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Information and documentation — Records management in enterprise architecture

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 46, *Information and documentation*, Subcommittee SC 11, *Archives/records management*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

General

A record is information created, received and maintained as evidence and as an asset by an organization or person, in pursuit of legal obligations or in the transaction of business. Records management is the field of management responsible for the efficient and systematic control of records, and thus the primary source for the definition of the main principles and requirements for the records management capability.

Enterprise architects work with stakeholders, both leaders and subject matter experts, to develop and maintain a holistic view of the organization's strategy, processes, information assets, and information technology. The role of the enterprise architect is to take this knowledge and ensure that the business and IT are in alignment. The enterprise architect links the business mission, strategy and processes of an organization to its information and technology strategy. Enterprise architects document this using multiple architectural models or views that show how the current and future needs of an organization will be met in an efficient, sustainable, agile, and adaptable manner.

The concept of **records** as **information assets** is consistent with the definition in ISO 15489-1:2016 of "information created, received and maintained as evidence and as an asset by an organization or person, in pursuit of legal obligations or in the transaction of business". Consistent good practice in the management of the information assets of a business is most important, regardless of the broader or narrower interpretation of the terms "record" and "records management", and concepts of "business record", "evidence", "information asset", "legal obligations", and "transaction" in an organization or business.

The purpose of this document is to provide a common reference for records managers (or information managers in general) and enterprise architects about requirements for records processes and systems. The goal is to establish the records manager as a key stakeholder in enterprise architecture, which supports embedding records management:

— into the strategic goals, enabling it as an organizational capability for consideration for governance, risk and compliance;

— into the enterprise architecture requirements, to influence systems analysis, design, planning, and change management.

Enterprise architects are highly influential in the creation of organization-wide business requirements and in solution architectures. Enterprise architects create and maintain enterprise architecture representations, usually comprised of multiple models or views that show how the current and future needs of an organization will be met in an efficient, sustainable, agile, and adaptable manner. Records requirements, principles and models can be stated in ways that can be readily incorporated into these enterprise architecture representations to embed records processes and systems into normal business practice and into solutions to be designed. Incorporating recordkeeping requirements into system analysis and design will help enterprise architects link systems to recordkeeping control tools, and thus resolve issues such as the efficient and systematic control of the creation, receipt, maintenance, use and disposition of records. In that sense, this document has the following objectives:

a) Explaining the core concepts and records management principles to enterprise architects;

b) Explaining the core concerns of records management as an enterprise architecture viewpoint;

c) Explaining the alignment of the records management viewpoint and enterprise architecture methods.

The records management viewpoint expressed here makes use of the concepts of "concerns" and "system of concerns" defined in ISO/IEC/IEEE 42010, and of the concepts of "stakeholders", "viewpoint, "view" and "model" as also defined coherently in that standard and in the main enterprise architecture references of The Open Group Architecture Framework (TOGAF) and ArchiMate. With reference to ArchiMate, the main scope of this viewpoint is the motivational aspect and the layers strategy and business, with

minor considerations for the layers of application and implementation. TOGAF is used to inform how this records management viewpoint relates to the Architecture Development Method (ADM).

NOTE For an explanation of ArchiMate diagram conventions, see Annex A.

Motivation

Since enterprise architecture often drives decisions about investment in information systems, it is important that records management requirements can be aligned with enterprise architecture. This ensures that enterprise architects can understand the business value realized through managed records.

System designers can then consider building in records management capabilities by design. This requires the expression of records management concerns in a way that is useful for representation in architecture descriptions.

Motivations for the development of this document include the need to improve the following situations:

— Lack of understanding in many organizations that the information created and received as part of their business activities are in fact records and therefore should be managed not only as records but also as enterprise assets,

— Information is of growing importance as an organisational asset on its own right. New sensor technology, big data phenomena, open data and linked data practices, etc., require efficient control over derived information and its uses (e.g. machine learning applications, decision aid processes, etc.), and therefore demand adequate Records Management,

— Lack of managing records not only as records but also as enterprise assets results in records management often being de-scoped or "deferred" during systems analysis and design, shifting architectural debt to the end of life of system's decommissioning (end of life of a system), This deferment can result in uncertainty and lack of fundamental knowledge in the moment of the decommissioning, implying high risks for the business and costly corrective efforts,

— Lack of embedding records management capability in the design of systems that create and receive records, resulting in: unmanageable records; needed authoritative information not available to the organization; increased risk of exposure of the organization to risks (such as compliance risks) and a loss of efficiency (such as for discovery tasks),

— Cost of re-engineering an enterprise solution designs due to compliance risks.

Understanding records management concerns within an enterprise architecture context can minimize some of the following typical challenges:

— Reliance on manual interventions in the management of records, described:

  — By Enterprise Architects as "create, describe, store, maintain and dispose of records",

  — By Records Managers as "creation, capture and management of records".

— Records not created within, or persistently linked to, the business context (see Figure 1),

— Exposure to risks and compliance issues due to:

  — Systems not designed to preserve the integrity of records, for example, not preventing unauthorized changes to content and metadata, or with inadequate activity monitoring,

  — Systems not able to destroy records when those records are due for destruction,

  — Systems not designed to prevent the destruction of records that are scheduled for retention,

  — Systems not recording the disposition of records,

  - Systems with limitations for decommissioning properly, because it isn't possible to apply disposition rules to poorly described content or because the system lacks disposition capabilities,
  - Migrations that damage the integrity of records (content, context, rendering), are compromised through poorly designed migration processes,
  - Systems unable to appropriately discover or view or retrieve records,
  - Systems unable to prevent inappropriate disclosure of records, nor to publish appropriate as open data due to inadequate metadata,
  - Inability to transfer control of archival records to archival authorities.
- Overhead cost of maintaining unmanaged records indefinitely,
- Loss of reputation and legal risks associated with lack of evidence or lack of integrity of evidence.

Structure of this document

This document is organized into four main groupings:

- Clauses 1 to 3 provide the context overview, including Introduction, Scope, Normative references, and Terms and definitions.
- Clauses 4 to 11 set out the Records Management Viewpoint in the scenarios of "*Business*", "*Motivation*", "*Information*", "*Strategy*", "*Implementation*" and "*Reference Application*".
- Clause 12 — *Records Management and the Architecture Development Method* — provides guidelines for the consideration of Records Management concerns during an Enterprise Architecture process, considering the ADM, as proposed by TOGAF 9[1].
- Annexes supporting Clauses 4 to 12.

Information and documentation — Records management in enterprise architecture

1 Scope

The document creates a common language that embeds records management concerns and requirements into enterprise architecture with the twin goals of building consensus

— among records managers, enterprise architects and solution architects, and

— across the domains of records management, enterprise architecture and solution architecture.

NOTE This common understanding of Records Management enables Enterprise Architects to understand the motivations, concerns and goals of Records Managers, recognize them as influential key business stakeholders during organizational transformation, and use this understanding to influence systems planning and design. As a result, Records Management becomes an organizational capability at governance, strategic and operational levels.

This document provides a records management viewpoint, with architecture principles and corresponding architectural views of records. It explains records management for enterprise architects and other related professionals, so that they can achieve the competency needed to support collaborative initiatives.

This document provides support to enterprise architects in areas including:

— understanding and identifying records management principles, goals and requirements significant for the architectural representation,

— facilitating consultations with records managers during the project lifecycle,

— identifying opportunities to reuse existing records management analyses and tools.

This document provides scenarios and models for solution architects and those who have responsibility for infrastructure overview.

This document also provides a common language to records managers for collaboration with enterprise architects to position records management requirements in the architecture development process.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1 General

3.1.1
access
right, opportunity, means of finding, using or retrieving information

[SOURCE: ISO 15489-1:2016, 3.1]

3.1.2
activity
major task performed by a business entity as part of a function

[SOURCE: ISO 15489-1:2016, 3.2]

3.1.3
appraisal
evaluation of business activities to determine which records need to be created and captured, and how, and how long, the records need to be kept

Note 1 to entry: In some records and archives management traditions, appraisal is solely used as an instrument to identify retention requirements or to create a disposition authority. The concept of appraisal as defined here is meant to be used in a broader way.

[SOURCE: ISO TR 21946: 2018, Introduction]

3.1.4
architecture
<system>fundamental concepts or properties of a system in its environment embodied in its elements, relationships, and in the principles of its design and evolution

[SOURCE: ISO/IEC/IEEE 42010:2011, 3.2]

3.1.5
asset
anything that has value to the organization

Note 1 to entry: There can be many types of assets, including:

a) information (such as documents and databases);

b) software, such as a computer program;

c) physical, such as a computer;

d) services (meaning capabilities to deliver something);

e) people, and their qualifications, skills, and experience; and

f) intangibles, such as reputation and image.

[SOURCE: ISO/IEC 27000:2009, 2.3]

3.1.6
authoritative record
records, regardless of form or structure, are authoritative evidence of business when they possess the characteristics of authenticity, reliability, integrity and usability

[SOURCE: ISO 15489-1:2016, 5.2.2.]

3.1.7
classification
systematic identification and/or arrangement of business activities and/or records into categories according to logically structured conventions, methods, and procedural rules

[SOURCE: ISO 15489-1:2016, 3.5]

3.1.8
system of concern
interest in a system relevant to one or more of its *stakeholders* (3.1.22)

Note 1 to entry: A concern pertains to any influence on a system in its environment, including developmental, technological, business, operational, organizational, political, economic, legal, regulatory, ecological and social influences.

[SOURCE: ISO 42010:2011, 3.7]

3.1.9
context of the organization
combination of internal and external issues that can have an effect on an organization's approach to developing and achieving its objectives

Note 1 to entry: The organization's objectives can be related to its products and services, investments and behaviour towards its interested parties.

Note 2 to entry: The concept of context of the organization is equally applicable to not-for-profit or public service organizations as it is to those seeking profits.

Note 3 to entry: In English, this concept is often referred to by other terms such as "business environment", "organizational environment" or "ecosystem of an organization".

Note 4 to entry: Understanding the infrastructure can help to define the context of the organization.

Note 5 to entry: An encapsulation of data that is recognized by a business domain expert as representing a conceptual thing relevant for the domain model of that business (instances of information entities can become information assets).

[SOURCE: ISO 9000:2015, 3.2.2, modified — Notes 1 to 5 to entry have been added.]

3.1.10
disposition
<records>range of processes associated with implementing records retention, destruction or transfer decisions, which are documented in disposition authorities or other instruments

[SOURCE: ISO 15489-1:2016, 3.8]

3.1.11
evidence
documentation of a transaction

Note 1 to entry: Proof of a business transaction which can be shown to have been created in the normal course of business activity and which is inviolate and complete. Not limited to the legal sense of the term.

[SOURCE: ISO 15489-1:2016, 3.10, modified]

3.1.12
function
group of activities that fulfils the major responsibilities for achieving the strategic goals of a business entity

[SOURCE: ISO 15489-1:2016, 3.11]

3.1.13
management system
set of interrelated or interacting elements of an organization to establish policies and objectives, and processes to achieve those objectives

Note 1 to entry: A management system can address a single discipline or several disciplines, e.g. quality management, financial management or environmental management.

Note 2 to entry: The management system elements establish the organization's structure, roles and responsibilities, planning, operation, policies, practices, rules, beliefs, objectives and processes to achieve those objectives.

Note 3 to entry: The scope of a management system can include the whole of the organization, specific and identified functions of the organization, specific and identified sections of the organization, or one or more functions across a group of organizations.

