



Welcome to this live webinar on eArchiving Reference Architecture version 2.0

Start 10:00

21 March 2024

Audience notes for the Live Webinar



Your cameras have been turned off and microphones muted.



Closed captions are available in multiple languages.



If you have any technical issues during the event, please use the chat function.



Please use the Q&A for questions to speakers. These will be answered at the end of the event.



Please note that this webinar will be recorded. No attendee personal information will be captured in these recordings.

Agenda

10:00 – 10:05

eArchiving Initiative welcome

Jaime Kaminski – eArchiving Initiative training activity lead

10:05 – 10:50

eArchiving Reference Architecture version 2.0

István Alföldi – Poliphon

10:50 – 11:00

Q&A



eArchiving Reference Architecture version 2.0

István Alföldi, Poliphon

eArchiving Initiative Training Webinar

Agenda

Introduction

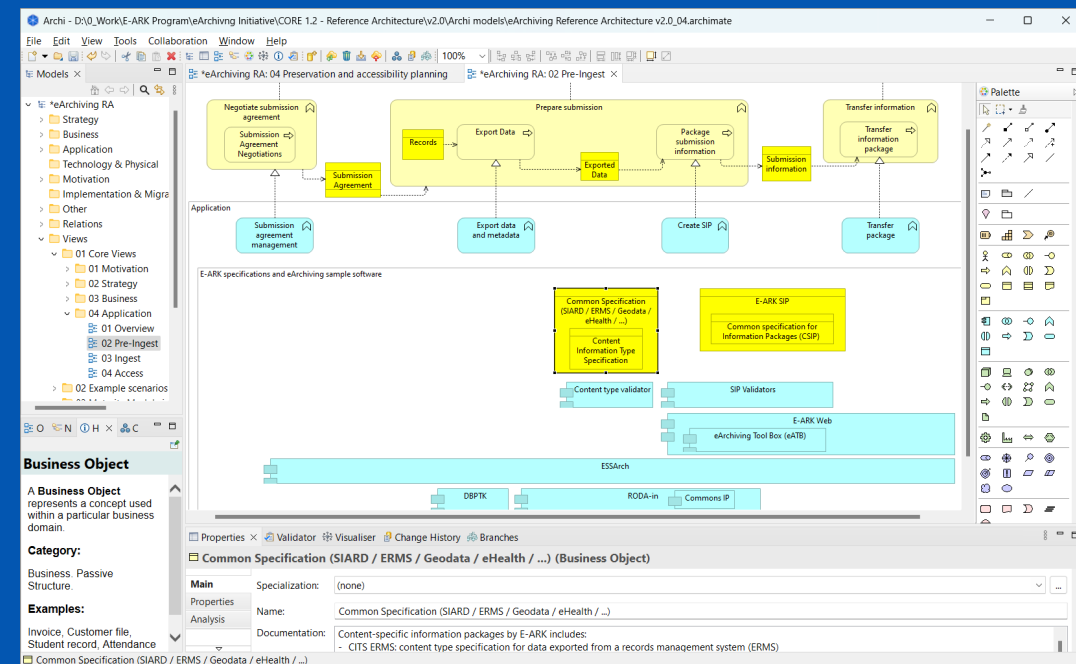
The ArchiMate Model

The Online Edition

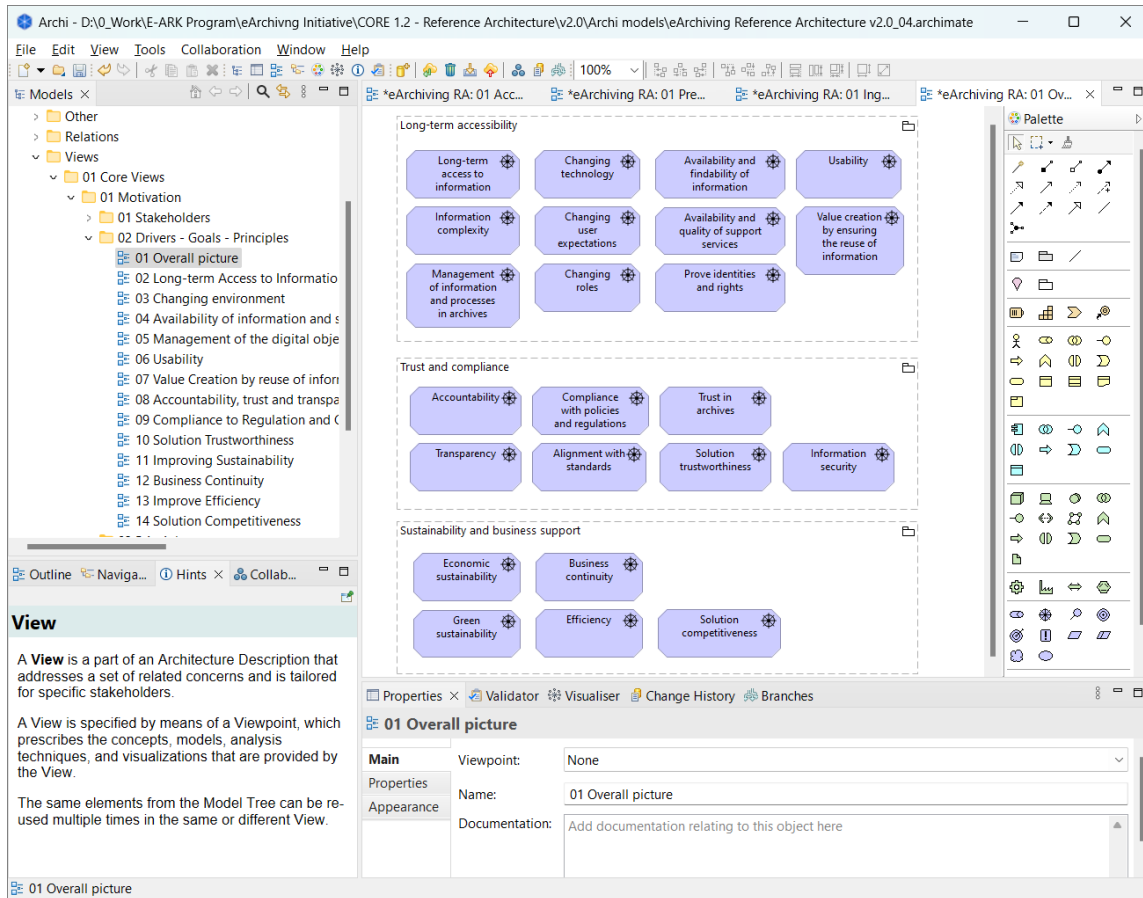
What's new in version 2.0

Use cases of applying the RefArch

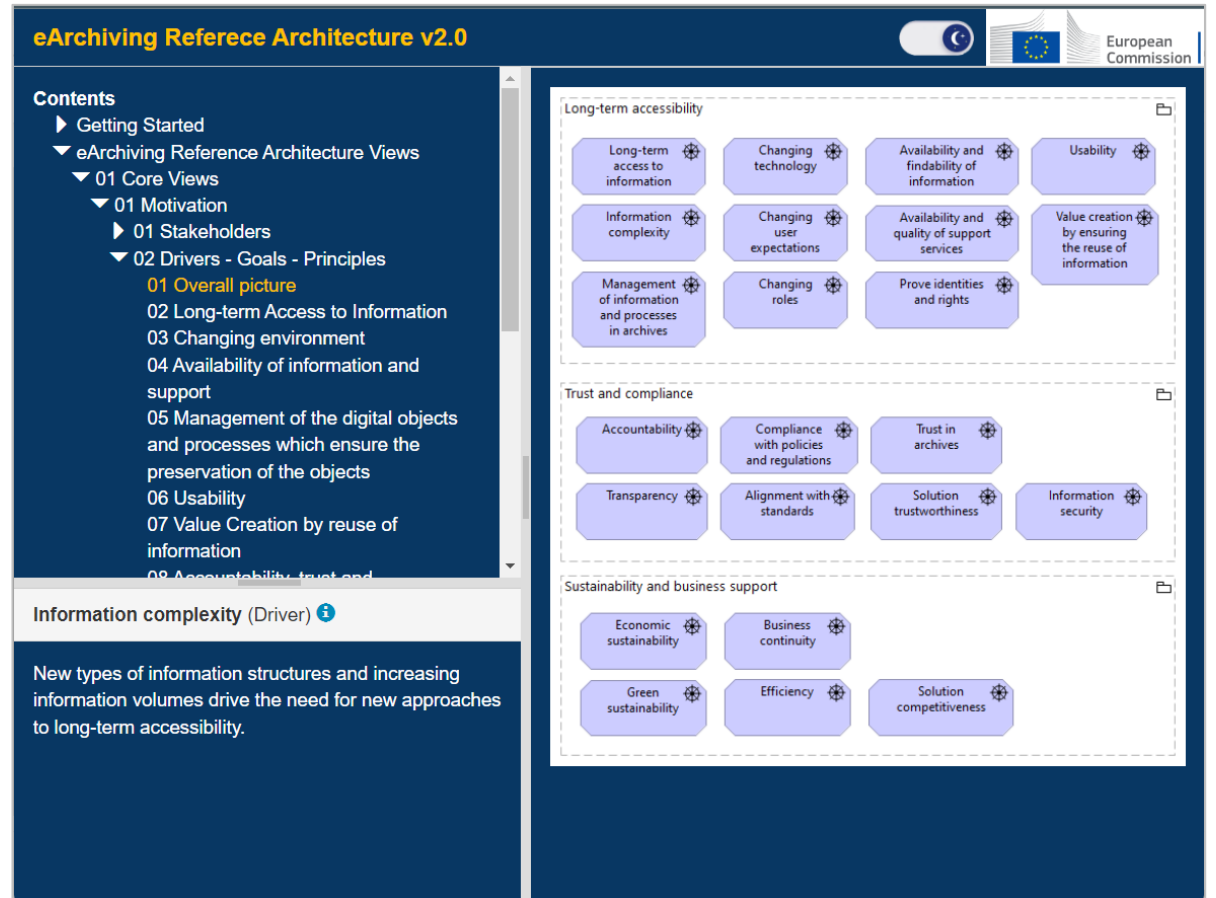
Future Plans



eArchiving Reference Architecture – Editions

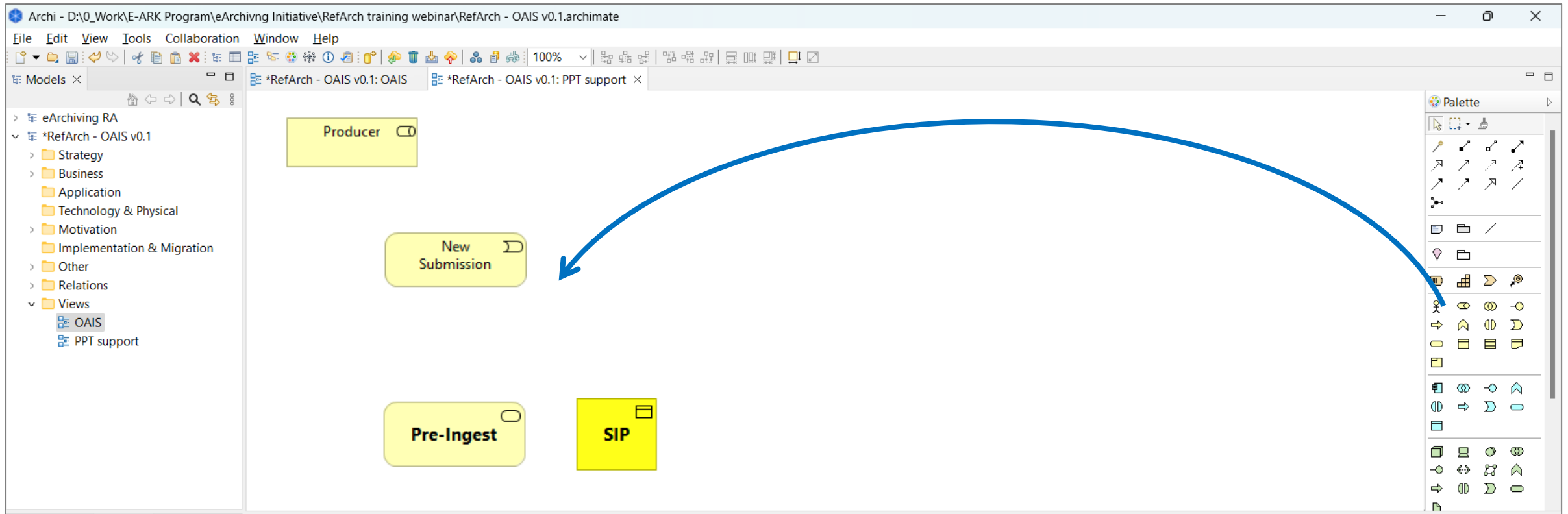


Archi model

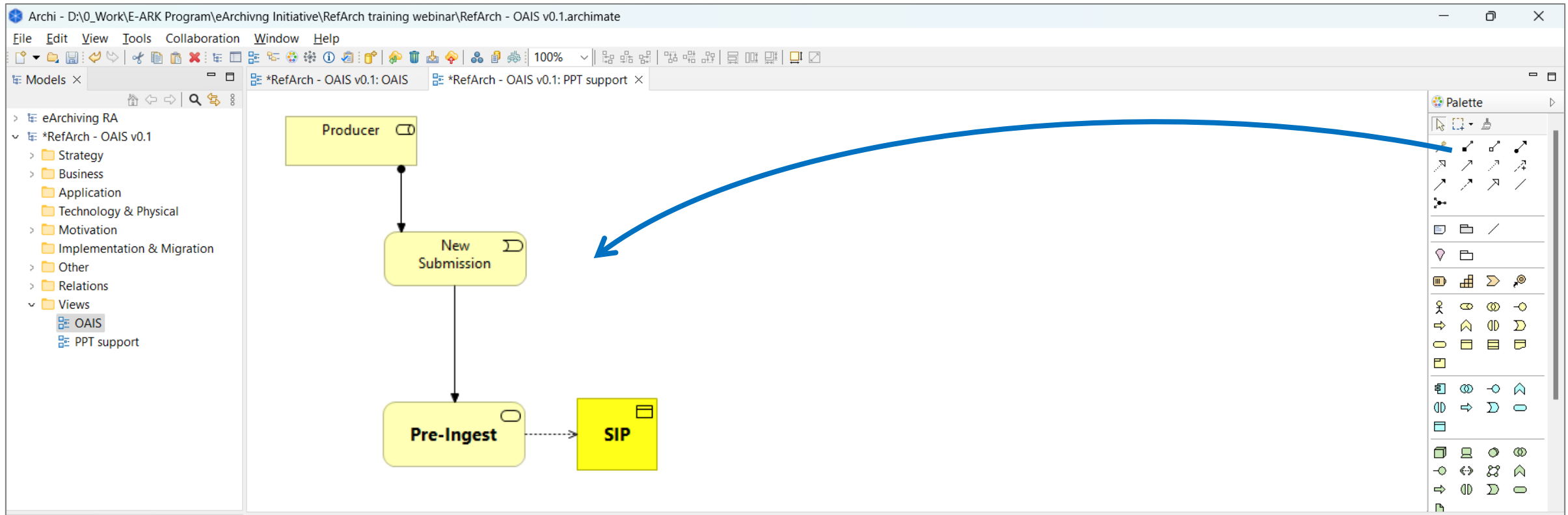


Online edition

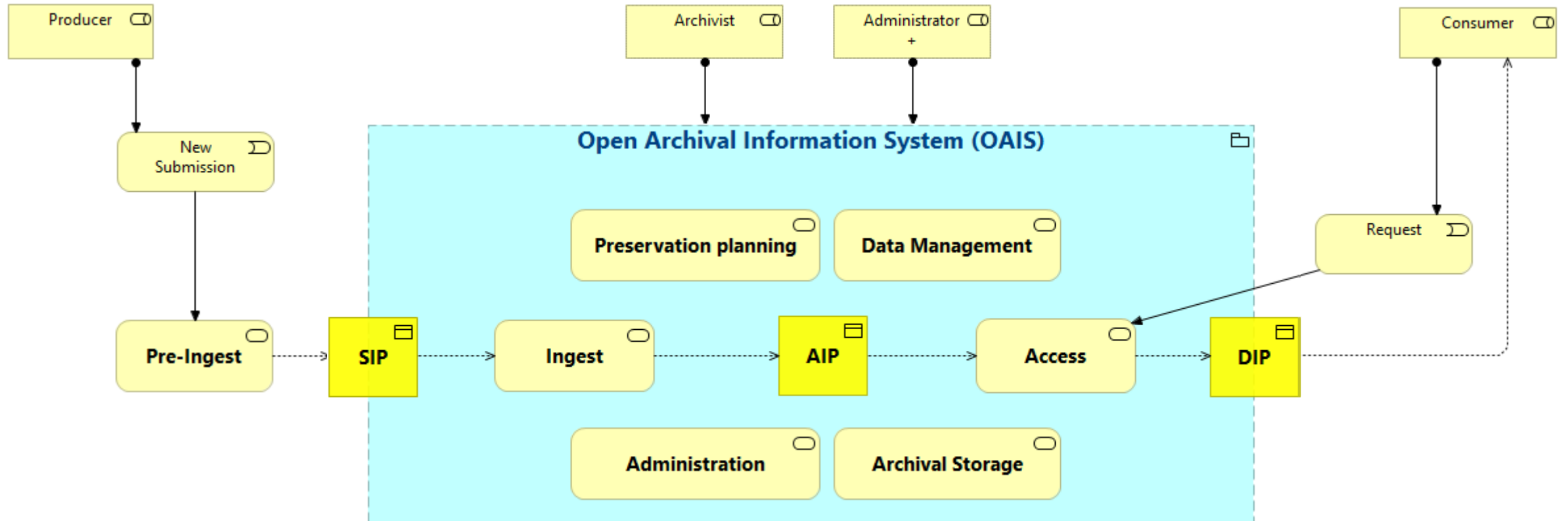
ArchiMate modelling in the Archi environment



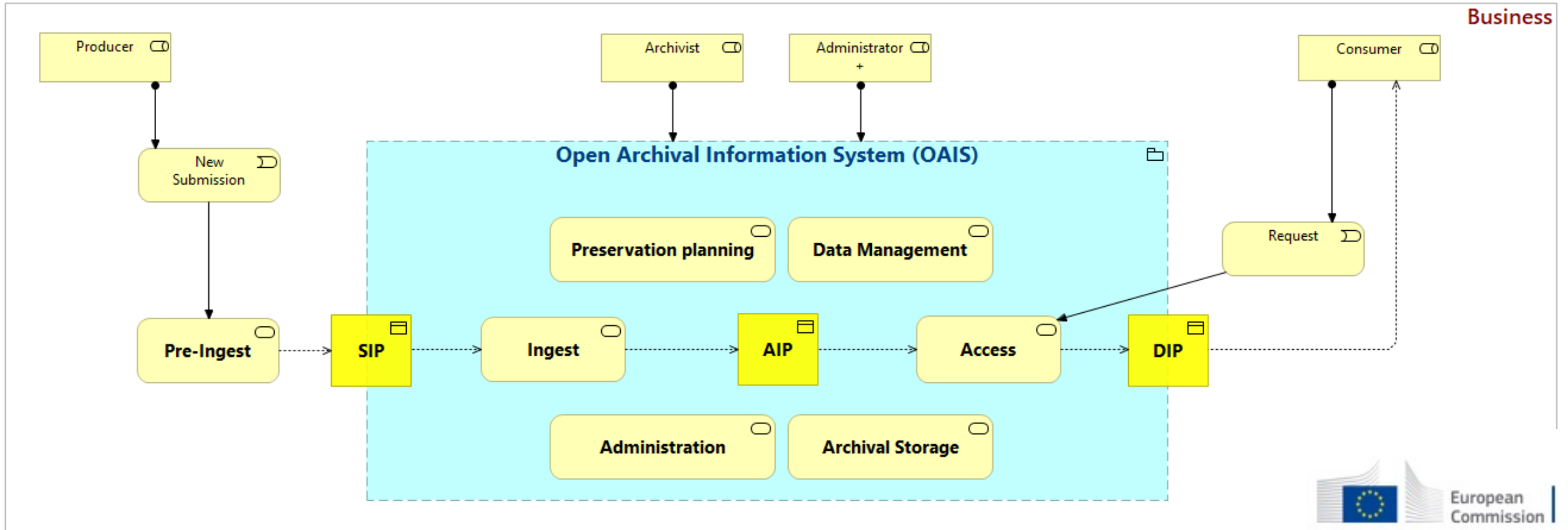
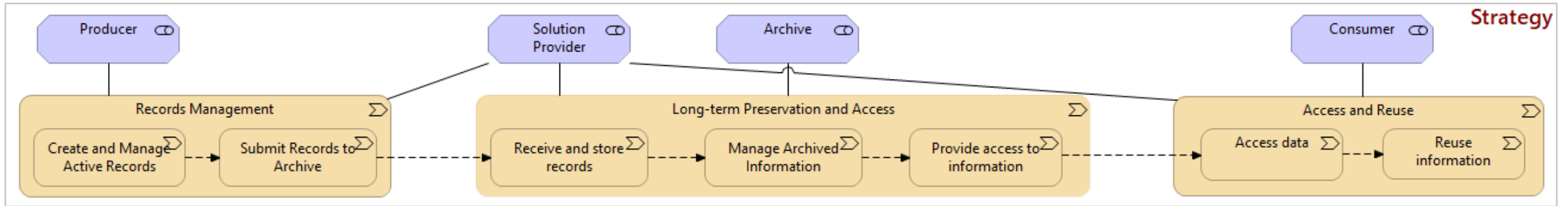
ArchiMate modelling in the Archi environment



