for key steps from project inception through to the implementation/maintenance phase.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 15489-1:2001, *Information and documentation — Records management — Part 1: General*

ISO 23081-1:2006, *Information and documentation — Records management processes — Metadata for records — Part 1: Principles*

ISO 23081-2:2009, *Information and documentation — Managing metadata for records — Part 2: Conceptual and implementation issues*

ISO/IEC 11179-1, *Information technology — Metadata registries (MDR) — Part 1: Framework*

3 Terms and definitions

For the purpose of this document, the terms and definitions given in ISO 15489-1, ISO 23081-1, ISO 23081-2 and ISO/IEC 11179-1 apply.

4 Components of the metadata self-assessment method

4.1 Introduction

This metadata self-assessment method is designed to identify an organization's current state of records metadata readiness, the risks associated with the current state and to give direction on how to improve the organization's readiness. This metadata self-assessment method is not exhaustive.

The self-assessment method takes into account two levels:

— the metadata framework level, and

— the systems level.

Before conducting a metadata self-assessment, it is essential to have identified the organization's metadata policies and rules, metadata structures, roles and responsibilities assigned, and existing metadata schemas.

The metadata self-assessment method includes the spreadsheet ISO 23081-3 metadata of self-assessment method spreadsheet, which contains the following components:

a) how to use this checklist (spreadsheet Annex 1);

b) self-assessment checklists (spreadsheet Annex 2):

   1) criteria for the establishment of a metadata framework,

   2) criteria for monitoring the design and implementation of metadata into systems;

c) framework readiness report (spreadsheet Annex 3) assessing readiness based on responses to framework criteria;

d) system readiness report (spreadsheet Annex 4) assessing readiness based on responses to framework criteria and system-specific criteria.

4.2 Self-assessment checklists

4.2.1 Metadata framework criteria

The set of metadata framework criteria is used to rate how well an organization has established a framework to meet key recordkeeping metadata criteria. The framework components include a metadata strategy, policies and rules, identification of (existing) metadata repositories, metadata structures including schemas and encoding schemes, and system design principles for metadata. There are nine main criteria which are independent of specific systems that create or maintain metadata, and map to specific references in ISO 23081-1 and ISO 23081-2.

An example of a framework criterion on strategy is shown in Table 1.

Table 1 — Example of metadata framework criterion

Req ID	Grouping	Criterion title	Reference	Quotes from ISO 23081-1 and ISO 23081-2	Current state scoring criteria
F1	Strategy	Metadata implementation strategy	ISO 23081-2:2009, **4.2.4 Risk management**	ISO 23081-2 **4.2.4 Risk management Metadata implementation strategy** The organization's metadata implementation strategy should identify the risks that exist, consider the degree of risk entailed, and ensure that the implementation strategy a) provides access to critical business systems over time, b) satisfies legal requirements for authenticity and reliability, and c) is sustainable from a resource perspective over time.	0 Don't have this 1 Metadata implementation strategy drafted, including identified risks, degree of risk and the strategy covers 4.2.4 a) to c) 2 Strategy approved at appropriate organization level 3 Strategy fully deployed in business system implementations, and subject to regular review

4.2.2 System-specific criteria

The set of 20 criteria for systems and system-related projects includes criteria regarding:

a) implementation of metadata elements into systems,

b) event history, and

c) the management of metadata processes.

For each of the criteria one can indicate the current state and the coverage. The current state can be indicated in four stages, ranging from “nothing is in place” to “fully implemented”.

The coverage can be defined similarly in four stages, ranging from “none” to “all of the organization”.

Based on the values per criterion entered for both the current stage and the coverage, a score can be calculated which provides the current metadata readiness state of an organization. The scores are presented in the framework readiness report and the system readiness report.

An example of a system criterion on metadata storage systems is shown in Table 2.

Table 2 — Example of a system-specific criterion

Req ID	Grouping	Criterion title	Reference	Quotes from ISO 23081-1 and 23081-2	Current state scoring criteria
S1	Metadata storage systems	Metadata storage, linked metadata	ISO 23081-2:2009, 11.2 Storage and management 11.7 Linking metadata 11.11 Ensuring metadata management over time	**ISO 23081-2** **11.2 Storage and management** For each system, the organisation [should identify, decide on and document] the systems architecture issue of whether the records (including metadata) created in [that] business system will be physically transferred to a repository controlled by the records application software or whether the records will be left stored in the business system that created them. **11.7 Linking metadata** Each implementation should determine the level of risk associated with strategies that link metadata between entities and between systems. **11.11 Ensuring metadata management over time** Requirement to document new regimes over time.	0 Don't have this 1 System architecture has identified and documented which entities and repository/ies will hold records and/or their metadata 2 Risks in linking metadata between entities and systems have been identified and a risk management plan approved 3 Risks in linking metadata are within acceptable range and both system architecture and implementations are regularly monitored

4.3 Framework readiness report

The result of the framework readiness assessment is transformed into a report that shows the progress of an organization in implementing the framework components. The organization should have reached at least Stage 2 in all framework criteria before undertaking any project or initiative to incorporate metadata into new or updated systems.

There are four distinguishable stages of readiness, e.g. for a metadata strategy:

— stage 0 — the strategy does not exist,

— stage 1 — the strategy is written, but not signed,

— stage 2 — the strategy is approved, but not implemented,

— stage 3 — the strategy is both approved and implemented, and there is a process to maintain and report.