Note 4 to entry: This constitutes one of the common terms and core definitions for ISO management system standards given in Annex SL of the Consolidated ISO Supplement to the ISO/IEC Directives, Part 1. The original definition has been modified by modifying Notes 1 to 3 to entry.

[SOURCE: ISO 9000:2015, 3.5.3]

3.1.14
metadata for records
structured or semi-structured information, which enables the creation, management, and use of records through time and within and across domains

[SOURCE: ISO 15489-1:2016, 3.12]

3.1.15
metadata schema
logical plan showing the relationships between metadata elements, normally through establishing rules for the use and management of metadata specifically about the semantics, the syntax and the optionality (obligation level) of values

[SOURCE: ISO 23081-1:2017, 3.10]

3.1.16
migration
<records>process of moving records from one Records Management service to another service maintaining all the characteristics of these records

Note 1 to entry: See also definitions of this concept in ISO 30300:2011, 3.3.8 and ISO 15489-1:2016, 3.13.

3.1.17
model kind
conventions for a type of modelling

Note 1 to entry: Examples of model kinds include data flow diagrams, class diagrams, Petri nets, balance sheets, organization charts and state transition models.

[SOURCE: ISO 42010:2011, 3.9]

3.1.18
record(s)
information created, received and maintained as evidence and as an *asset* (3.1.5) by an organization or person, in pursuit of legal obligations or in the transaction of business

Note 1 to entry: The viewpoint defined in this document is intended to be useful in any enterprise architecture scenario, and intended to prevent conflicting meanings in multiple viewpoints. The term used in the ArchiMate modelling of this viewpoint is "business record". In this document the term "business record" has the same definition as the established definition for "record" in the records management domain.

[SOURCE: ISO 15489-1:2016, 3.14]

3.1.19
records management
field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use and *disposition* (3.1.10) of records, including processes for capturing and maintaining evidence of and information about business activities and transactions in the form of records

[SOURCE: ISO 15489-1:2016, 3.15]

3.1.20
records management capability
capability of realizing the *records management* (3.1.19) goals

3.1.21
records system
information system which captures, manages and provides *access* (3.1.1) to *records* (3.1.18) through time

Note 1 to entry: In the context of records management, "system" means a business system that is responsible for automating business activities and transactions.

[SOURCE: ISO 15489-1:2016, 3.16, modified —In the definition, the word "over" has been replaced by "through" and Note 1 to entry has been replaced.]

3.1.22
stakeholder
individual, team, organization, or classes thereof, having an interest in a system

Note 1 to entry: Different stakeholders with different roles will have different concerns

[SOURCE: ISO 42010:2011 3.10]

3.1.23
transaction
smallest unit of a work process consisting of an exchange between two or more participants or systems

[SOURCE: ISO 15489-1:2016, 3.18]

3.1.24
work process
one or more sequences of activities required to produce an outcome that complies with governing rules

Note 1 to entry: The definition above corrects here the definition "one or more sequences of actions required to produce an outcome that complies with governing rules".

[SOURCE: ISO 15489-1:2015, 3.19]

3.2 Terms relating to TOGAF

NOTE TOGAF 9.2 terminology is available at http://pubs.opengroup.org/architecture/togaf9-doc/arch/chap03.htm.

3.2.1
actor
person, organization, or system that has one or more roles that initiates or interacts with activities

EXAMPLE A sales representative who travels to visit customers.

Note 1 to entry: Actors may be internal or external to an organization. In the automotive industry, an original equipment manufacturer would be considered an actor by an automotive dealership that interacts with its supply chain activities.

[SOURCE: TOGAF 9.2, 3.2, modified]

3.2.2
architecture principles
qualitative statement of intent that is intended to be met by the architecture

Note 1 to entry: Architecture principles are a set of principles that relate to architecture work. They reflect a level of consensus across the enterprise and embody the spirit and thinking of existing enterprise principles. Architecture principles govern the architecture process, affecting the development, maintenance, and use of the enterprise architecture.

[SOURCE: TOGAF 9.1, 3.16]

3.2.3
architecture view
representation of a related set of concerns.

Note 1 to entry: The term view is used as a synonym for architecture view.

[SOURCE: TOGAF 9.2, 3.17]

3.2.4
architecture viewpoint
specification of the conventions for a particular kind of *architecture view* (3.2.3)

Note 1 to entry: An architecture viewpoint can also be seen as the definition or schema for that kind of architecture view. It establishes the conventions for constructing, interpreting, and using an architecture view to address a specific concern (or set of concerns) about a system-of-interest.

Note 2 to entry: The term viewpoint is used as a synonym for architecture viewpoint.

[SOURCE: TOGAF 9.2, 3.18]

3.2.5
capability
ability that an organization, person, or system possesses

EXAMPLE Marketing, customer contact, or outbound telemarketing.

[SOURCE: TOGAF 9.2, 3.30]

3.2.6
data architecture
description of the structure and interaction of the enterprise's major types and sources of data, logical data assets, physical data assets, and data management resources

Note 1 to entry: Logical data entities can be tied to applications, repositories, and services and may be structured according to implementation considerations.

Note 2 to entry: The concept of "data" is intentionally not defined here, as it is part of the data architecture definition for each application scenario. It is according to the specific requirements of that scenario.

[SOURCE: TOGAF 9.2, 3.36]

3.2.7
metamodel
model that describes how and with what the architecture will be described in a structured way

[SOURCE: TOGAF 9.2, 3.50]

3.2.8
role
usual or expected function of an *actor* (3.2.1), or the part somebody or something plays in an action or event

Note 1 to entry: It is also defined as a part an individual plays in an organization and the contribution they make through the application of their skills, knowledge, experience, and abilities.

Note 2 to entry: An Actor may have several roles.

[SOURCE: TOGAF 9.2, 3.31]

3.2.9
solution architecture
description of a discrete and focused business operation or *activity* (3.1.2) and how information service (IS)/information technology (IT) supports that operation

Note 1 to entry: A solution architecture typically applies to a single project or project release, assisting in the translation of requirements into a solution vision, high-level business and/or IT system specifications, and a portfolio of implementation tasks.

[SOURCE: TOGAF 9.2, 3.69]

4 Records management viewpoint purpose and content overview

4.1 Records management viewpoint purpose

The main scope of this viewpoint is the motivational aspect with the layers of strategy and MODE business, but with considerations for the layers of application and implementation.

Table 1 summarizes this viewpoint, which is defined below with the following model artefacts:

— Table 2: Core records management stakeholder map matrix;

— Figure 3: Records management information view (ArchiMate diagram);

— Figure 4: Records management information view (UML class diagram);

— Figure 5: Records management business motivation view — Goals (ArchiMate diagram);

— Figure 6: Records management business motivation view — Capability (ArchiMate diagram);

— Figure 8: Records management motivation view — Architecture principles (ArchiMate diagram);

— Figure 9: Records management reference application scenarios (ArchiMate diagrams);

— Figure 10: Records management strategy and implementation view (ArchiMate diagram).

Table 1 — Records management viewpoint description

Records management viewpoint	
Stakeholders	— Enterprise architect — Records manager (as specific motivational Domain architect) — Process architect (to identify transaction activities) — Domain architect (to identify business records and records metadata) — Business analyst (to identify Compliance requirements) — C-Level manager[a]
Concerns	— Architecture strategy and tactics — Motivation (ArchiMate defines motivation elements as: Value, Meaning, Driver, Assessment, Goal, Outcome, Principle and Requirement. This viewpoint focuses on the elements Principle and Requirement, as identified in the Records Management body of knowledge) — Responsibilities (collaborations with Records Managers)
Purpose	— Designing — Deciding — Informing
Scope	— Motivational Aspect — Multiple Layer (Strategy, Business, Application and Implementation)

[a] High-ranking executive titles within an organization, who are typically considered the most powerful and influential positions of an organization, setting the strategy and making high-stake decisions. Common examples of these positions are: Chief Executive Officer (CEO), Chief Financial Officer (CFO), Chief Information Officer (CIO), Chief Security Officer (CSO), Chief Information Security Officer (CISO), Chief human resources officer (CHRO), Chief compliance officer (CCO), etc. Because they are not relevant for the definition of this viewpoint, the eventual relationship between the senior Managers and other classes of stakeholders of "Program Manager" and "Records Manager" are here intentionally ignored (in a real scenario, they might depend of each specific organizational structure).

4.2 Records management viewpoint and the ADM

Records management does not need to be treated as a separate architecture domain. Its concerns can all be expressed in requirements relating to the main architecture domains and phases of the ADM proposed in TOGAF.

Clause 12 explains how the records management viewpoint can be aligned with the ADM. Annex C provides more details for that purpose.

5 View: Records management business context and stakeholders

5.1 Records management in the business context

ISO 23081-1:2017, 9.1 and Figure 1 describe that records are scoped within their business context.

Organizations are socio-technical systems, in the sense that they consist of workplaces of people interacting with technology. Business contexts are organizations that are commonly understood as processes, information, technology and people that should interact with each other and with their environment in support of a common business objective.

The context where business is done is defined by mandates, which can be either external, such as laws, regulations, standards, etc., or internal, such as policies, responsibilities, delegations, etc. In the course of doing business, records are the documented evidence of how the business is done, thus they account for the execution of the mandates. In this way, records management is integrated into business.

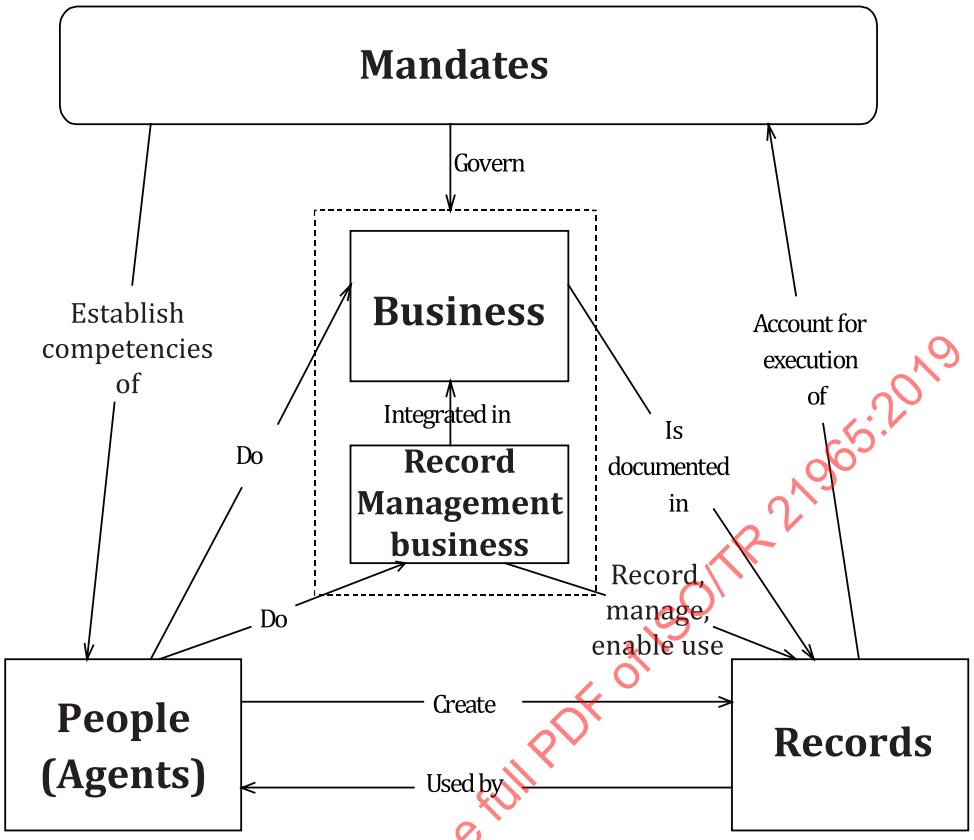

Figure 1 — Records management and the business context[1)]

Figure 1 shows relationships between business, agent (equivalent to a TOGAF actor), and record entities at any layer of aggregation and through time. Business to business, business records management to business records management, agent to agent, and record to record relationships can also be depicted in and through time. Any single agent, business context, business records management context, or records entity might have relationships with like or unlike entities that extend through layers of aggregation in ways that establish a rich envelope of contextual metadata[2)].