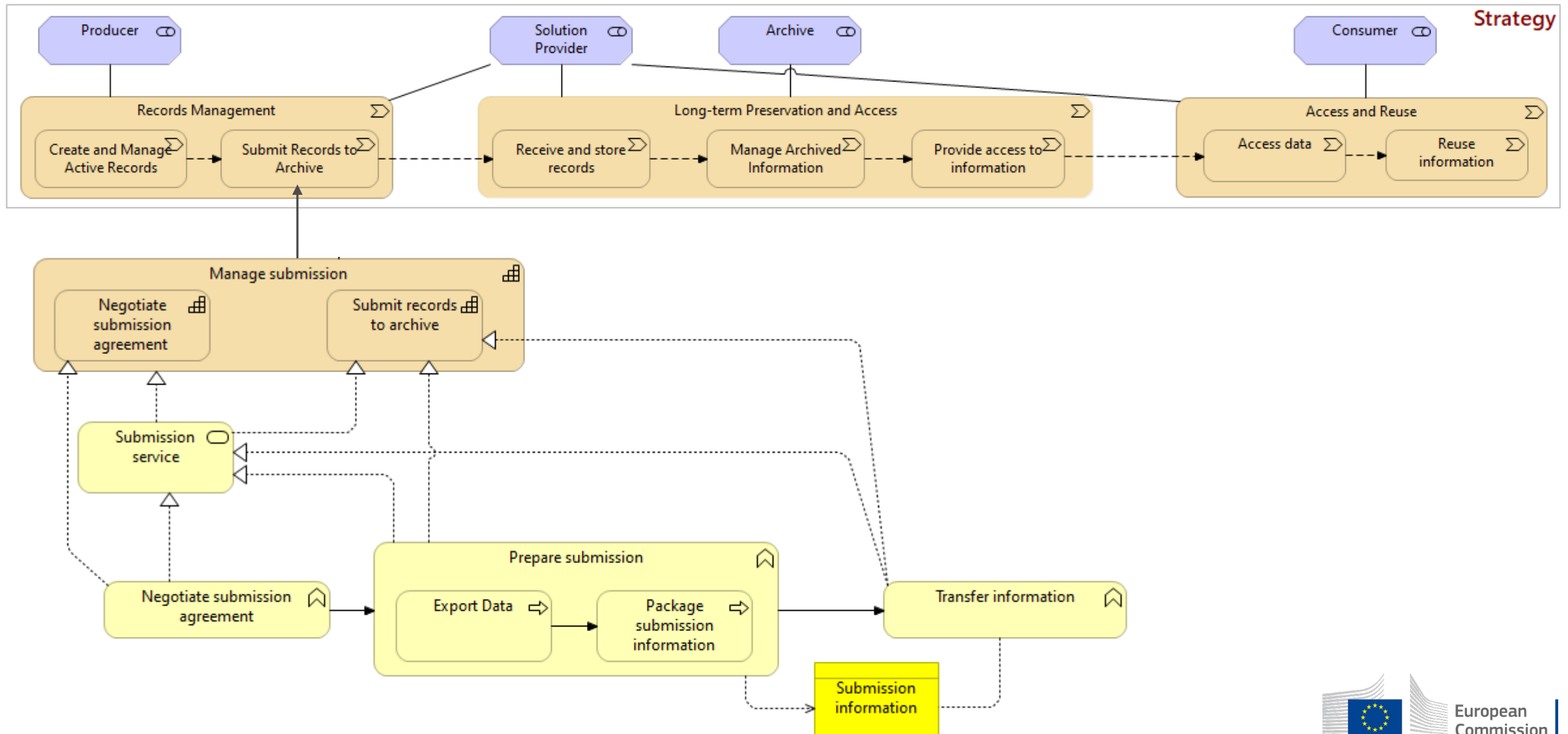
ArchiMate modelling example – OAIS



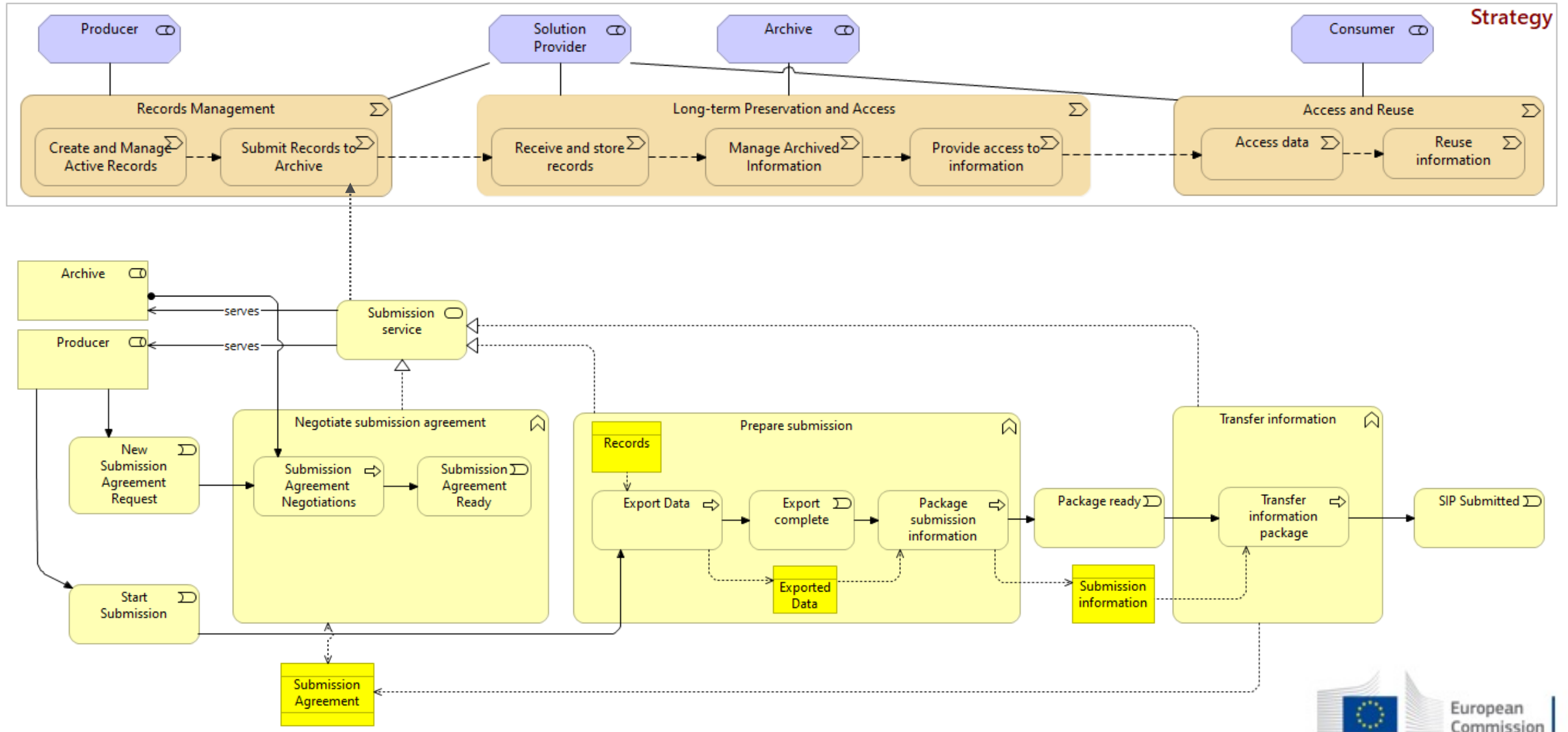
ArchiMate modelling example – OAIS



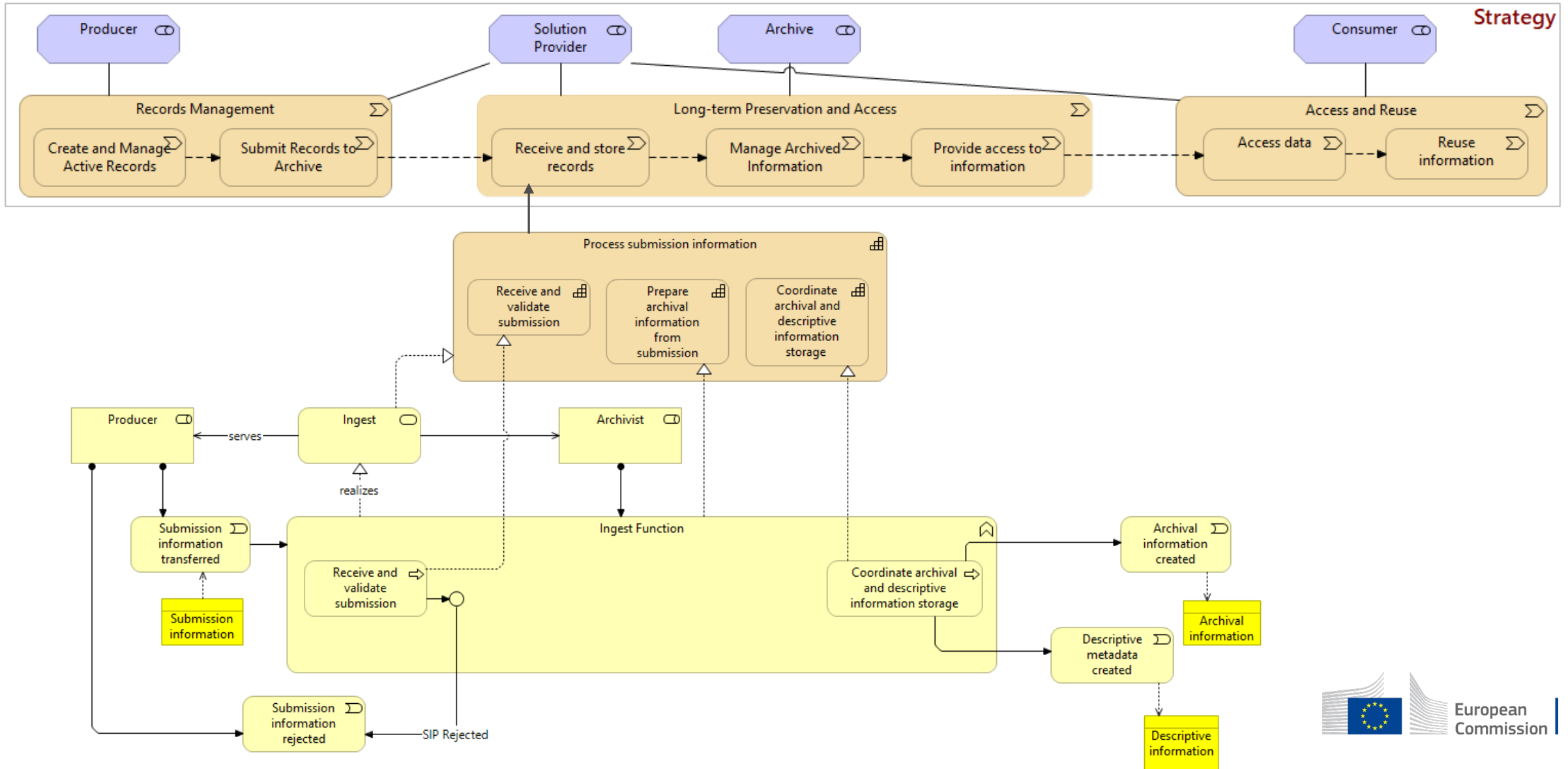
Core Views – Pre-Ingest (overview)