Note that in the framework readiness report, the emphasis is on bringing each framework component (see 4.2.1) to completion, possibly independently of each other. This is in contrast to the system readiness report, where all components should progress approximately in parallel as the project moves through its different stages.

The framework readiness report sheet summarises scores from the self-assessment tool criteria. Based on the score, the level of readiness for each criterion will be “Ready” or “NOT ready”. The report also provides score-dependent risk assessments and suggestions to assist in the planning, development and implementation of a framework for metadata.

As an example, the report on the metadata strategy component of the framework is shown in Table 3. In this example, the strategy criteria have been rated as having a current state of zero. The “risks of current state” column uses this value to show text relevant to the current state equalling zero, and shows a different risk statement for other current states.

Table 3 — Example of an assessment report on metadata framework criteria

Framework self assessment report	Current State	Min req	You are:	Risks of current state	What to do next
Metadata strategy The metadata strategy sets out the business case for metadata. It is a key component to achieving the rest of the metadata framework.	0.00	2	NOT ready	Current state = 0 Risks: Risks of not having an approved metadata strategy are: — Other metadata framework initiatives might not be approved; — Any metadata work will be system-specific and unlikely to comply with ISO 23081-1 and ISO 23081-2.	0 If the strategy is not written, scope it out: — include identifying and prioritising current and future organisation projects that have implications for RK metadata; — include the risks and benefits of a metadata implementation strategy; — identify key liaison people/influencers who can assist you in drafting/getting approval for the strategy. 1 If the strategy is written but not signed, recruit influential decision-makers to support it, e.g. IT manager, enterprise architects, technical systems designers, knowledge managers, business leaders, risk/audit managers, project management office. 2 If the strategy is approved but not implemented, liaise with project leaders of current and future system projects to include it and work closely with the project (see Sheet 3 system readiness report). 3 If the strategy is both approved and implemented: — report to influential decision-makers on its delivered successes and benefits and keep it up to date; — keep checking and reporting on implementations.

4.4 System-readiness assessment report

The system readiness assessment report is designed for use when there is a need to design a project and implement a new system, including metadata. This includes projects to redesign existing systems. The system criteria are grouped around typical project phases.

The system readiness report presupposes that you have or will have developed the metadata framework to stage 2, and this is emphasised in the first two reporting items at the “originate” and “initiate project” phases. The metadata framework should be in place to ensure the effectiveness of any system-specific work.

The remaining reporting items align with typical post-initiation project phases: Analyse/Design, Develop, Test, Integrate/Deploy/Implement, Learn/Evaluate.

Note that in the system readiness report, the system-specific criteria should progress approximately in parallel as the project moves through its different stages. This is in contrast to the framework readiness report, where the emphasis is on getting each component to completion, possibly independently of each other.

The focus in the system readiness report is on improving the current state for each of the system-specific criteria to match the stage of the project. Each criterion should progress through Current State 1 (documentation in place for each criterion) and Current State 2 (designs or approaches approved for each criterion) to Current State 3 (evaluation and maintenance in place for each criterion). Therefore, the responses to all the criteria questions are aggregated and the Next Steps are focused on achieving improvement in the current state of all system-specific criteria.

a) At the Analyse/Design stage, all system-specific criteria should achieve Current State 1, i.e. criteria are documented.

b) At the Develop stage, system-specific criteria regarding metadata storage systems, metadata structures and inheritance and re-use should achieve Current State 2, i.e. there is a design/approach approved for each criterion.

c) The Test stage will test the designs from the previous stages and will establish whether Current State 2 has been achieved.

d) At the Integrate/Deploy/Implement stage, the focus shifts to ensuring adequate coverage to meet the scope of the project, e.g. the design is implemented across all relevant aspects of the system.

e) At the Learn/Evaluate stage, all system-specific criteria should achieve Current State 3, where mechanisms are in place to evaluate and maintain the metadata in systems.

The system readiness assessment report is used to assess the metadata recordkeeping procedures that a system should have in place based on the project phase. Note that all components should progress approximately in parallel as the project moves through its different stages. The report spans from project inception through implementation/maintenance. For this report, the user is requested to determine a score to calculate the level of metadata recordkeeping readiness for each phase of the system. Based on the score, the level of system readiness will be “Ready” or “NOT ready”. The report also provides score-dependent risk assessments and suggestions for next steps.

For example, the report on the Analyse/Design stage of the project is shown in Table 4 below the column headings. In this example, system criterion Analysis/Design has been rated as having a current state of zero, meaning that none of the system-specific criteria has progressed to the first stage e.g. documenting criteria. The “Risks of current state” column uses this value to show text relevant to the current state equalling zero, and will show a different risk statement if the Current State is 1, 2 or 3.

Table 4 — Example of the assessment report on system criteria

Framework self-assessment report	Current State	Min req	You are:	Risks of current state	What to do next
Analyse/Design	0.00	1	NOT ready	Current state = 0 — If lack of recordkeeping metadata causes delays to project timeframes, it can be removed from scope. — System designers will be more advanced in design decisions and might not be able to include RK metadata.	— Get Items S1 to S20 to at least Current State 1. — Emphasise and communicate system metadata design principles (F9). — Deliver clear, succinct and pragmatic specifications. — Focus on automation and minimal user input. — Focus on consistency/interoperability between systems.

Bibliography

[1] ISO/IEC 19501:2005, *Information technology — Open Distributed Processing — Unified Modeling Language (UML) Version 1.4.2*

[2] ISO/TR 15489-2:2001, *Information and documentation — Records management — Part 2: Guidelines*

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