This means business systems (including cloud-hosted business systems) might be expected to manage records, implying they should consider the inclusion of records management capabilities in those systems. The authoritativeness of records is supported when their management systems deliver the capabilities of being reliable, secure, compliant, comprehensive and systematically managed. Systems managing records, regardless of their degree of automation, enable the execution of processes for creating, capturing and managing records. They depend on defined policies, responsibilities, monitoring, evaluation and training to meet identified records management requirements.

Where business processes are collaborative between organizations, business contexts might also require interoperability between local and external business systems. Any interoperability requirement would impose specific requirements that systems managing records would also take in consideration.

5.2 Records management stakeholders

It is important to first identify the stakeholders' power, influence, and interest around the records management capability, and then to focus the Enterprise Architecture engagement on the corresponding key individuals. These classes of stakeholders can be mapped onto a power/interest

1) Source: ISO 23081-1:2017, Figure 1.

2) Note Mandates are referred to (but not defined) in ISO 15489-1:2016, S 8.2 as "laws and other requirements governing the conduct of business and record creation or management".

matrix, as illustrated by Figure 2, which also indicates which strategy to adopt for engaging with these stakeholders.

Table 2 shows reference classes of stakeholders that can be considered for the definition of the records management viewpoint. The Rating (B, C or D) is taken from Figure 2. Table 2 is not prescriptive, but only a reference for the description of generic roles (in real scenarios, real roles would be considered case by case, and also considering the level of application in that case of other references, as for example Reference [4]).

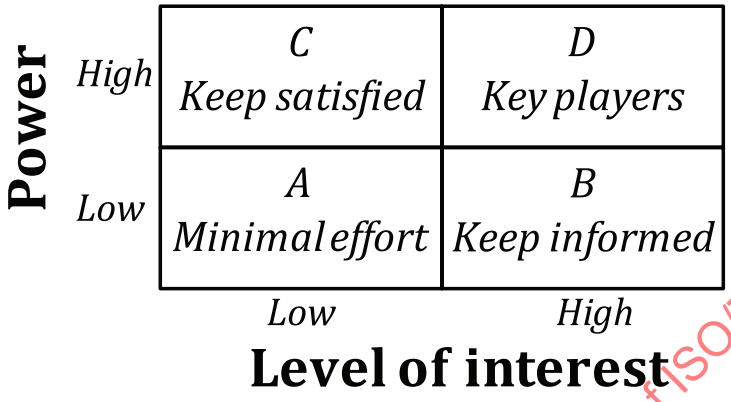

Figure 2 — Stakeholder map matrix concept

Table 2 — Core records management stakeholder map matrix

Stakeholder	Involvement	Rating	Strategy	Relevant artefacts
C-level Manager	Any senior high management-level position in the organization. This group is interested in the high-level drivers, goals and objectives of the organization, and in how to translate these into an effective Records Management process to advance the business in a compliant conscience and risk awareness.	C	Keep satisfied	— Business footprint — Goals, Objectives and Service model — Organizational chart
Program Manager	This specific group is interested in prioritising, funding, and aligning change activity. An understanding of Records Management and technical dependencies adds a further dimension of richness to portfolio management and decision-making.	C	Keep satisfied	— Roadmaps — Business footprint — Application communication — Functional decomposition
Records Manager	Key stakeholder who needs to be involved in defining the Records Management capability.	D	Key player	All
Business worker (end user)	Key stakeholder who are involved in the execution of the work processes, and therefore needs to be involved in defining the efficiency of the Records Management capability.	D	Key player	— Roadmaps — Business footprint — Functional decomposition
Customer (including business partners)	Stakeholder with indirect concerns on the Records Management changes, for consideration if, for example, the business has an identified requirement to provide external interfaces for customers to store or retrieve records as business objects. This class of stakeholders also comprises business partners.	B	Keep informed	— External functionality

6 View: Records management information

ISO 15489-1 describes records controls and records processes in a way that allows for flexibility in implementation choices. However, and in alignment with Figure 1, we can produce the generic records management metamodel information viewpoint as illustrated in the diagrams in Figure 3 and Figure 4 (respectively as an ArchiMate diagram and as a UML class diagram expressing a conceptual domain model, a language that is also expected to be familiar to Enterprise Architects).

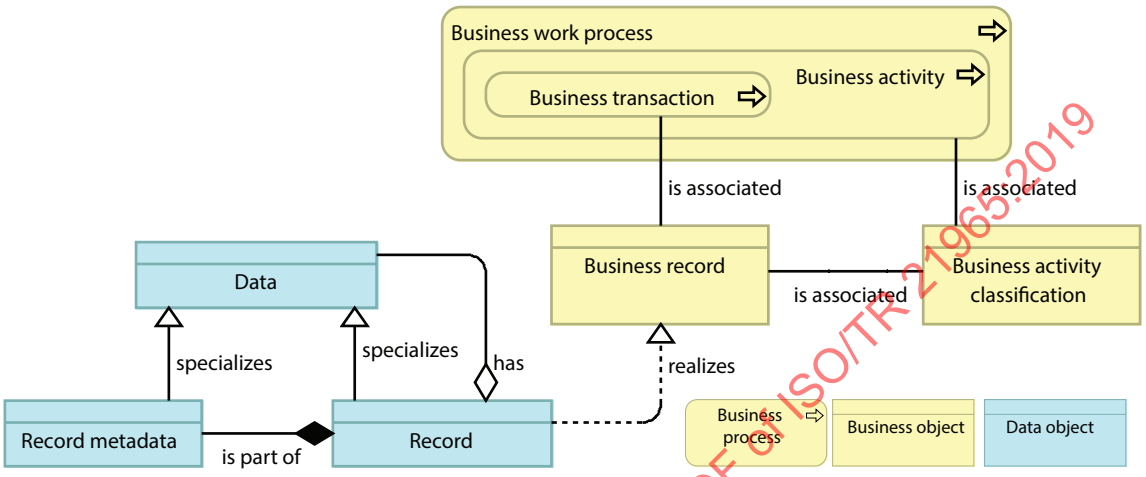

Figure 3 — Records management information view (ArchiMate diagram)

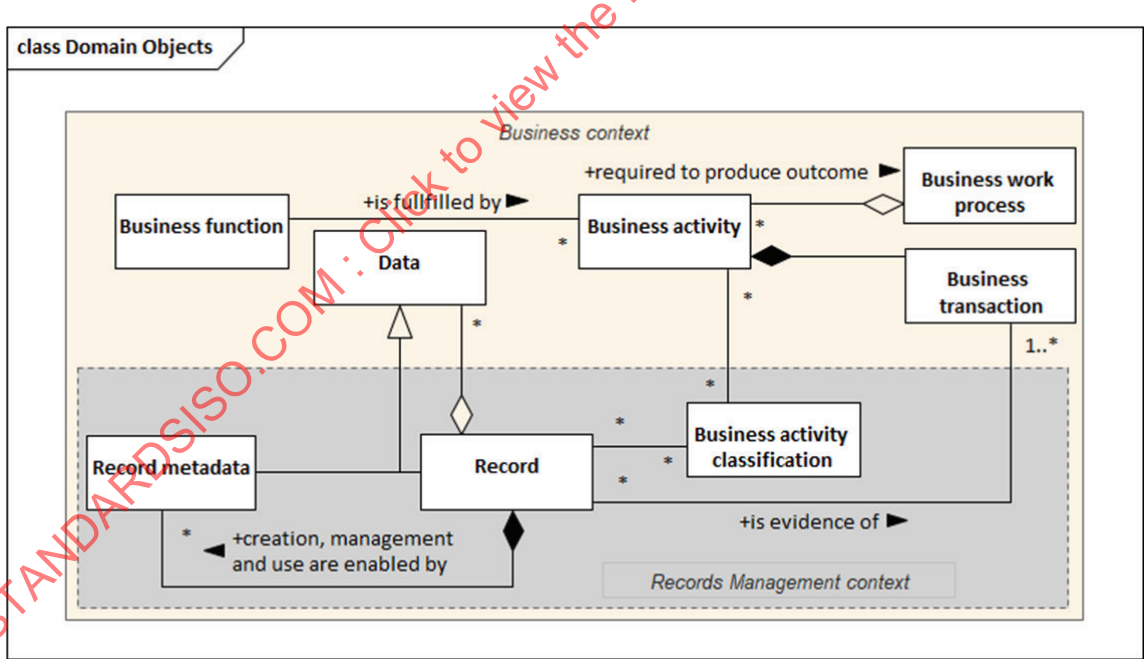

Figure 4 — Records management information view (UML[3]) class diagram)

This view can be described as follows.

— In an organization, an outcome is produced by a “Business work process”, comprising of the set of activities required to produce the intended outcome.

3) The Unified Modeling Language (UML) is an engineering language that is intended to provide a standard way to represent the design of a logical system.

— Where an activity comprises an exchange between two or more participants, it means a transaction has occurred. The main purpose of records management is the efficient and systematic management of information that is evidence of business transactions. This implies that information generated about a "Business transaction" is created and managed as a record and according to established conventions, methods, and procedural rules.

— A "Record" is therefore a fact, which, as a business concept, is like any other type of "Data" modelled in the data architecture as any other asset created and maintained by the organization (in this case, representing evidence of a "Business transaction" according to the "Business activity classification" of the relevant activities).

— As a specialization of "Data", a "Record" is therefore an asset of an organization, and like any other Data, a "Record" can be made of other "Data Entities" (e.g. structured or unstructured data, contracts, letters, invoices, images, voice recordings, etc.), and consequently, of other "Records".

— Finally, a "Record" also can have in its composition specialized "Data Entities" of the kind "Record metadata" (metadata for records is structured or semi-structured information intended to support the lifecycle of records; metadata schema models the relationships between metadata elements).

In conclusion, being a business asset, a "Record" is properly managed, which requires "Record metadata", a type of "Data" that becomes part of "Record".

7 View: Records management motivation — Goals

Figure 5 illustrates the analysis towards the goals in the view of the records management motivation, in alignment with the concepts in Table 2 and with the terms and definitions in Section 3.