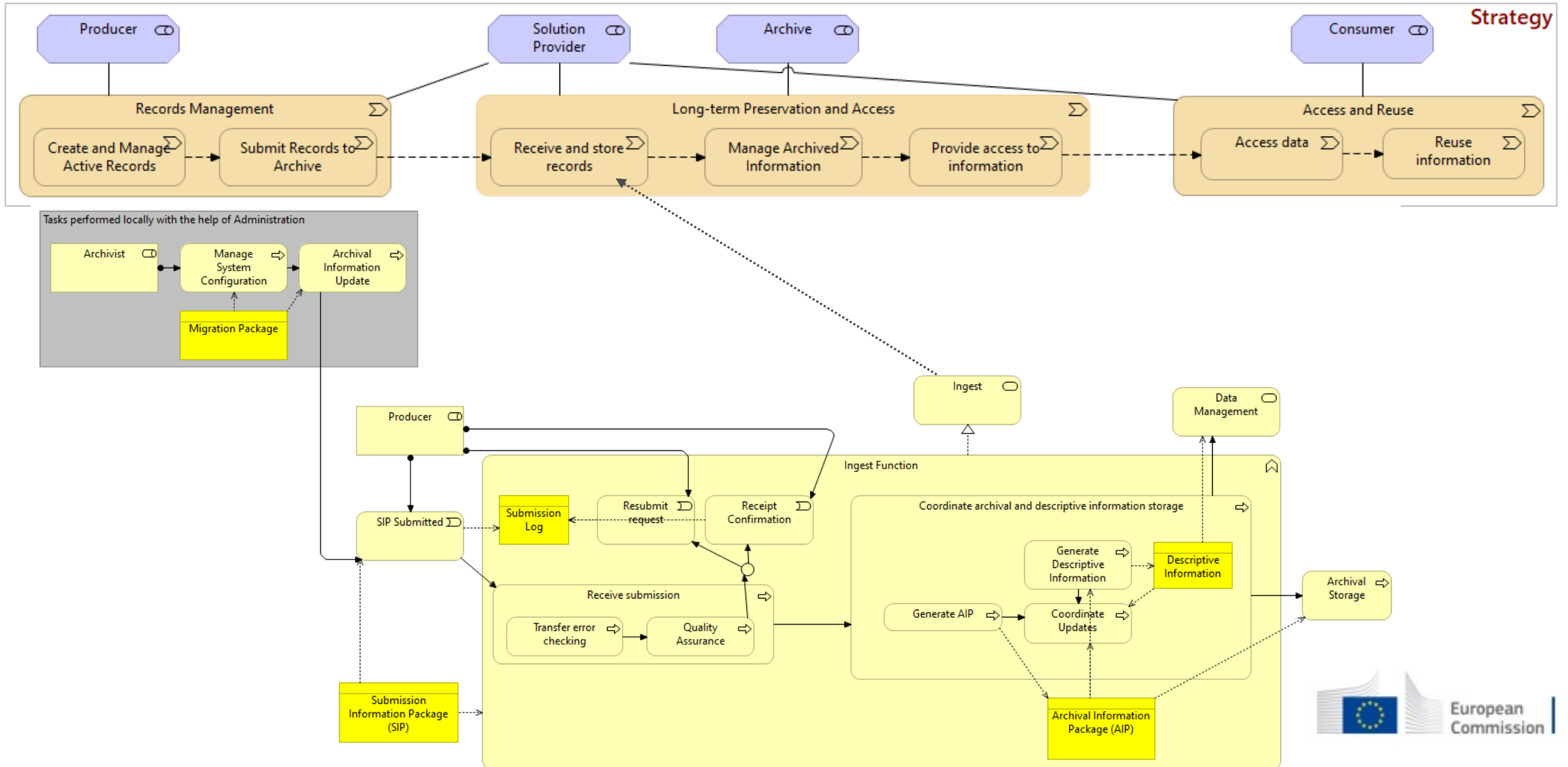
Core Views – Pre-Ingest (detail view)



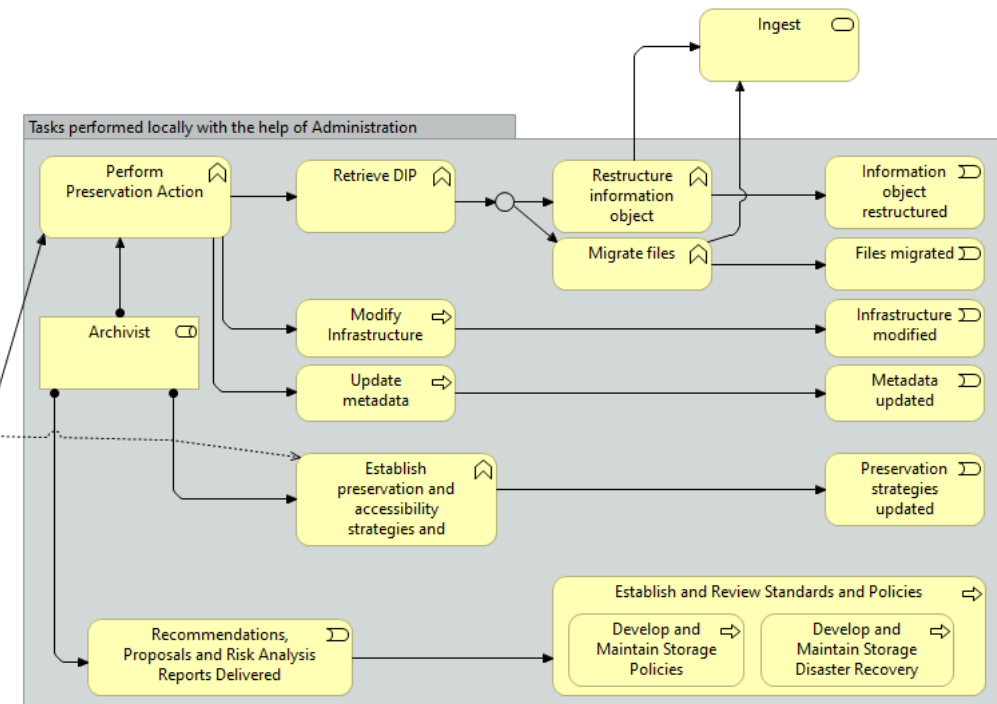
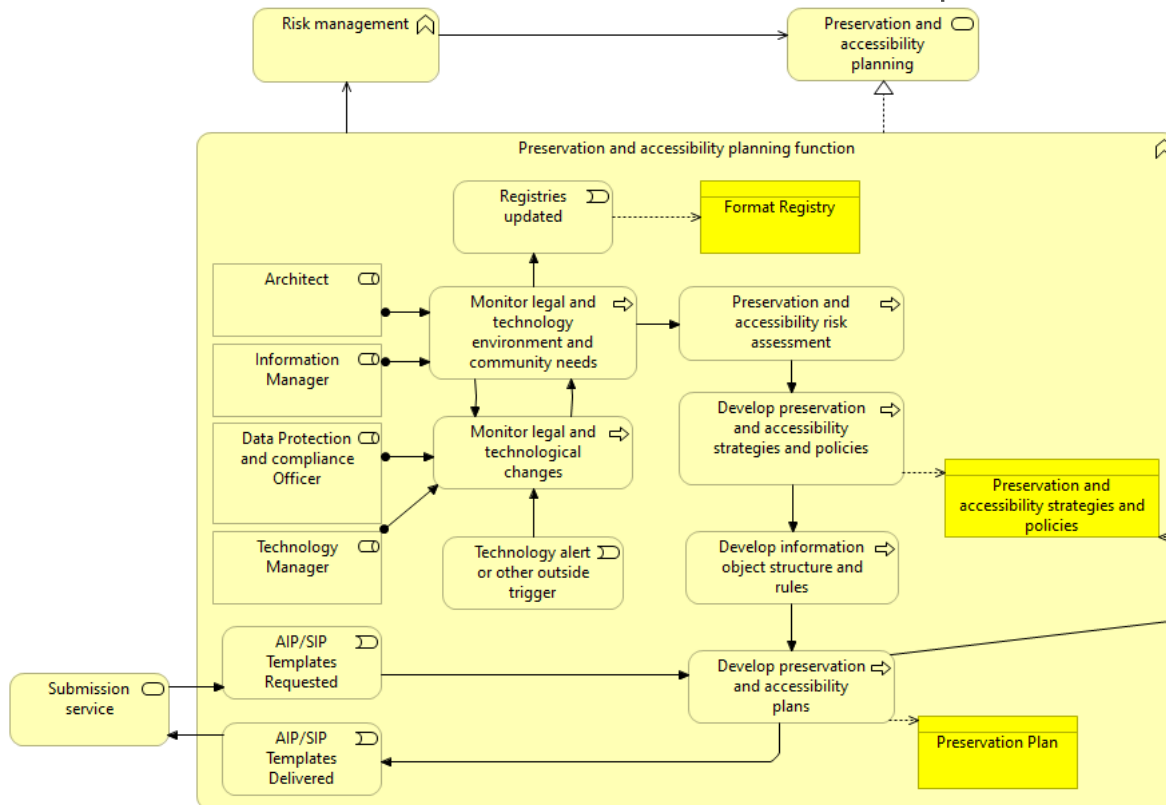
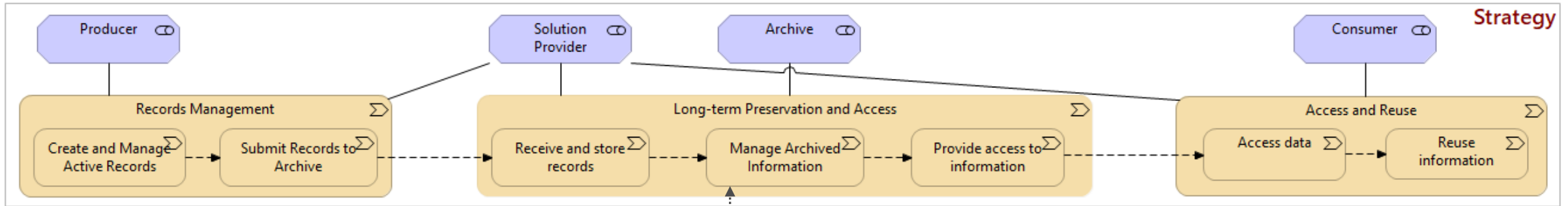
Core Views – Ingest (overview)



Core Views – Ingest (detail view)

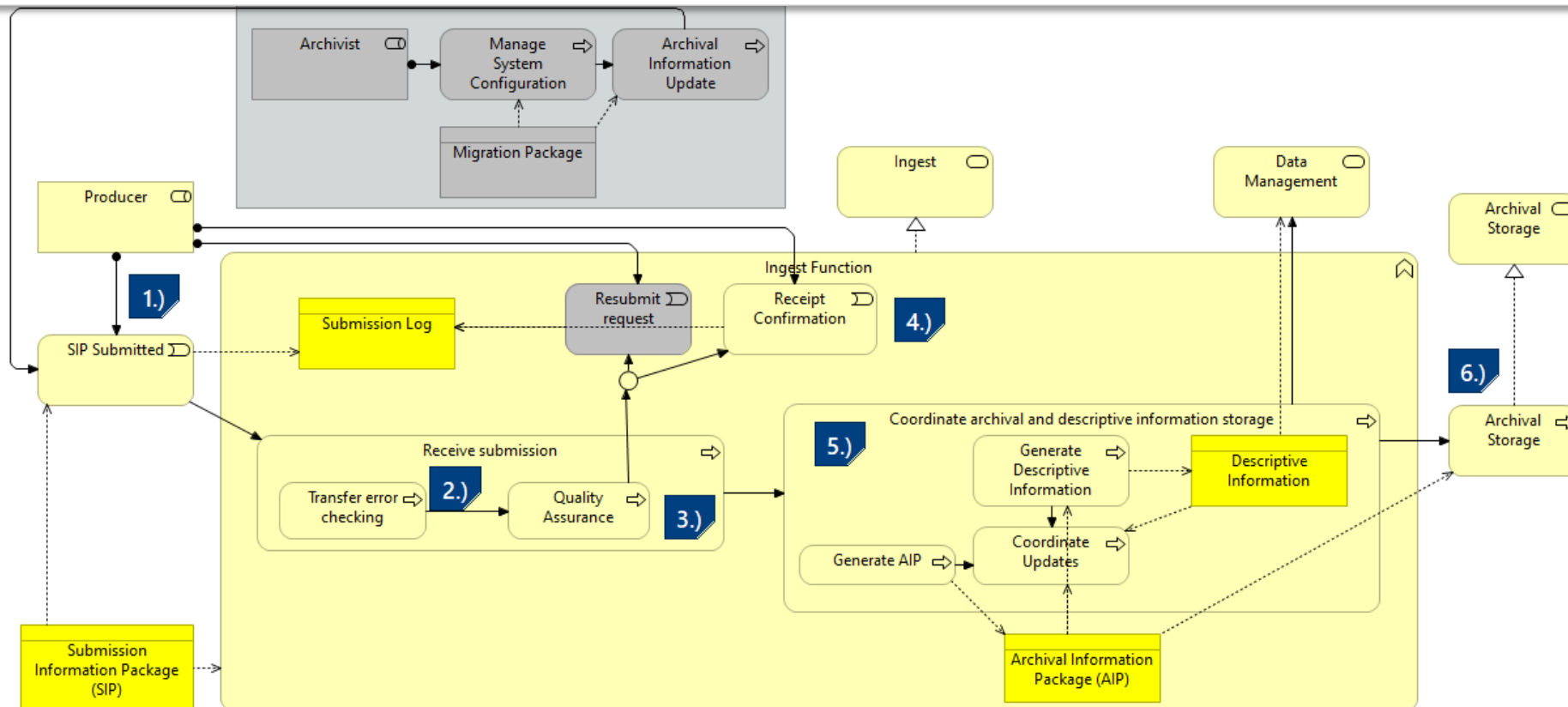


Core Views – Preservation Planning



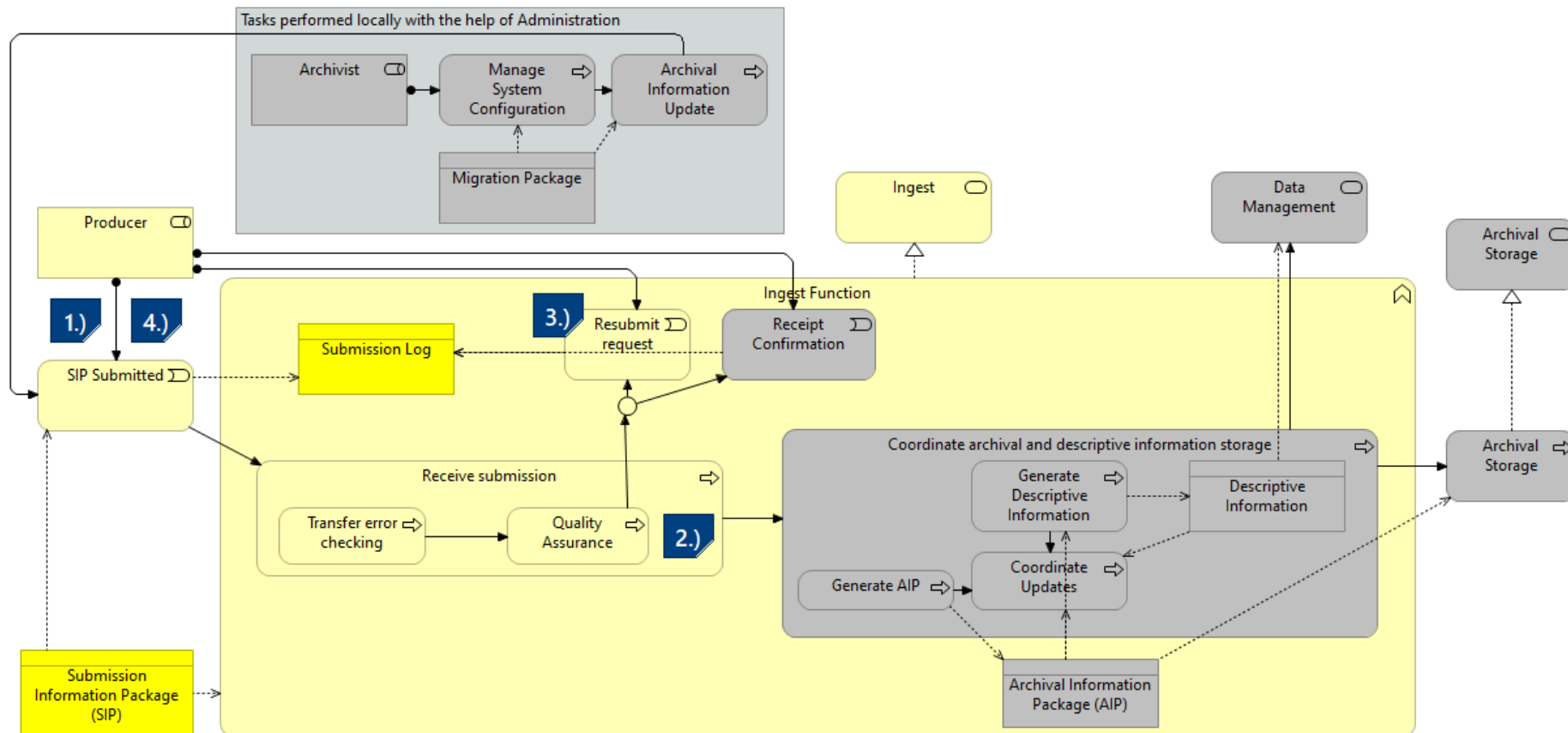
Example scenarios – Ingest #1 (new SIP ingested to the archive)

- 1.) The Producer has transferred a delivery to the archive in accordance with the provisions of the Submission Agreement.
- 2.) The transferred package is received and checked.
- 3.) The Quality Assurance then performs various quality check, creates a quality assurance report.
- 4.) If everything is according to the transfer agreement an acknowledgement of receipt is sent to the intended recipients.
- 5.) The Generate AIP process transforms the SIP to an archival information package (AIP). Then, the AIP and Descriptive Information is coordinated altogether by Coordinate Updates to ensure preservation and accessibility over time.
- 6.) Finally, the transformed delivery is stored in the Archival Storage.



Example scenarios – Ingest #2 (new SIP rejected)

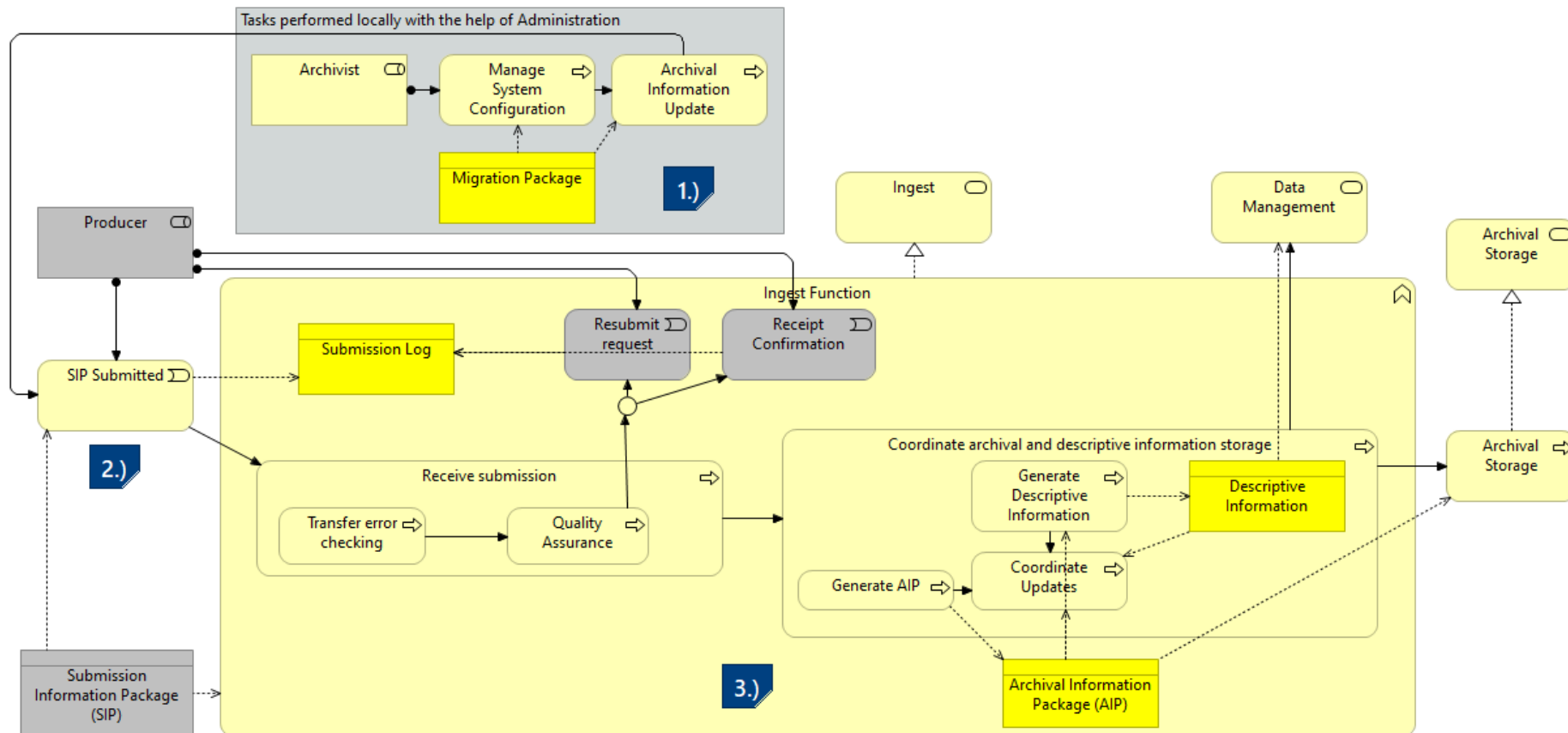
- 1.) The data producer has transferred a delivery [SIP Submitted] to the archive in accordance with the provisions of the Submission Agreement.
- 2.) The transferred delivery is checked by the [Quality Assurance] function, and errors have been found.
- 3.) The SIP is rejected and [Resubmit request] is sent to the Producer about the found errors.
- 4.) The Producer corrects the mistakes and the corrected SIP gets re-submitted to the Archive.