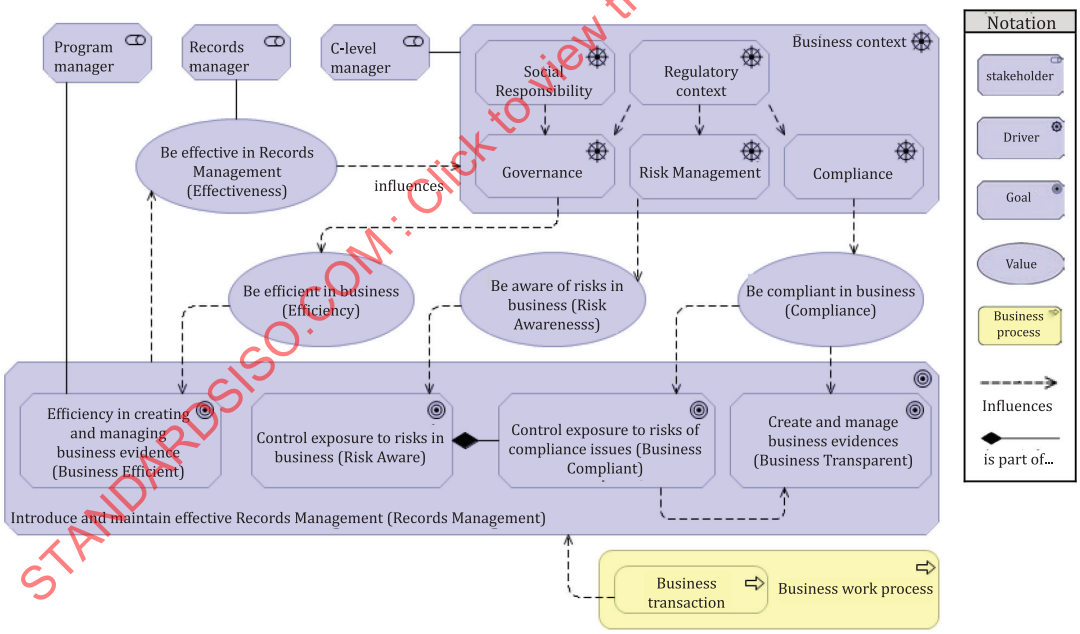

Figure 5 — Records management motivation view — Goals (ArchiMate diagram)

Figure 5 can be read as follows:

— The main goal of this domain is the desired end-state for the business of "Introduce and maintain effective Records Management that supports the organization's strategic objectives (Records Management)", which is influenced by values that are, on their turn, influenced by the generic driver "Business Context".

— The generic driver “Business Context” that is associated to the generic class of stakeholder “C-level Manager” is composed of five specific drivers:

  — The specific driver “Regulatory Context”, which influences the more specific drivers of “Compliance”, “Risk Management” and “Governance”[4];

  — The specific driver “Social Responsibility”, which also influences the driver “Governance”;

  — The specific driver “Compliance”, which influences the value of “Be compliant in business (Compliance)”, which in its turn influences the goal of to “Create and manage business evidence (Business Transparent)”;

  — The specific driver “Risk Management” influences the value of “Be aware of risks in business” (“Risk Aware”), which in its turn influences the goal of “Control exposure to risk in business” (“Risk Management”,);

  — The specific driver “Governance”, which influences the value of to “Be efficient in business (Efficiency)”, which in its turn influences the goal of “Efficiency in creating and managing business evidence (Business Efficient)”, associated to the class of stakeholder “Program Manager”[5].

— The value “Compliance” also influences the goal of “Control exposure of risks to compliance issues” (“Business Compliant”, which is part of the goal “Risk Aware”), which on its turn influences the goal “Business Transparent”.

— The “Business transaction” as part of the “Business work process” is part of the general goal of “Records Management”. The “Records Management capability” is realized in strict alignment with the other functional and non-functional details of the implementation of the work processes. This alignment justifies the goal of “Records Management” as a relevant domain in any Enterprise Architecture process, which is precisely intended to promote the best possible alignment of the multiple domains of the business).

8 View: Records management motivation — Capability

Figure 6 represents the business elements associated to the “Records Management service”, which is why it is still part of the records management motivation view. The main goal of “Records Management” is realized by a “Records Management capability”.

Figure 6 can be summarized, from a generic perspective, as follows:

— A “Business work process” defines the coordination of the “Business activities” that produce the business outcomes, which therefore can have “Customers” associated, and are served by “Business Services” having “Business workers” associated;

— A “Business Record” is a business object that represents evidence of a “Business transaction”, which is part of a “Business activity”;

— The effective creation of a “Business Record” is the outcome of the specialized “Records Management service”, which serves the “Business transaction”;

— The “Records Management service” realizes the “Records Management capability” and has assigned the specialized business role of “Records Manager”;

4) Even if the ultimate driver of any organization is compliance, compliance itself includes risk management, A good framework will focus on risk management and compliance separately from governance, hence the established acronym GRC, “Governance, Risk and Compliance”, aligned with the series of standards ISO/AWI 37000, ISO 19600 and ISO 31000.

5) It is assumed that information as a business asset is nowadays already established as a generic concern of competent “Governance”, therefore ubiquitous to any viewpoint of the Enterprise Architecture, and not just specific to the “Records Management Viewpoint”. This also applies to creating, finding, accessing and use of information in general.

— Awareness that having a "Records Management capability" influences the new value of "Be effective in Records Management (Effectiveness)". It can also positively influence the "Business context". For example, when an organization achieves a very high maturity in this "Effectiveness" this makes it a best practice reference in its business domain, and consequently able to influence the thinking and practice of Records Management in its business domain).

From the perspective of the desired end-state of the "Records Management" goal, the diagram in Figure 6 can be more properly read as follows:

— The desired end-state of the "Records Management" goal is realized by the "Records Management capability";

— The "Records Management capability" is realized by the "Records Management service", which has assigned the specialized business role of "Records Manager" (for the definition of this viewpoint it does not matter whether the class of "Records Manager" is either a business stakeholder or a business role);

— The "Business work process" defines the coordination of the "Business activity" that produce the business outcomes, which therefore can have "Customers" associated, and are served by "Business Services" having "Business workers" associated;

— The main concern of the "Records Management" goal is the creation of "Business Records" as a kind of business object that represents evidence of a "Business transaction", which in its turn is part of a "Business activity";

— The effective creation of the "Business Record" is the outcome of the specialized "Records Management Service", which serves the "Business transaction".

Finally, having a "Records Management capability" influences the new value of "Be effective in Records Management (Effectiveness)", which in its turn can positively influence the "Business context".

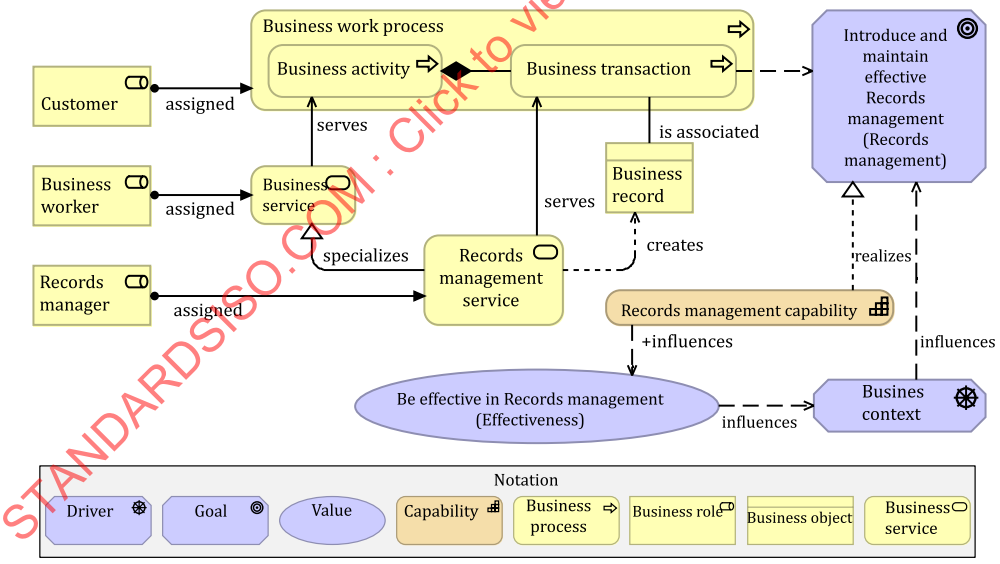

Figure 6 — Records management motivation view — Capability (ArchiMate diagram)

9 View: Records business management motivation — Architecture principles

9.1 General

The Open Group Architecture Framework (TOGAF) defines architecture principles as general rules and guidelines, intended to be enduring and seldom amended, that inform and support the way in which an organization sets about fulfilling its mission.

Architecture principles are therefore a set of principles that relate to architecture work, reflecting a level of consensus across the organization, and embodying the spirit and thinking of existing enterprise principles. Architecture principles govern the architecture process, affecting the development, maintenance, and use of the Enterprise Architecture.

The records management architecture principles are structured informally in the concept map diagram[6] in Figure 7, which are derived from requirements found in ISO 15489-1 and ISO 18128[3].

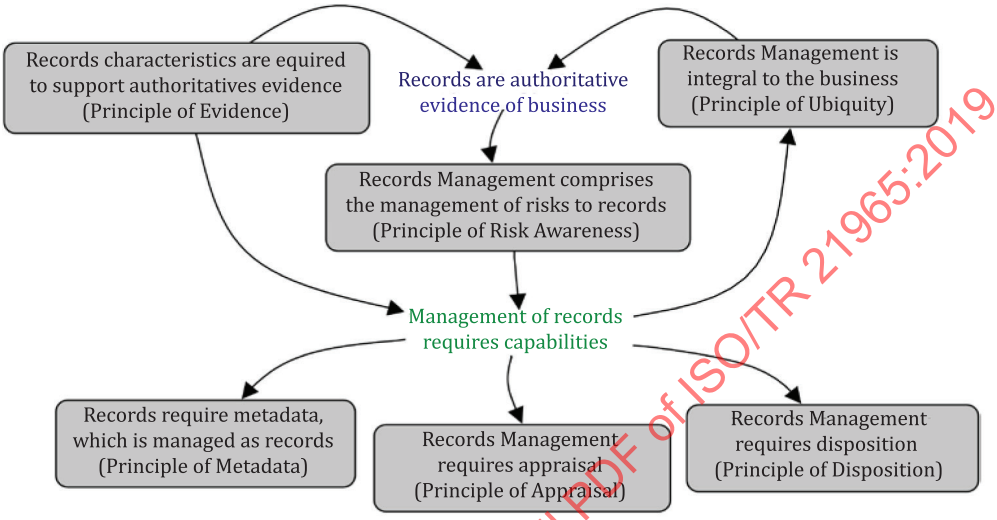

Figure 7 — Records management motivation view — Architecture principles (concept map diagram)

Figure 8 architecture principles, as a motivational diagram showing that:

— the records management principles realize the records management goals;

— records management requirements realize the records management principles.

In more detail, Figure 8 defines that:

— the generic goal "Introduce and maintain effective Records Management" ("Records Management") implies the definition of the specific goals of:

  — "Efficiency in creating and managing business evidence", ("Business Efficient"), and therefore related with the concern of efficiency that is expected in the good governance of any business;

  — "Control exposure to risks in business", ("Risk Aware"), is related to the concern of risk management that is expected to be taken in consideration in any business activity (as stressed, for example, by ISO 9000). For Records management concerns this means:

    — a specific concern with the goal of "Control exposure to risks of compliance issues, ("Business Compliant"), which itself;

    — influences the goal of "Create and manage business evidence", ("Business Transparent");

— Concerning the realization of the goals:

  — The goals "Business Efficient" and "Business Compliant" are realized by the Principle "Records Management is integral to the business", ("Ubiquity") in that the management of records is to be considered everywhere in the business;

6) https://cmap.ihmc.us/docs/learn.php

- The goal “Risk Aware” is realized by the Principle “Records Management comprises the management of risks to Records”, (“Risk Awareness”);
- The goal “Business Transparent” is realized by the principle “Records characteristics are required to support authoritative evidence”, (“Evidence”);

— Concerning the realization of the principles:

- The principle of “Ubiquity” is realized by the corresponding requirement that “Records Management are embedded into business and systems planning”. “Ubiquity” also influences the principle of “Risk Awareness”;
- The principle of “Evidence” influences the *principle* “Records require Metadata, which is managed as Records” (“Metadata)”, which in its turn is realized by the *requirement* “Records must have Metadata” (Metadata), and also influences the principle of “Risk Awareness”;
- Concerning the principle “Risk Awareness”:
  - It influences the principle “Records Management requires appraisal” (“Appraisal”), which is realized by the requirement “Appraisal of Records must be realized” (“Appraisal”);
  - It influences also the principle “Records Management requires disposition” (“Disposition”), which is realized by the requirement “Disposition of Records must be realized” (also “Disposition”).