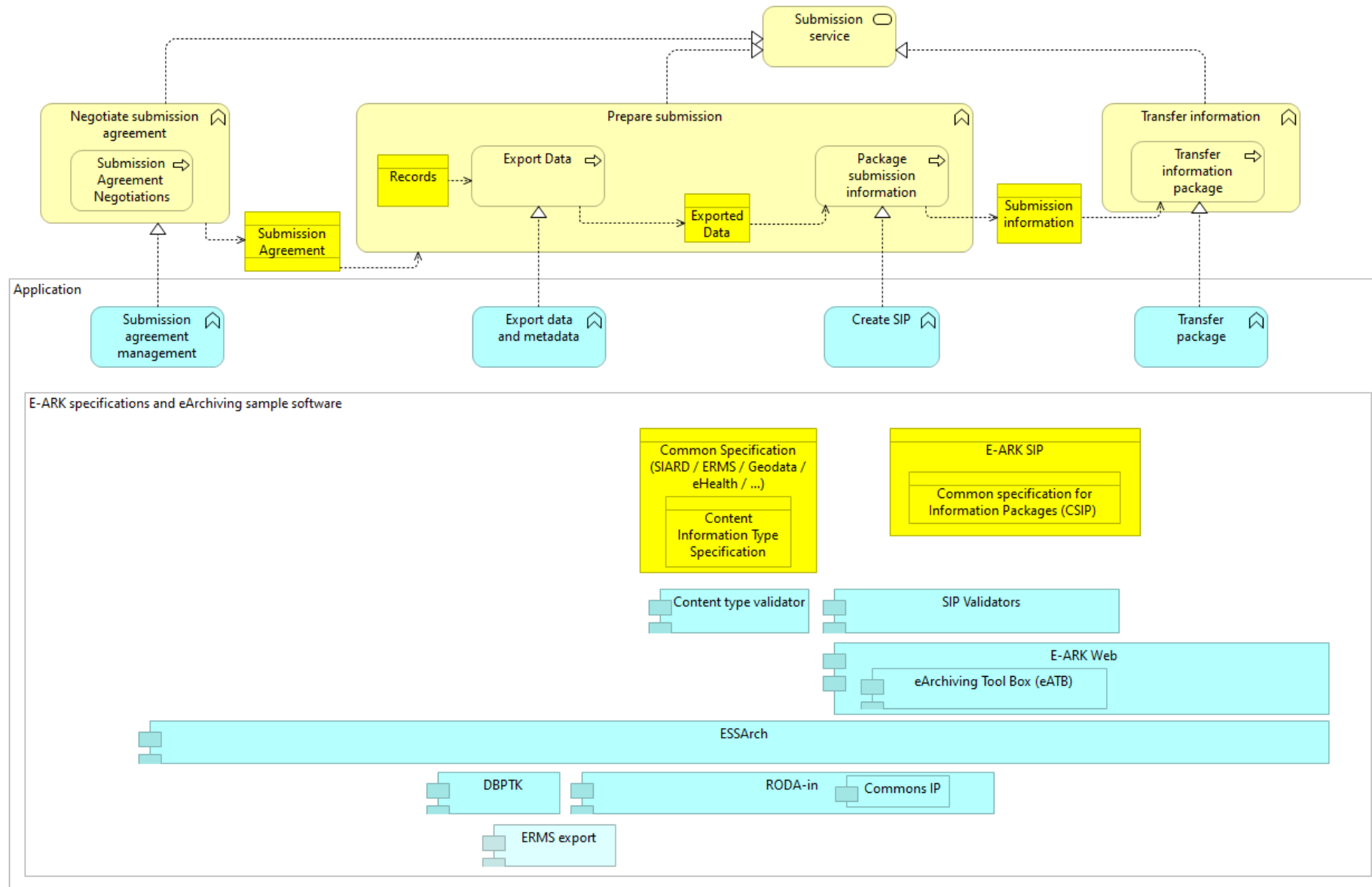
Example scenarios – Ingest #3

As a result of a migration action a new version is re-submitted

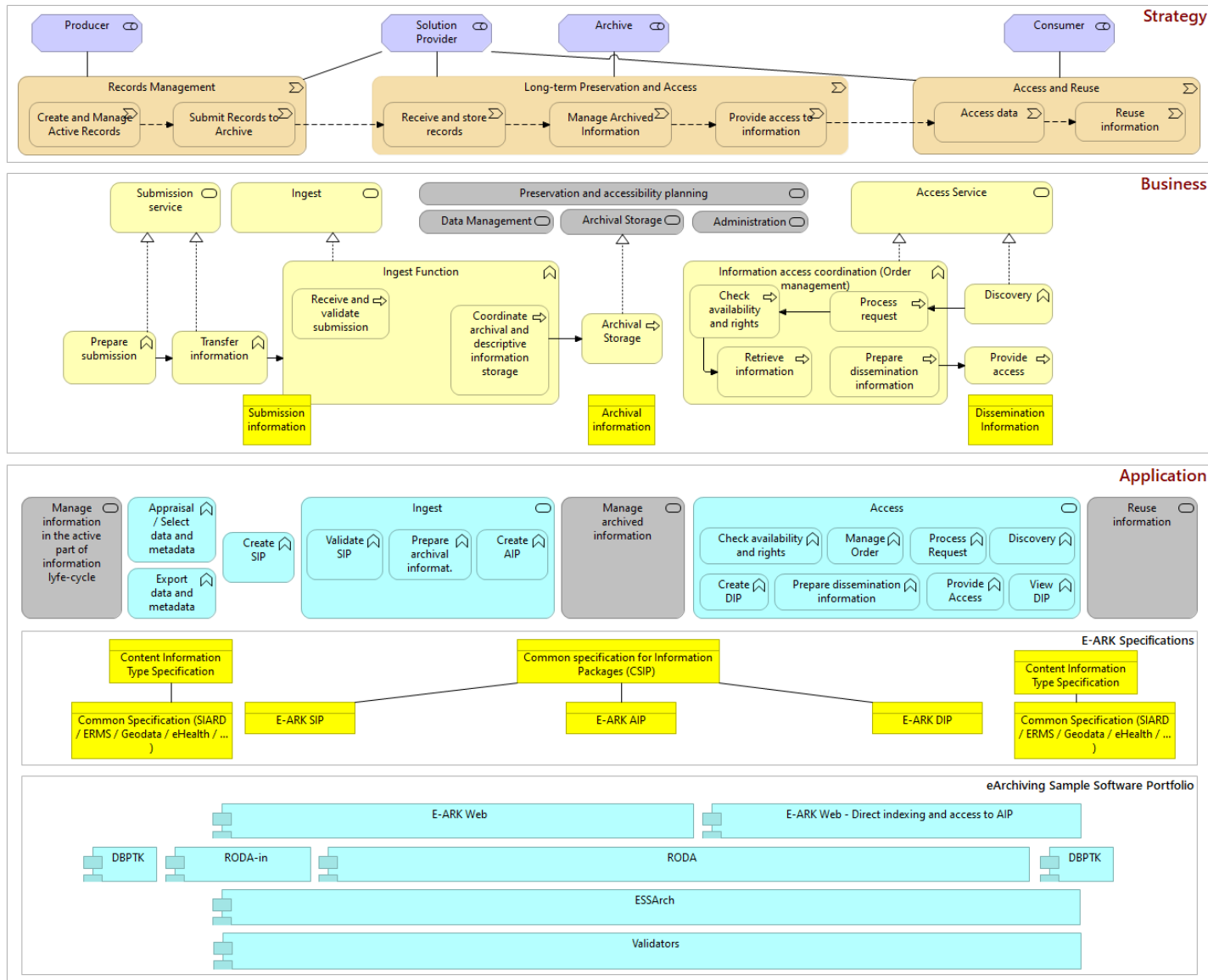
- 1.) After performing a planned preservation action ...
- 2.) ... the Administration service sends the updated information of the Ingest service in the form of a new SIP.
- 3.) From this point on the process corresponds to that of a normal ingest process.



Core Views – Pre-Ingest (application layer)



Core Views – Application Layer Overview



Core Views – Application Layer Overview

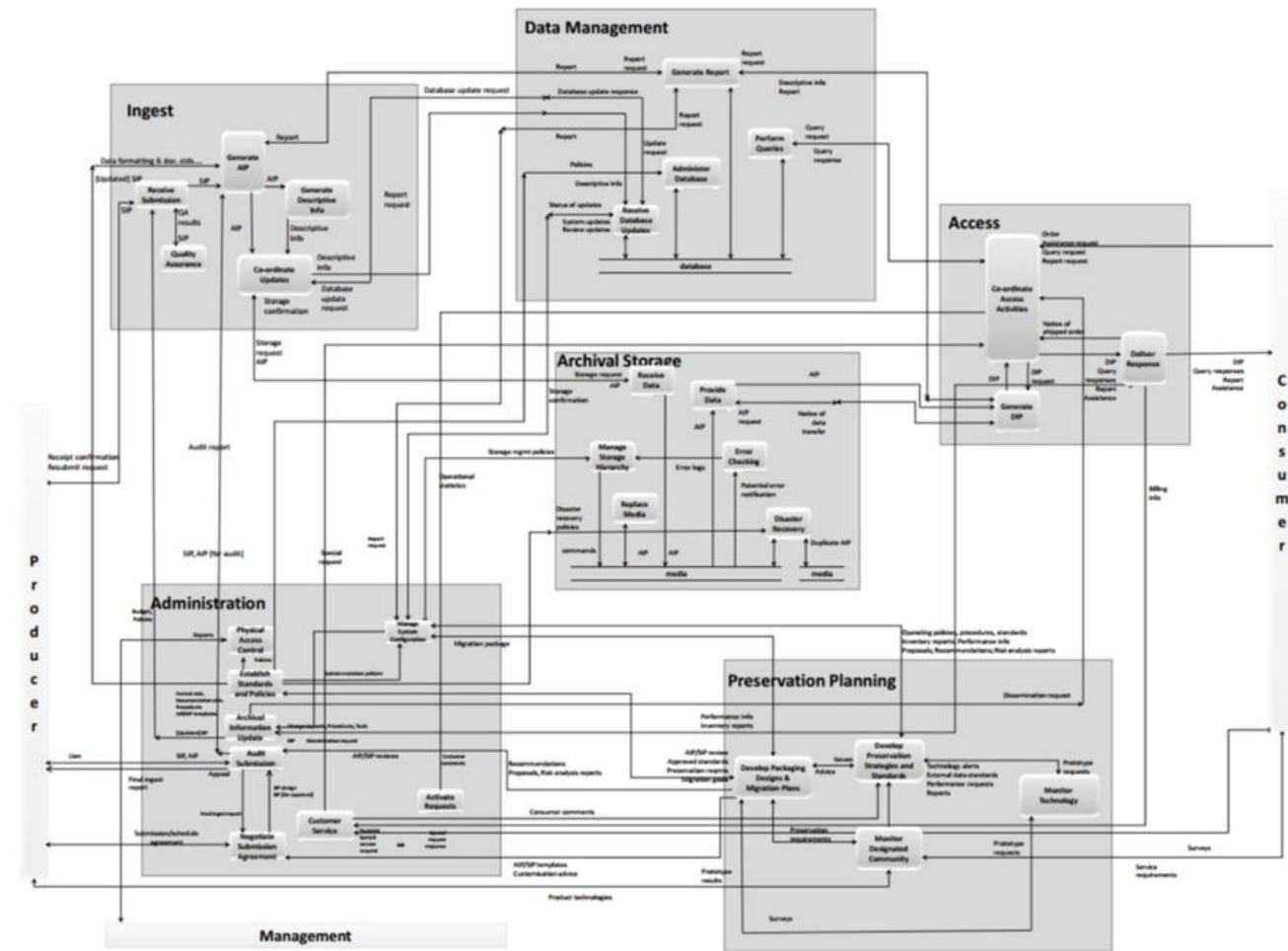
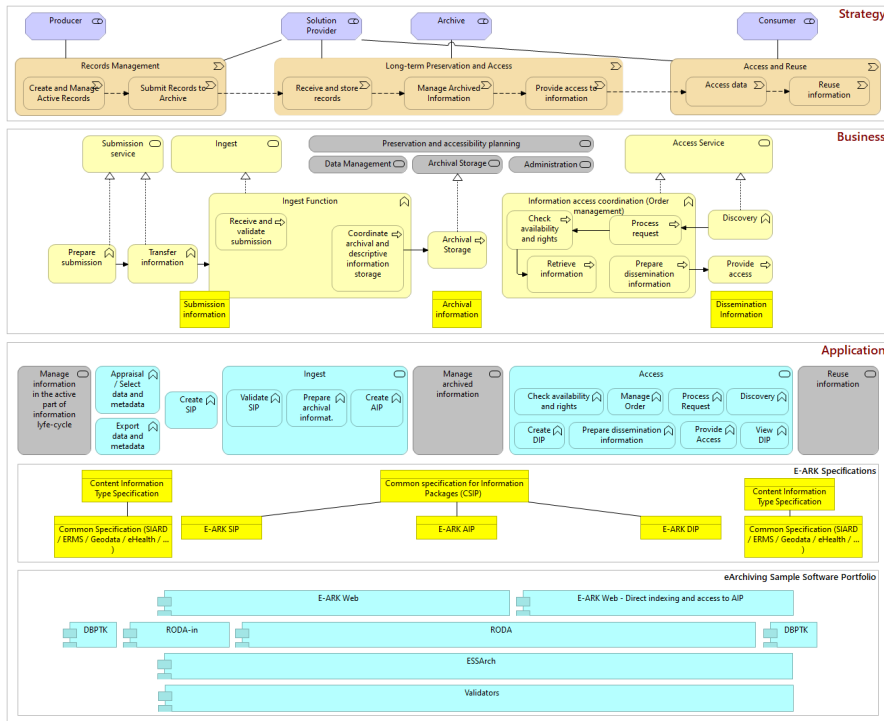
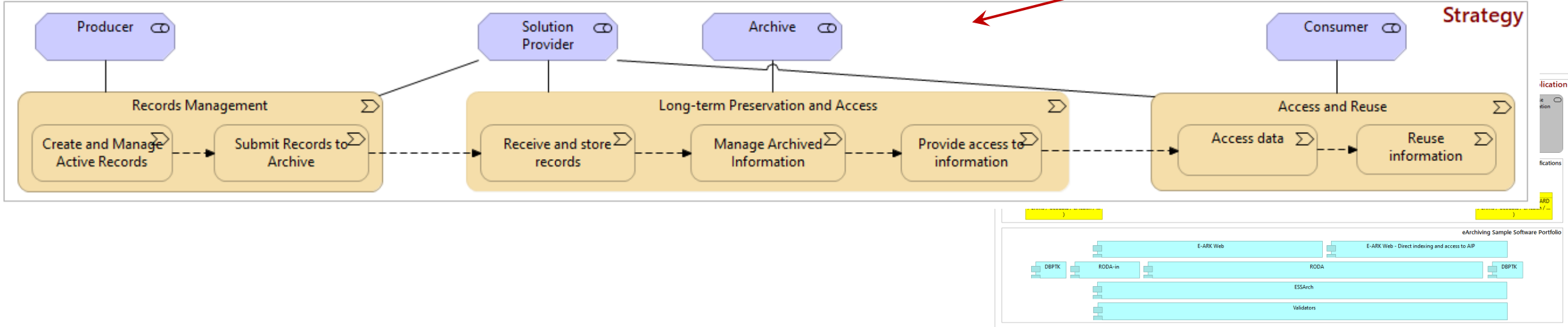