The principle “Risk Awareness” is realized by the requirements “Appraisal” and “Disposition”, meaning a requirement for the risk management concerns is not absolutely necessary, as these concerns can be represented by the requirement for appraisal and the requirement for disposition. However, Enterprise Architects might decide to adapt this when in application scenarios where viewpoints of risk management are defined.

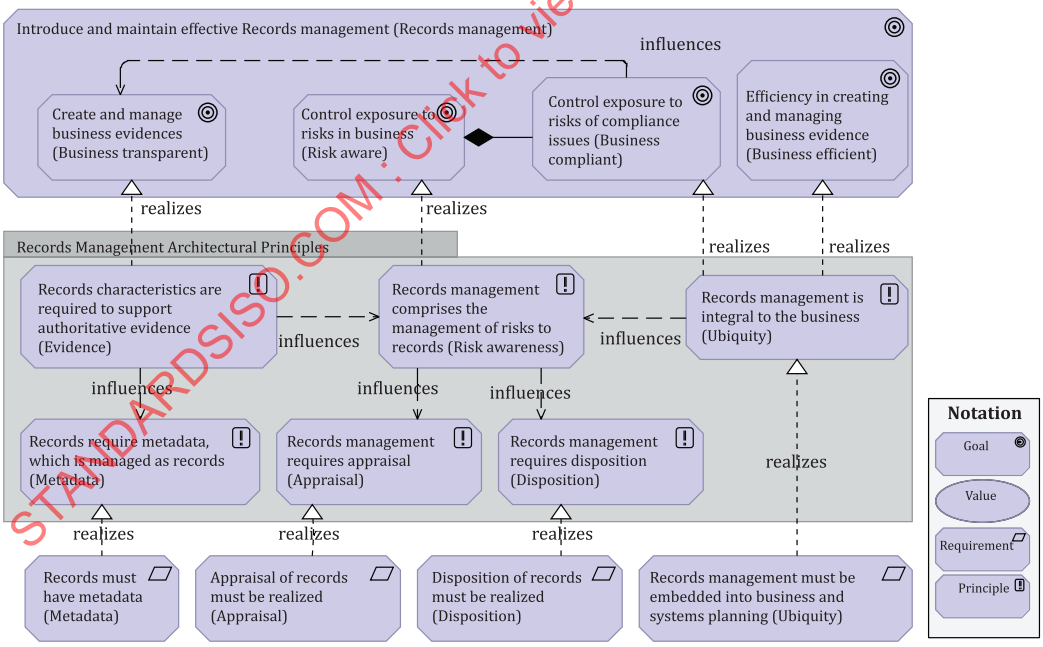

Figure 8 — Records management motivation view — Architecture principles (ArchiMate diagram)

9.2 Records management architecture principles

9.2.1 General

The architecture principles of Records Management are set out in the TOGAF format, with a principle statement, description, rational, and implications. See also Annex B.

9.2.2 Principle of evidence: Records characteristics are required to support authoritative evidence.

Description	Regardless of form or structure, to be considered authoritative evidence of business activity records possess the characteristics of authenticity, reliability, integrity and usability.
Rationale	Information intended as the evidence of business activity cannot be considered an authoritative record if it does not possess these characteristics (as defined in ISO 15489-1): — Authenticity: "An authentic record is one that can be proven to: — Be what it purports to be; — Have been created or sent by the agent purported to have created or sent it; and — Have been created or sent when purported."
	— Reliability: "A reliable record is one: — Whose contents can be trusted as a full and accurate representation of the transactions, activities or facts to which they attest; and — Which can be depended upon in the course of subsequent transactions or activities" — Integrity: "A record that has integrity is one that is complete and unaltered." — Usability: "A useable record is one that can be located, retrieved, presented and interpreted within a period deemed reasonable by stakeholders."
Implications	As business context changes over time, businesses take appropriate action to protect the authenticity, reliability, integrity and usability of records (as defined in ISO 15489-1): — Authenticity: "Business rules, processes, policies and procedures which control the creation, capture and management of records are implemented and documented to ensure the authenticity of records. Records creators are authorized and identified." — Reliability: "Records are created at the time of the event to which they relate, or soon afterwards, by individuals who have direct knowledge of the facts, or by systems routinely used to conduct the transaction."

	— Integrity: "A record is protected against unauthorized alteration. Policies and procedures for managing records specify what additions or annotations to a record are possible after its creation, under what circumstances authorizations are required for such additions or annotations, and who has authority to make them. Any authorized annotation, addition or deletion to a record is explicitly indicated and traceable." — Usability: "A useable record is connected to the business process or transaction that produced it. Linkages between records that document related business transactions are maintained." That implies management of replicas and avoidance of duplicates: — Duplication of records (meaning the same record exists in more than one replica) is avoided, and access points are unique; otherwise risks to the records characteristics can emerge. However, in scenarios of distributed applications imposing replication of records, the technology in place is required to ensure the state of the replicas and the access to them is always consistent. — In scenarios where business systems are required to exchange records with external systems, mechanisms are established to make sure the replicas are consistent (for example through the use of unique identifiers).

9.2.3 Principle of metadata: Records require metadata, which is managed as records.

Description	The term "metadata" is defined in ISO 15489-1 as "structured or semi-structured information, which enables the creation, management, and use of records through time and within and across domains." Records metadata are the information required to describe the context, content and structure of the record and to support the management of records through time. The metadata of a record is created in the scope of records management activities, but should also be managed as a record, and thus be protected from loss or unauthorized deletion. Metadata should also be retained or destroyed in accordance with requirements identified in appraisal.
Rationale	Metadata provides context that is essential to information assets. It is possible to connect an event to an outcome by capturing its business context as metadata. Records that do not possess metadata cannot achieve the characteristics required to be authoritative.
Implications	— The metadata linked to a record is persistently linked with that record. — Metadata schemas are authoritative concerning the definition of the metadata used to identify, describe and manage records. — Metadata are part of the records, meaning access to metadata are controlled using authorized access and permissions rules. — Metadata supporting the characteristics of the data are not altered. — Metadata schemas for records enable interoperability across systems, information sharing, and migration and transfer processes.

9.2.4 Principle of risk awareness: Records management comprises the management of risks to records.

Description	Management of records ensures the sustainability and continuity of records, implying the need for related risk management concerning potential threats and risk events.
Rationale	The failure to ensure that risk has been managed can damage the characteristics of records required for the record to be considered authoritative. Events raising potential threats could include those related to inadequate creation (Appraisal), context (Metadata), prevention of changes to finalized records, migration of records, updates of systems or changes in technology
Implications	— Any migration of records, updates of systems, or change in the technology (especially, the decommissioning of systems), is preceded by an adequate risk assessment, performed in the scope of a proper risk management process. — The support and maintenance of Records Management capabilities is independent of any changes of the business context, of the business processes or responsibilities, or of the systems and technology supporting the business, which is expected to be always decommissioning-ready. The capability of interoperability is continuously maintained, meaning records, as information assets, are always secured against risks that might threat them from being: — Secure and appropriately available (records are accessible to only appropriate parties; changes to any record or records metadata are recorded); — Migrated from decommissioned systems to new or other existing systems; — Exported to external systems (here also considering the risks of replication of records).

9.2.5 Principle of ubiquity: Records management is integral to the business.

Description	Business activity triggers the creation of records, which are the authoritative evidence of business. The requirements for generating and managing records are derived from appraisal, which considers the business, legal and societal contexts. That implies the creation, capture and management of records are integral parts of conducting business, in any context. NOTE This is a general principle that sets out overview rationale and implications.
Rationale	Records provide authoritative evidence of business activity and are key information assets of the business. When planning enterprise architecture managing records as evidence of business activity is fundamental for business and information architecture domains. Some business benefits of records management include: — Improved transparency and accountability; — Informed decision making; — Protection and support in litigation; — The preservation of corporate, personal and collective memory.

Implications	— Additional business activities (i.e. processes) are required to manage records. — Additional technological capabilities or augmentations to existing capabilities might be required to support records management. — People with assigned responsibilities relating to the creation, capture and management of records should be competent to perform these tasks. Competence is regularly evaluated and training programs to develop and improve such competencies and skills are designed and implemented where required. — Policies are required to support records management (e.g. retention policies). — Business solutions should build in records management capabilities by design or consider the interoperation with records management applications or services comprising these capabilities.

9.2.6 Principle of appraisal: Records management requires appraisal.

Description	Decisions regarding the creation, capture and management of records are based on the outcome of an appraisal (analysis and risk assessment of business activities, in their business, legal, regulatory and societal contexts). *"Appraisal is the process of evaluating business activities and work processes to determine which records need to be created and captured and how long the records need to be kept. Appraisal combines an understanding of business context with the identification of requirements for evidence of business that should be met through records. Both activities involve the assessment of risk; the risks affecting the business generally; and risks that can be managed through the creation and management of records.* *Appraisal involves:* — *developing an understanding of the legal, resourcing and technological setting for the business and the nature of the business conducted; and* — *using risk assessment to determine what records should be created and how they should be managed to meet the range of requirements which apply to the business."*
	[SOURCE: ISO 15489-1:2016, 7.1] For an in-depth analysis of the concept of appraisal, see ISO 15489-1.
Rationale	Appraisal ensures proper diligence has occurred while evaluating appropriate records to be managed over time with a focus on mitigating any business, legal, regulatory, or societal risks associated with unmanaged records
Implications	— Appraisal is carried out in cooperation with internal, and where required, external stakeholders. — Appraisal activities also generate records. — Appraisal results is periodically reviewed when either or both the business and risk factors change.

9.2.6 Principle of disposition: Records management requires disposition.

Description	This principle establishes the following expectations: — As identified through appraisal, records are retained for the length of time appropriate for business purpose and in accordance with policy, legislation, and regulation, after which time they can be disposed of, including transfer to the governance of an archival authority, destruction, etc. — Systems have records disposition capability and, in consequence, the capability of destruction and the capability of export, to support migration of records to other systems. — Appropriate disposition authorities are in place for the timely destruction of records. Retention and disposition policies and processes are consistent with disposition authorities. — Disposition of records is part of routine system operations and not deferred to end of life of a system, except where this has been assessed as appropriate.
Rationale	Ensures that disposition is an active part of the management of records and that it mitigates business, regulatory, legal and societal risks associated with maintaining records for a longer period than appropriate.
Implications	Technical decisions and responsibilities include accounting for retention requirements as well as disposition processes and defined authorities. Disposition actions that are embedded into an existing system are documented and mapped to a disposition authority. Disposition activities are themselves transactions, and therefore produce records. Where existing systems cannot retain records as required by the disposition authority, the required records can be exported to another system that can meet the requirement. Where records are exported for the purposes of retention requirements, the export includes the appropriate context including appropriate metadata for records management requirements, and does not alter the original context including source, business function, creator or author, creation and event dates, etc.