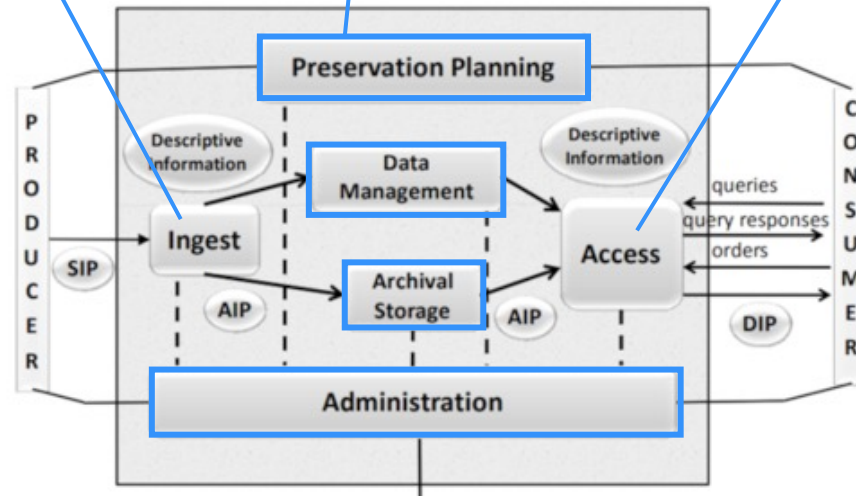
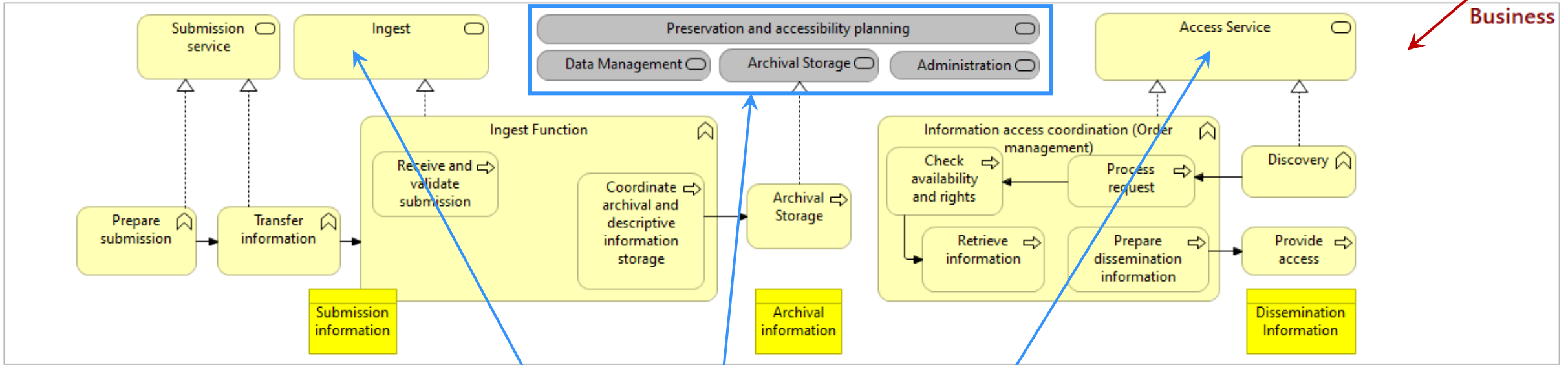
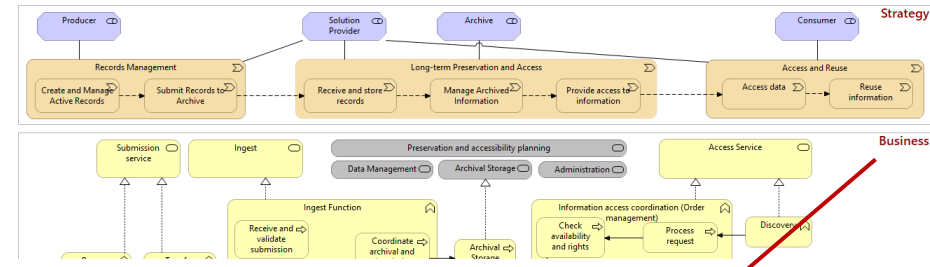
Figure A-1: Composite of Functional Entities

Too complicated,
but can be very useful as an
overall picture!

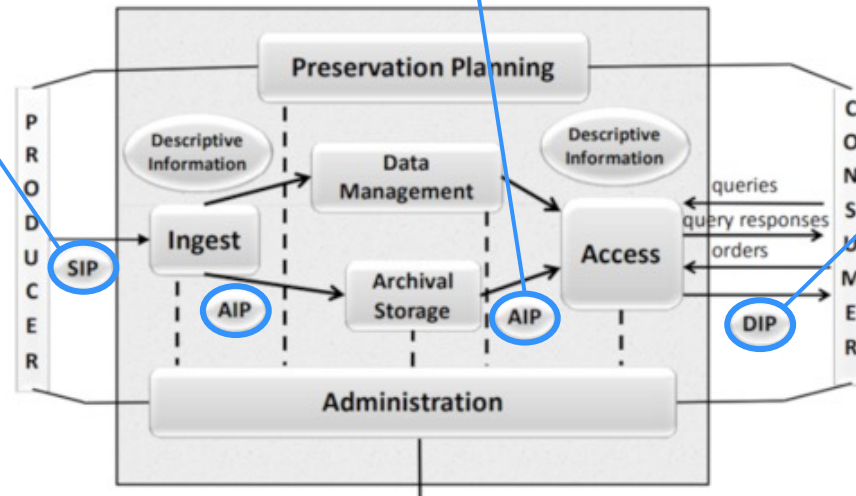
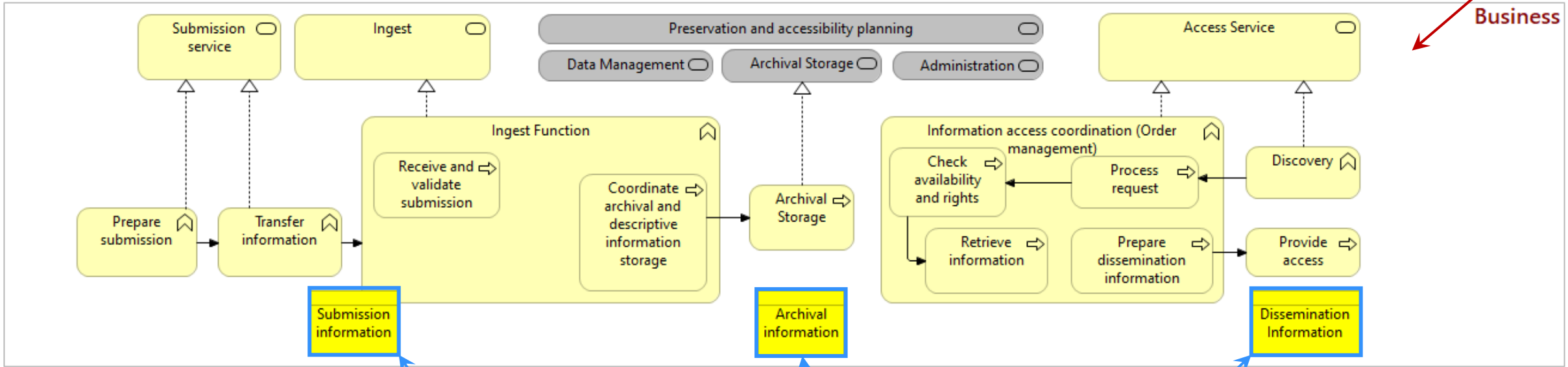
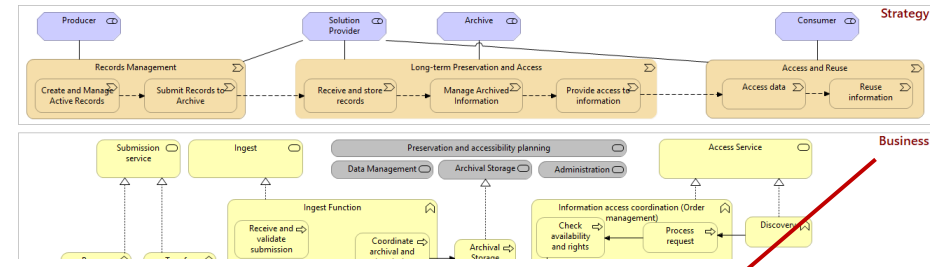
Core Views – Application Layer Overview