10 View: Records management reference application scenarios

Records controls and processes, as described in ISO 15489-1, allow for flexibility in implementation choices. Records management concerns can be addressed either:

— by specific business systems (enriching them with capabilities to manage records), or

— by specific records management applications (when a systems perspective is in place).

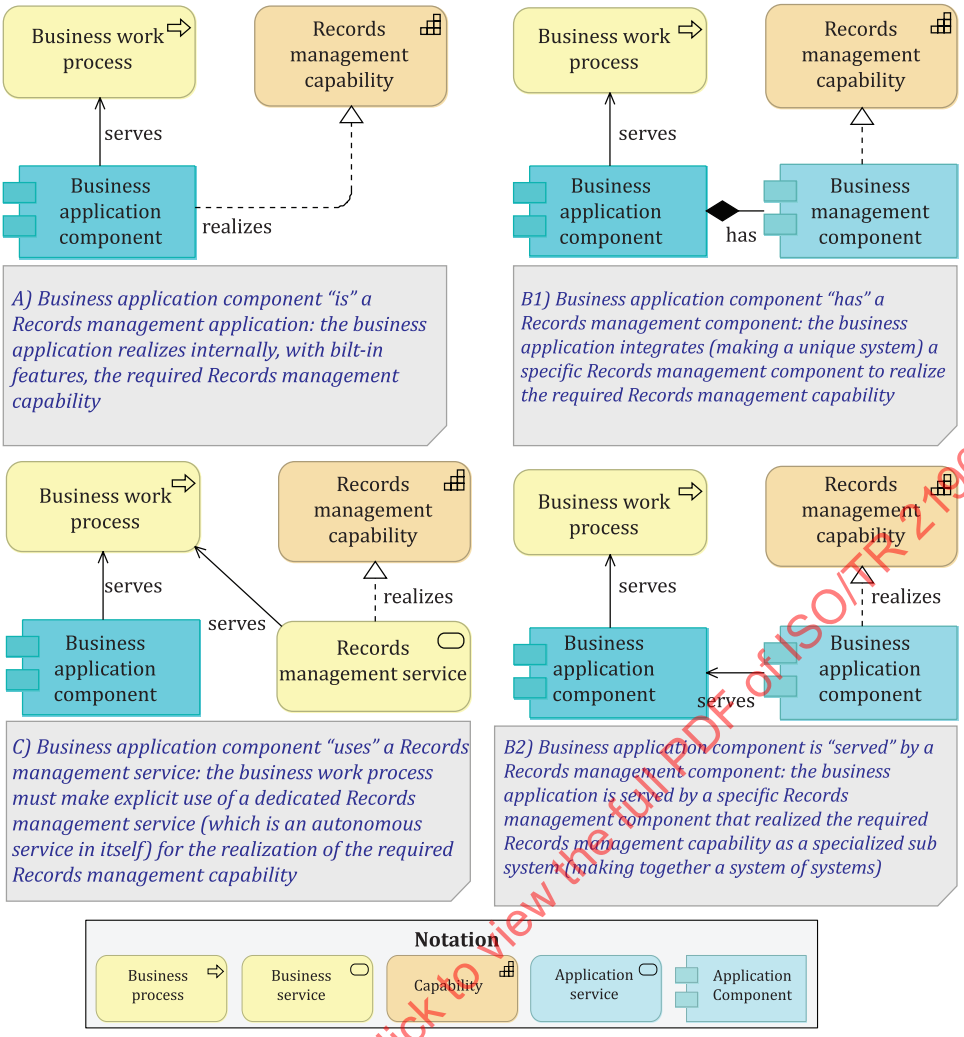

Figure 9 — Records management reference application scenarios view (ArchiMate diagrams)

The concept here of "system" is therefore one of a "management system" as promoted by ISO since the emergence of the ISO 9000 series of standards, which aligns with the concept of "system of concerns" as defined in ISO 42010.

Enterprise architecture considers the impact of the augmented requirements of the business systems to account for records requirements. In general, the realization of those requirements can be achieved through three main reference scenarios as illustrated by the collection of diagrams in the Figure 9.

— Scenario A: This diagram illustrates the scenario where records management requirements are realized by the business applications. This might occur in two extreme scenarios: (i) the "hard option", when the business domain imposes very specific records management requirements, so the records management capability is intrinsically related with the business capabilities, or (ii) the "soft option", when the Records Management requirements are readily achievable within the business application.

— Scenario B: This diagram illustrates the scenario when the requirements of the business domain are common records management requirements, enabling the use of available COTS[7)] solutions for records management, which can occur in two sub scenarios.

  — Sub scenario B1: The COTS solution is a component that fully integrated in with the business application, as part of it, making a unique integrated system. This is usually the case when the COTS component is built with the same technology of the business application, or in a technology compatible with that, as for example when they were both developed on a software engineering framework that makes that possible, or simply were both programmed in the same programming language.

  — Sub scenario B2: The COTS solution is a component that serves the Business application as a sub-system, making together a unique system as a system of systems. This can be the case, for example, in Service Oriented Architecture (SOA) environments, where the Records Management component is exposed to the Business application component as a service controlled by the business application.

— Scenario C: This diagram illustrates the scenario where records management, as an application capability, is realized by a specific service that the business work process uses. This can occur due to explicit imposed requirements (compliance, legal framework, etc.), or convenience (governance decision to delegate, subcontract, etc.).

Scenarios A) and B) make it possible to manage records in place, while Scenario C) corresponds to the most common architecture, where records system capture and manage records from other business systems.

11 View: Records management strategy and implementation

The diagram in Figure 10 models the records management strategy and implementation view, which can be read as follows (to note that, in this context, the association of the stakeholders "Program Manager", "C-level Manager" and "Records Manager" are very relevant).

— The course of action "Records Management is integral to business" realizes the goal "Records Management".

— The "Records Management capability", realizes the generic course of action "Management of Records is integral to business". This capability realizes the requirement "Metadata", and comprises also the following three specialized capabilities[8)]):

  — "Records capture and creation capability", which realizes the specific requirement "Ubiquity" (in the sense that records management is embedded into business and systems planning);

  — "Records disposition capability", which realizes the specific requirement "Disposition";

  — "Records appraisal capability", which realizes the specific requirement "Appraisal".

— This view also stresses the following relevant associations of the stakeholders:

  — "C-level Manager" to the "Records Management architectural principles";

  — "Records Manager" to the "Records Management capability";

7) The acronym "COTS" is common in systems engineering and stands for "Commercial Off-The-Shelf", "Commercially Available Off-The-Shelf" or "Component Off-The-Shelf", COTS satisfy the needs of the purchasing organization, without the need to commission custom- satisfy the needs of the purchasing organization, without the need to commission custom-made, or bespoke, solutions.

8) In addition to these capabilities specialized for records, any records management solution can also consider other common capabilities for information management, such as finding and reading capabilities.

— “Program Manager” to:

  — The “Records Management architectural principles”;

  — The “Records Management capability”;

  — The "Records Management requirements”.

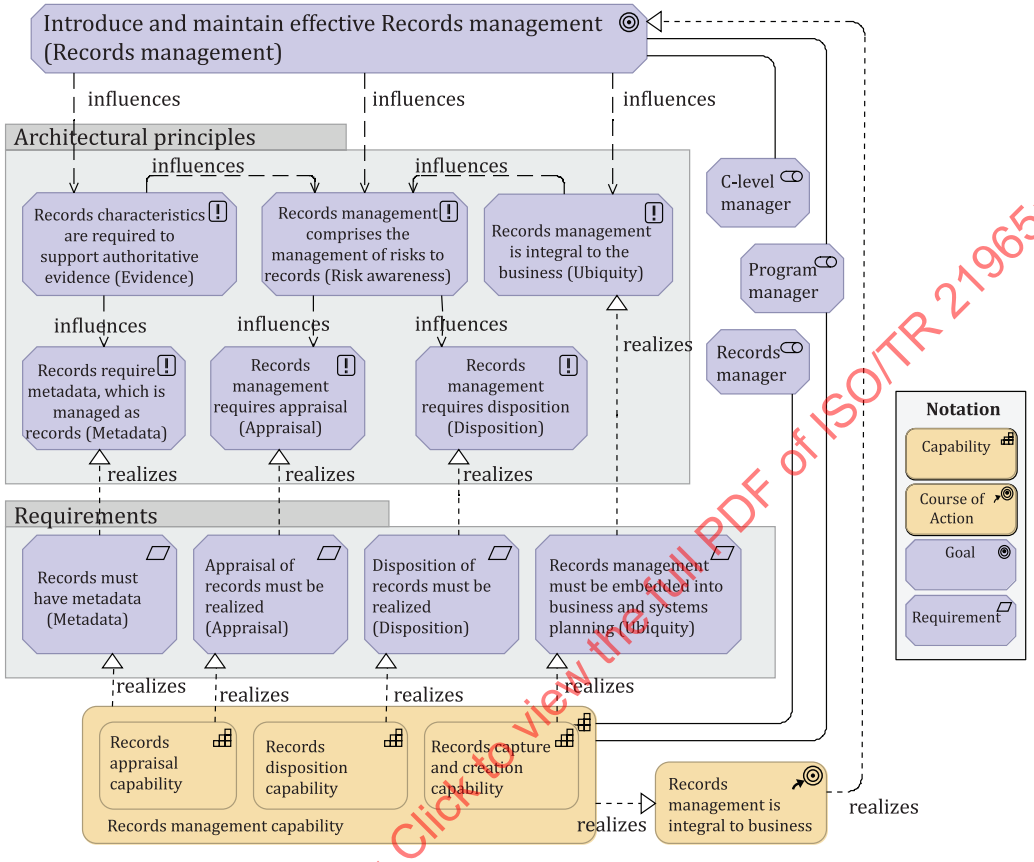

Figure 10 — Records management strategy and implementation view (ArchiMate diagram)

12 Records management and the Architecture Development Method

12.1 General

TOGAF has developed the Architecture Development Method[10], which has become the main reference method for general guidance for the practice of enterprise architecture. In its present version, TOGAF 9.1 does not contain specific guidelines on how records management concerns can be addressed in the development of the enterprise architecture but, in principle (as for any other specific domain) they are to be considered in all architecture domains and phases of the ADM.

The goal of this section is to explain the records management considerations to be addressed during the application of the TOGAF ADM. It is intended to help enterprise architects and records managers by describing the activities and outputs needed to ensure that records management concerns are covered in the development of the target state Enterprise Architecture and roadmaps.

Records management does not need to be treated as a separate architecture domain. Its concerns can all be expressed in requirements relating to the main architecture domains and phases of the ADM, as already considered by TOGAF and covered by the ArchiMate Core Framework (as illustrated by the informal diagram in Figure 11), as well as, for example, to the specialist security architecture domain.

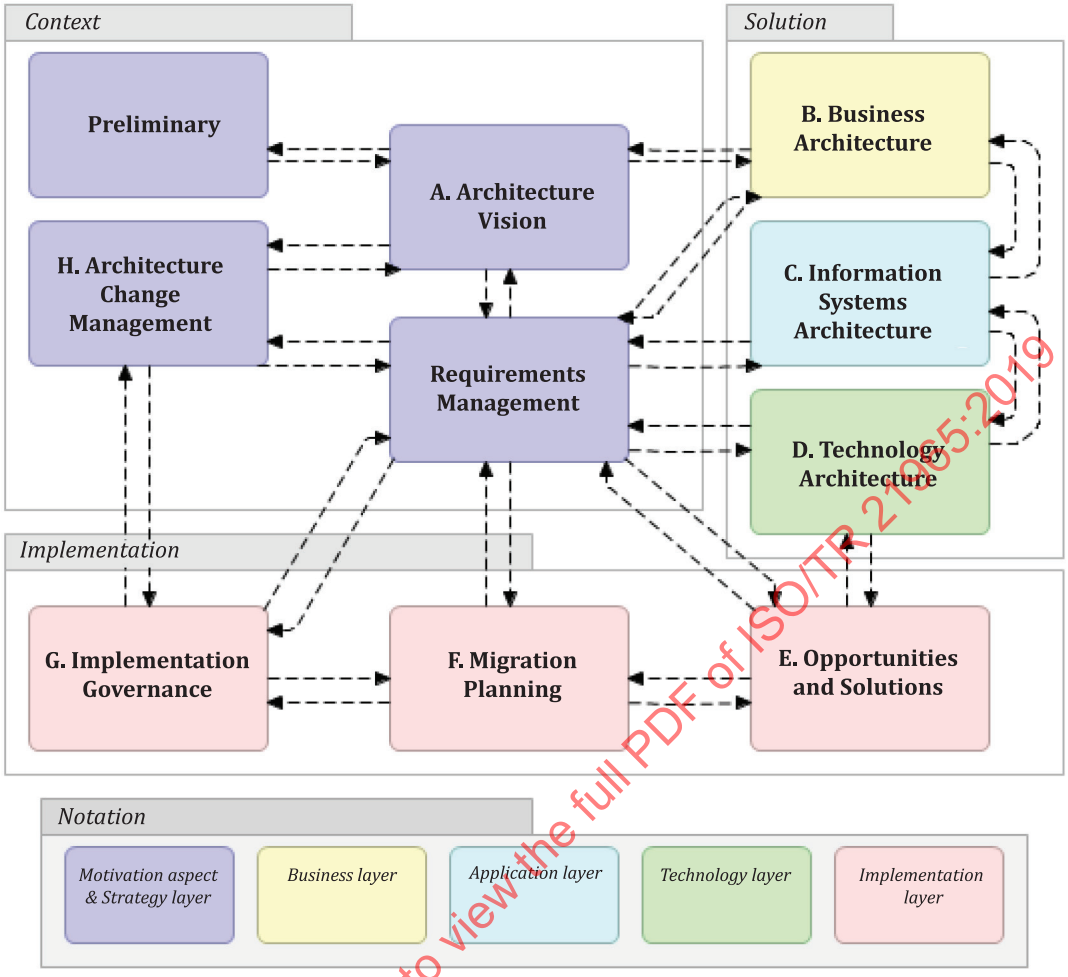

Figure 11 — Records management in relation to TOGAF ADM phases and ArchiMate layers

12.2 Areas of concern for records management within enterprise architecture

The main areas of concern for records management within enterprise architecture are:

— Creation: Adequate creation and or capture of records, persistently linked to the business context within which they were created or received;

— Authenticity and reliability: Adequate and auditable maintenance of the authenticity and reliability of records, including their metadata, over time and through system migrations, system decommissioning, etc.;

— Availability: The ability to retain records, including their metadata, such that they are available to meet the needs of the organization and external parties;

— Disposition: The ability to identify the business and statutory requirements for retention of records over time (including requirements for compliance), to prevent unauthorized changes or destruction, and to manage and keep records of their disposal, including destruction or transfer to other parties;

— Risk management: The organization's attitude and tolerance for risks related to the business due the inadequacy of records, and for risks to the records themselves;

— Responsibility: The ability and commitment of the organization to assign responsibility for records management activities at appropriate levels: the organization, the business, specific workflows, etc.;

— Compliance: The organizations knowledge of and ability to demonstrate compliance with the records management requirements of external parties, such as industry or government regulators.

12.3 Records management objectives by method phase

This subclause outlines the records management objectives by ADM Phase (for more detail and suggestions see Annex C: Alignment with the TOGAF ADM Phases).

ADM Phase	Records management indicative objectives
ADM Architecture Requirements management overview	Requirements pertaining to Records Management are defined and refined throughout the ADM and managed within the Requirements Management Phase to keep it up to date: — Ensure requirements for evidence of business activity through records are appropriately identified; — Ensure requirements exist to protect the authenticity, reliability, integrity and usability of records as they are managed over time.
Preliminary phase	— Determine and establish the Records Management capability desired by the organization. — Ensure the use the Records Management principles to assist architecture and governance of change.
A – Architecture vision	— Describe how Records Management as a capability will meet the business goals and objectives and address the stakeholder concerns when implemented. — Identify the Records Management stakeholders, their influence within the organization and within the Records Management capability. Write down their key questions, issues and concerns around Records Management.
B – Business architecture	Ensure Records Management requirements are addressed by the Target Business Architecture and Architecture Roadmap options.
C – Information system architecture	Considering the relevance of data for the Records Management domain, it is recommended to consider two specialized complementary views during this phase, one for the data and the other for the applications: — C1 — Data in the Information Systems Architecture: Similarly to rationalizing data requirements for data capabilities, records requirements undergo the same diligence and consideration for the Records Management capability; — C2 — Applications in the Information Systems Architecture: — Rationalize Records Management requirements around the application (or applications; — Determine whether a dedicated Records Management application is required or whether a business system application will provide Records Management capabilities, either due to their present existence or due to future developments (see section “10 View: Records Management Reference Application Scenarios”).
D – Technology architecture	Ensure that the target state technology architecture — Considers Records Management requirements, — Considers whether separate technology is required or whether an augmentation to existing technology could meet requirements, and — Includes retention and disposition considerations along with estimated sizing and costings

ADM Phase	Records management indicative objectives
E – Opportunities and solutions	In the same way that other architectural areas are covered: — Consider the Records Management aspects of Phases B to D when performing gap analysis; — Consider business constraints relating to Records Management aspects of architecture; — Review consolidated records requirements across business functions.
F – Migration planning	— Consider the Records Management aspects of implementations for other initiatives to assess dependencies, costs and benefits of various projects and to prioritize Records Management across the business. — Include retention and disposition considerations along with estimated sizing and costings.
G – Implementation governance	— While following the organizations standard corporate, IT and architecture governance, ensure that Records Management is inserted into the appropriate areas for Governance. — Ensure the architecture contract with the implementation organization contains measures, objectives, and deliverables which account for good Records Management.
H – Architecture change management	Ensure that every Enterprise Architecture change request considers the impact on Records Management.

Annex A
(informative)

Relationships to ISO records management standards

Figure A.1 shows groupings of standards of the archives/records management standards. The ISO 30300 series are management systems standards, aimed at a governance level in an organization. There are practitioner standards, of which some provide wide-ranging requirements for records in almost any circumstance, while others are focused on specific processes that affect records in systems.

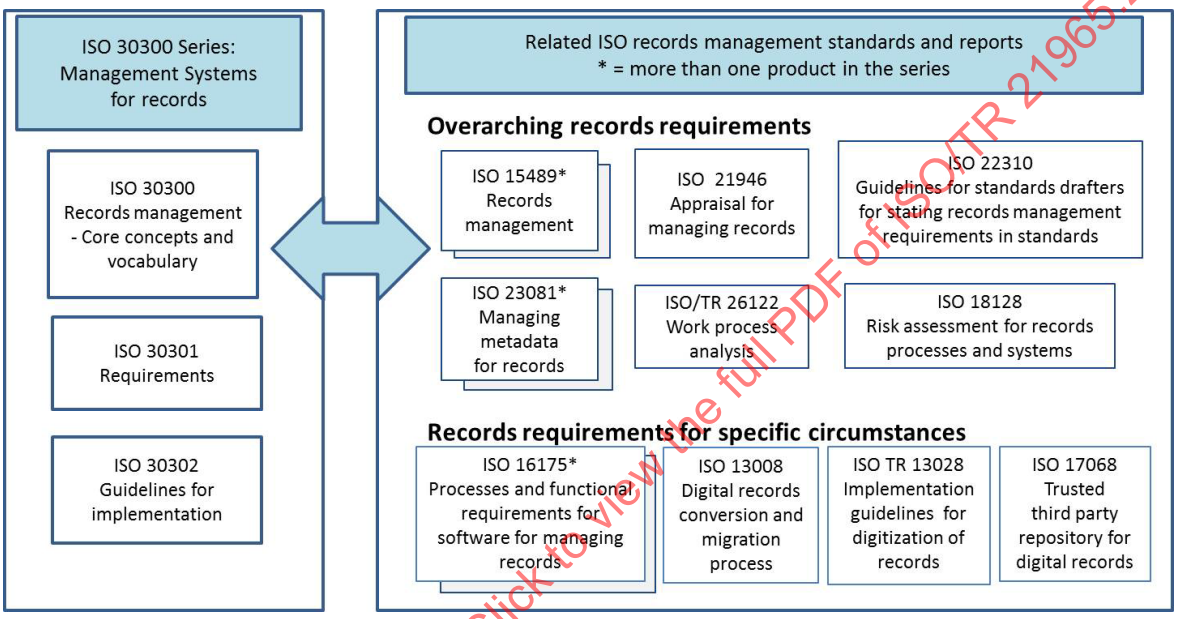

Figure A.1 — Existing International Standards on records management

Annex B
(informative)

Alignment of records management principles to ISO records management standard

Table B.1 — Principle of ubiquity[a]

ISO 15489-1:2016	ISO/TR 18128:2014
Principle 4 a) the creation and use of records is an integral part of doing business, in any context 7.3.2 Analysing functions and work processes	Areas of uncertainty 5.4.1 System design 5.5 Records processes: 5.5.1 Records design [including] a) business activities are adequately analysed to identify records requirements; b) gathering of records requirements is comprehensive for each business process, including needs of all interested parties; 5.5.2 Records creation and records system implementation. The areas of uncertainty in the creation and implementation processes are: a) points of creation or capture of all records elements are appropriate (timely, integrated, complete) to the business process and records system (s);
[a] Management of records is integral to the business.	

Table B.2 — Principle of evidence[a]

ISO 15489-1:2016	ISO/TR 18128:2014
Principle 4 c) to act as authoritative evidence of business, records, regardless of form or structure, should possess the characteristics of authenticity, reliability, integrity and usability	Areas of uncertainty 5.5.4.1 Maintaining usability 5.4.3 Sustainability and Continuity B.4.5 Maintaining usability
[a] Records characteristics are required to support authoritative evidence.	

Table B.3 — Principle of metadata[a]

ISO 15489-1:2016	ISO/TR 18128:2014
4 b) Records consist of content and persistently linked metadata 5.1.1 Metadata for records 7 Appraisal: 7.1 General. "Appraisal combines an understanding of business context with the identification of requirements for evidence of business that should be met through records. 8.2 Metadata schemas for records	Areas of uncertainty 5.5.1 Records design 5.5.2 Records creation and records system implementation. e) metadata specifications are adequately documented and maintained; 5.5.3 Metadata. The areas of uncertainty in the metadata management processes are: a) metadata technical specifications for documentation of records and records processes are accessible; b) management of specifications enables updating as required.
[a] Records require metadata, which is managed as records.	

Table B.4 — Principle of appraisal[a]

ISO 15489-1:2016	ISO/TR 18128:2014
4 d) decisions regarding the creation, capture and management of records are based on the analysis and risk assessment of business activities, in their business, legal, regulatory and societal contexts 7 Appraisal	4.3 Assignment of priority 5 Risk identification, subclause 5.1 – 5.3 External and Internal factors
[a] Management of records requires appraisal.	

Table B.5 — Principle of Risk Awareness[a]

ISO 15489-1:2016	ISO/TR 18128:2014
5.2 Records Systems The design and implementation of records systems should be informed by an understanding of the relevant business context (see 7.3) and identified records requirements (see 7.4), and in accordance with the following objectives: — conformance to the characteristics of records systems listed in Clause 5.2.1; — interoperability to support a flexible approach to the use of records controls; — ease of records usage and reuse; — readiness for technological or business change, such as system upgrades or administrative restructuring; and — readiness for business interruptions and business continuity in the event of unexpected disruptions. 6.2 Policies For areas of business with identified responsibility for records, policy and procedures should address not only the creation and management of records, but also required actions in the event of closing down of business processes; including decommissioning of systems and allocation of resources to enable migration, disposition of records and other activities as appropriate	5.2.2 Macro-economic and technological environments e) Introduction and adoption of new technologies across society [such as social media] Areas of uncertainty: 5.4 Records systems: 5.4.2: Maintenance 5.4.3 Sustainability and Continuity Areas of uncertainty include: i) migration of records to new records system due to either change in records requirements or in technology; j) changes to other systems upon which the records system is dependent; 5.4.4: Interoperability: — adequacy of identification and specification of interoperability required between records systems and other business systems; — dependency of records systems on data sources external to the records system and capacity to exchange data with, or link or refer to data in these systems (e.g. cloud, other external storage services); — compatibility of standards or specifications for the exchange of records or interoperability between systems; — the effectiveness of system interoperability after changes or technological upgrades to either or both of the integrated systems; — management of metadata relating to record controls between systems to sustain usability and meaning of the records.”
[a] Management of records comprises the management of risks to records.	

Table B.6 — Principle of disposition[a]

ISO 15489-1:2016	ISO/TR 18128:2014
5.3.2 Characteristics of records systems 5.2.3.1 Reliable i) allow for disposition actions to be carried out 6.2 Policies Policies should address required actions in the event of the termination of business processes. These may include decommissioning of records systems and allocation of resources to enable migration and disposition of records as appropriate. 8 Records controls Records controls should be developed to assist in meeting records requirements. Records controls include the following: d) disposition authorities 8.5 Disposition authorities …Rules for records retention and disposition… should be applied through the design of records systems and the operation of records processes. 9 Processes for creating, capturing and managing records 9.1 General Processes for creating and managing records should be integrated into procedures and applicable systems, including records systems … These processes include the following: h) disposition 9.8 Migrating and converting records The disposition of source records following a migration or conversion process should be authorized. 9.9 Disposition …. Records systems should be designed to support the execution of disposition actions… Disposition actions specified in disposition authorities should be implemented.	B.4.6 Disposition of records 5.5.5 Areas of uncertainty: Disposition of records The areas of uncertainty in the disposition processes are: — disposition of records implemented as designed and authorized; — b) disposition procedures include provision for holding records past their nominated retention period if required.
[a] Management of records requires disposition.	

Annex C
(informative)

Alignment with the TOGAF ADM Phase

Tables C.1 to C.11 show examples of what objectives, inputs, activities and outputs can be developed for each phase of the ADM process, concerning records management. They are indicative and not prescriptive.

Table C.1 — ADM Architecture requirements management

Objectives	— Ensure requirements of evidence of business activity through records are appropriately identified — Ensure requirements exist to protect the authenticity, reliability, integrity and usability of records as they are managed over time
Inputs	— Relevant Records Management standards (see also Clause 2, and Annex A) — Industry reference model(s) — Records Management capability maturity model(s)
Activities	— Identify changed requirements around the records system — Undertake impact assessments — Update requirements to include changes
Outputs	— Requirements impact assessment — Architecture requirements for change to records management capabilities

Table C.2 — Preliminary phase

Objectives	— Determine and establish the Records Management capability desired by the organization — The records management principles will be used to assist architecture and governance of change.
Inputs	— Relevant records management standards (see also Clause 2 and Annex A) — Industry reference model(s) — Records management capability maturity model(s)
Activities	— Scope the impact of records management on the business. — Determine existing records management capability — Allocate key roles and responsibilities that will be performed by Records Managers for enterprise architecture capability management and governance — Define records management policies, i.e. creation/capture and disposal retention policies
Outputs	— Organizational model for enterprise architecture — Scope of impact of records management on the business — Records management roles and responsibilities within the enterprise architecture team and organization — Records management principles

Table C.3 — Phase A — Architecture vision

Objectives	— Describe how records management as a capability will meet the business goals and objectives and address the stakeholder concerns when implemented. — Identify the records management stakeholders, their influence within the organization and within the records management capability. Write down their key questions, issues and concerns around records management
Inputs	— Organizational model for enterprise architecture — Scope of organizations impacted by records management — Records management roles and responsibilities within the enterprise architecture team and organization — Records management principles — Governance and support strategy
Activities	— Develop the architecture vision. Effective records management can be identified during the definition/identification of many aspects of the vision including but not limited to: — Problem description — Goals — Drivers — Constraints — Key stakeholders
	— Engage all stakeholders who will define, establish and use the records management capability — Within the value chain, describe the value of records management how it relates to other systems within the organization, and how it interacts with the outside world. — In the solution concept diagram, relate the objectives of records management in order to meet the objectives of the architecture. — Evaluate business capabilities supported by records management — Identify and document the anticipated physical/business/regulatory requirements in which records management application(s) will be deployed — Determine and document the criticality of the business systems that support records management capabilities — Define the performance metrics and measures for records management to meet the business needs
Outputs	— Records management capability maturity assessment — Records management stakeholder requirements — Regulatory environment statement — Business systems criticality statement — Architecture vision — Summary architecture views for records management — Records management business scenarios

Table C.4 — Phase B — Business architecture

Objectives	Ensure that records management requirements are addressed by the target business architecture and architecture roadmap options.

Inputs	— Records management capability maturity assessment
	— Records management principles
	— Records management policies
	— Reference models
	  — Industry reference model(s)
	  — Organization-specific reference models
	— Architecture vision
	  — Summary architecture views for records management
	  — Records management business scenarios

Activities	— Identify and describe the current state business processes responsible for records creation, capture, management and disposition.
	— Align records with various business processes, functions, or services for which the records act as evidence.
	— Develop baseline business architecture description
	  — Identify and document the ownership of information assets
	  — Determine the information assets that are critical to the business
	  — Perform an initial appraisal of these information assets in order to make decisions regarding the creation, capture and management of records
	— Develop target business architecture description
	— Assess alignment or conflict of identified records management policies with business goals
	— Identify required catalogues, matrices and diagrams used to present records management information within a business architecture
	— Catalogues[a]
	  — The organization/Actor catalogue — clearly define who is responsible for records management
	  — Drivers/Goals/Objectives Catalogue — clearly define the drivers, objectives and goals around Records Management
	  — Role catalogue — clearly defines records management roles
	  — Business service/Function catalogue clearly defines whether a service/function produces records, what records they produce, where they are stored, if they use records management applications, how and when they use it, what records they impact and how they impact on records management
	  — Location catalogue clearly defines the records storage systems that store records
	  — Process/Event/Control/Product catalogue defines which processes produce records, and what information around those events controls and products creates records
	  — Contract/Measure catalogue clearly defines the contracts and measures around Records Management

[a] Enterprise architecture “Catalogues” are equivalent to registers or annotated lists.	

Table C.4 *(continued)*

	— Matrices — Business interaction matrix — create a column that shows the interaction between the business services/function and records management — Actor/Role Matrix — create a clear role description of each role around records management and who is the authorized actor — Diagrams — Business footprint diagrams — represent everything that has been defined in the catalogues and matrices — Business service/Information diagrams — show the information flow to and from the records. It is possible to have a diagram for each function, etc. — Functional decomposition diagrams — clearly show the decomposition of the records management function: where it is within the organization and within different functions — Product lifecycle diagrams — clearly show where within the product lifecycle records management impacts the product — Optional — Use case diagrams around records management — Process flow diagrams showing records flows
Outputs	— Architecture vision updated — Draft architecture definition document — List of baseline and target business processes that require records management capabilities — List of information assets with owners — List of disposition authorities — Draft architecture requirements specification — List of regulatory requirements — List of business continuity and disaster recovery requirements — Requirements around the creation, capture and management of records — Retention and disposition requirements — Business architecture components of the architecture roadmap — Gap analysis between the baseline and the target state for records management capabilities — Work packages required to address records management capability gaps
[a] Enterprise architecture "Catalogues" are equivalent to registers or annotated lists.	

Considering the relevance of data for the Records Management domain, it is recommend considering two specialized complementary views during this phase, one for the data and the other for the applications.

Table C.5 — Phase C — Information systems architecture: Data

Objectives	— Rationalize records requirements related to the data and the data management lifecycle, and properly consider these requirements for the records management capability.
Inputs	— All inputs and outputs from previous phases — Data architecture principles (defined in architectural vision) — Data records management requirements
Activities	Create key catalogues/matrices/diagrams depicting the data required to satisfy achieve the records management capability. These could include:
	— Define records according to various characteristics of records identified in ISO 15489 (e.g. reliability, usability, integrity, etc.) — Assess and baseline current business applications that provide records management capabilities — Catalogues (specialized records catalogues) — Data catalogue — define the data entities of a records management application — Matrices — Data /Business function matrix — insert a column for the relationship between each data entity and Records Management functions — Data/System matrix — show the relationship between the data entity and data components and the records management application
	— Core diagrams — Domain model diagram — clearly define the domain model (e.g. classes diagram) around data management systems — Data dissemination diagram — define the attributes of identified data classes for a records management application — Optional diagrams — Data security diagram — show the privacy and security privacy around the Records Management application, the use of the records, who is permitted to use and/or view them (see the ISO/IEC 27000 family of standards. It is a recommended reference concerning security; requirements for privacy might vary, depending of the business context) — Data migration diagram — show the record migration from the current system to a new system and — Data lifecycle diagram — since records are data entities, show the lifecycle of records
Outputs	— Draft architecture definition document — Baseline data architecture, Version 1.0 — Business process/Function/Service to record matrix — Data entity to record matrix — Records catalogues — Target data architecture, Version 1.0 — Business process/Function/Service to record matrix — Data entity to record matrix — Records catalogues — Gap analysis

Table C.6 — Phase C — Information systems architecture: Applications

Objectives	— Rationalize records management requirements around applications — Determine whether a dedicated records management application is required or whether a business system application will provide records management capabilities (due to either their present existence or to future developments).
Inputs	— All inputs and outputs from previous phases — Records management requirements — Application architecture principles
Activities	— Align records with various business processes or functions for which the records act as evidence. — Define records according to various characteristics of records identified in ISO 15489 (e.g. reliability, usability, integrity, etc.) — Assess and baseline current records management applications that provide records management capabilities — Assess and baseline all records management applications — Catalogues — Application portfolio catalogue — have one portfolio for records management for each records management application, e.g. one for more open information and one for very sensitive information. — Interface catalogue — define the different interfaces of the records system to other systems within and external to the organization — Matrices — Application/Organization matrix — show the relationship between records Management applications and different parts of the organization — Role/Application matrix — show the relationship between records management applications and different roles within the organization — Application interaction matrix will define the interactions between the records management application and any other systems or users — Application/Function matrix with show the interaction between the records management application and functions within the organization