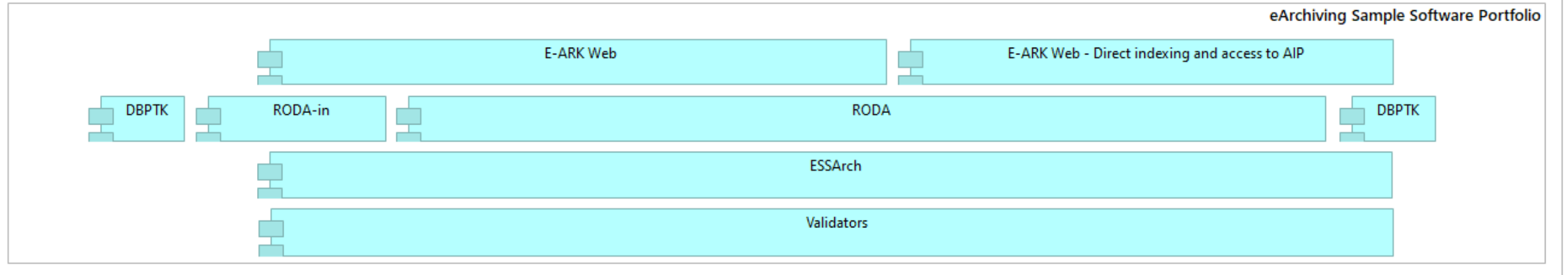
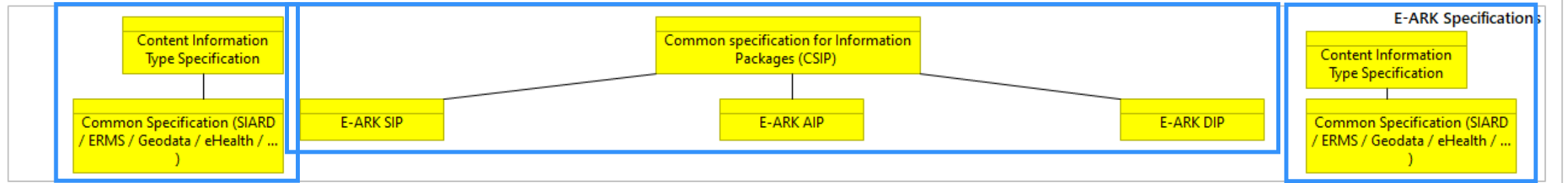
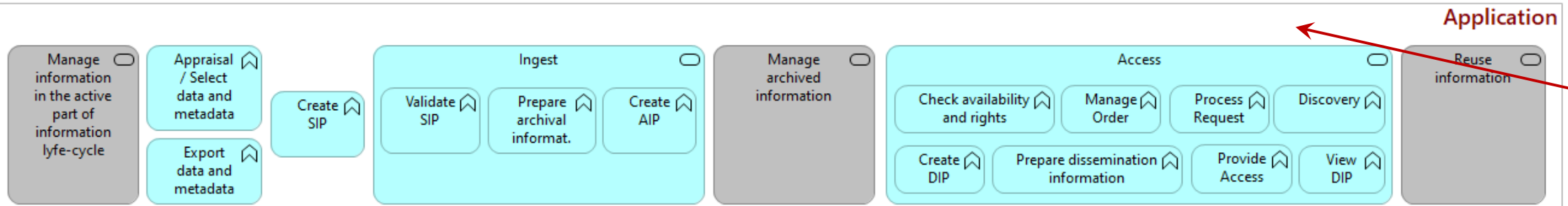
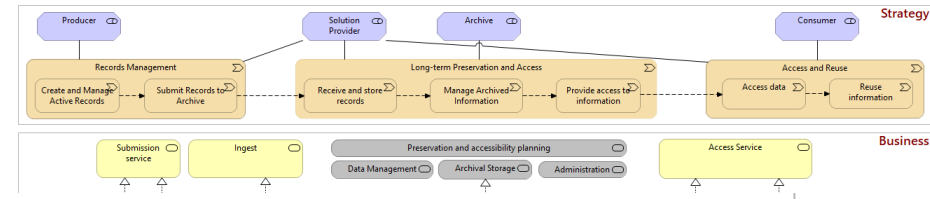
Core Views – Application Layer Overview



Core Views – Application Layer Overview



Core Views – Application Layer Overview



ArchiMate – Language Structure

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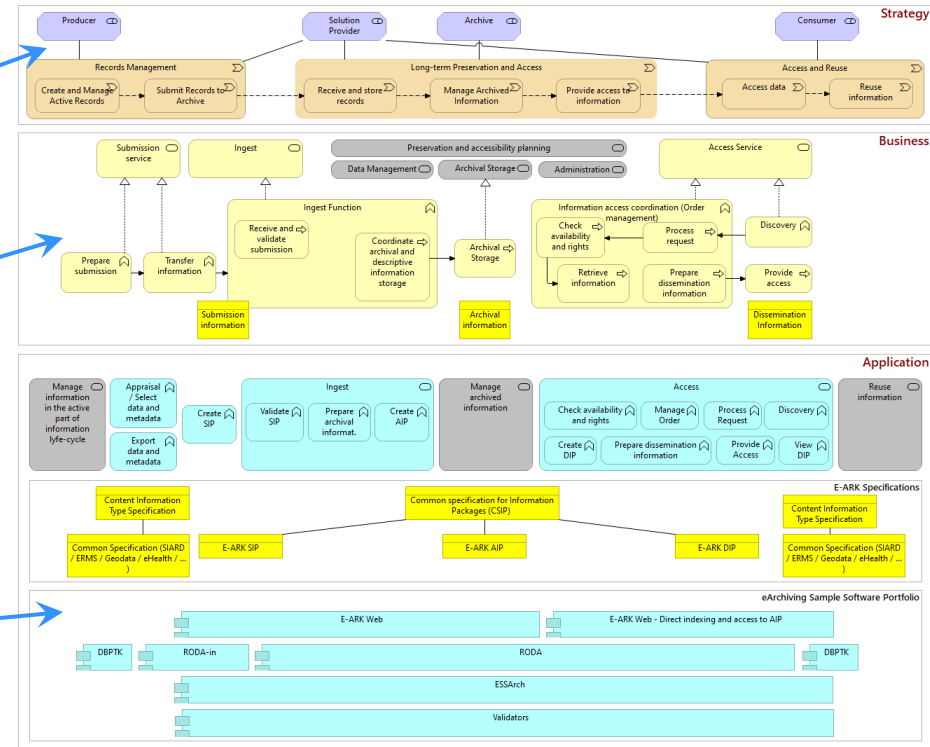
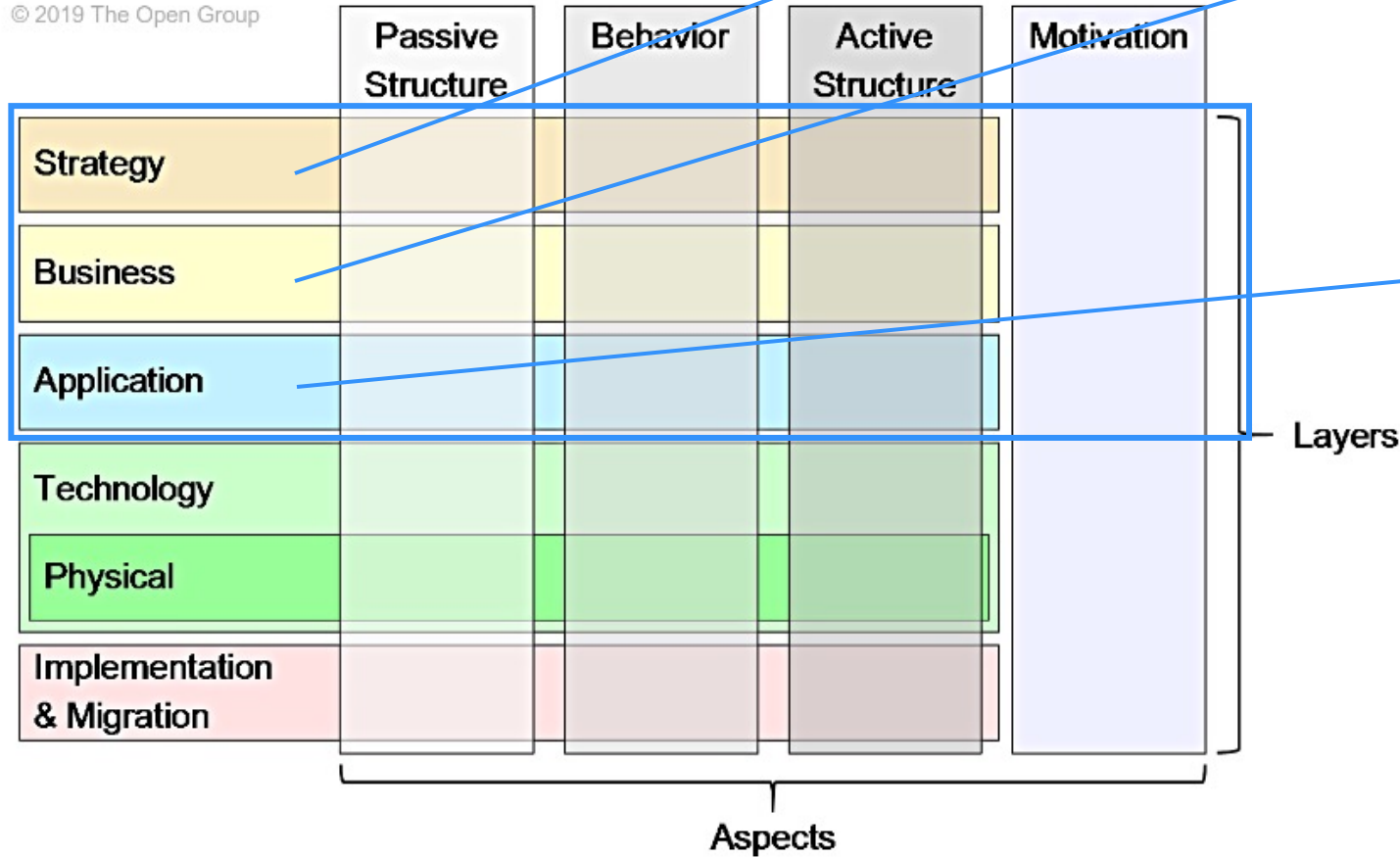


Figure 3: ArchiMate Full Framework

ArchiMate – Language Structure

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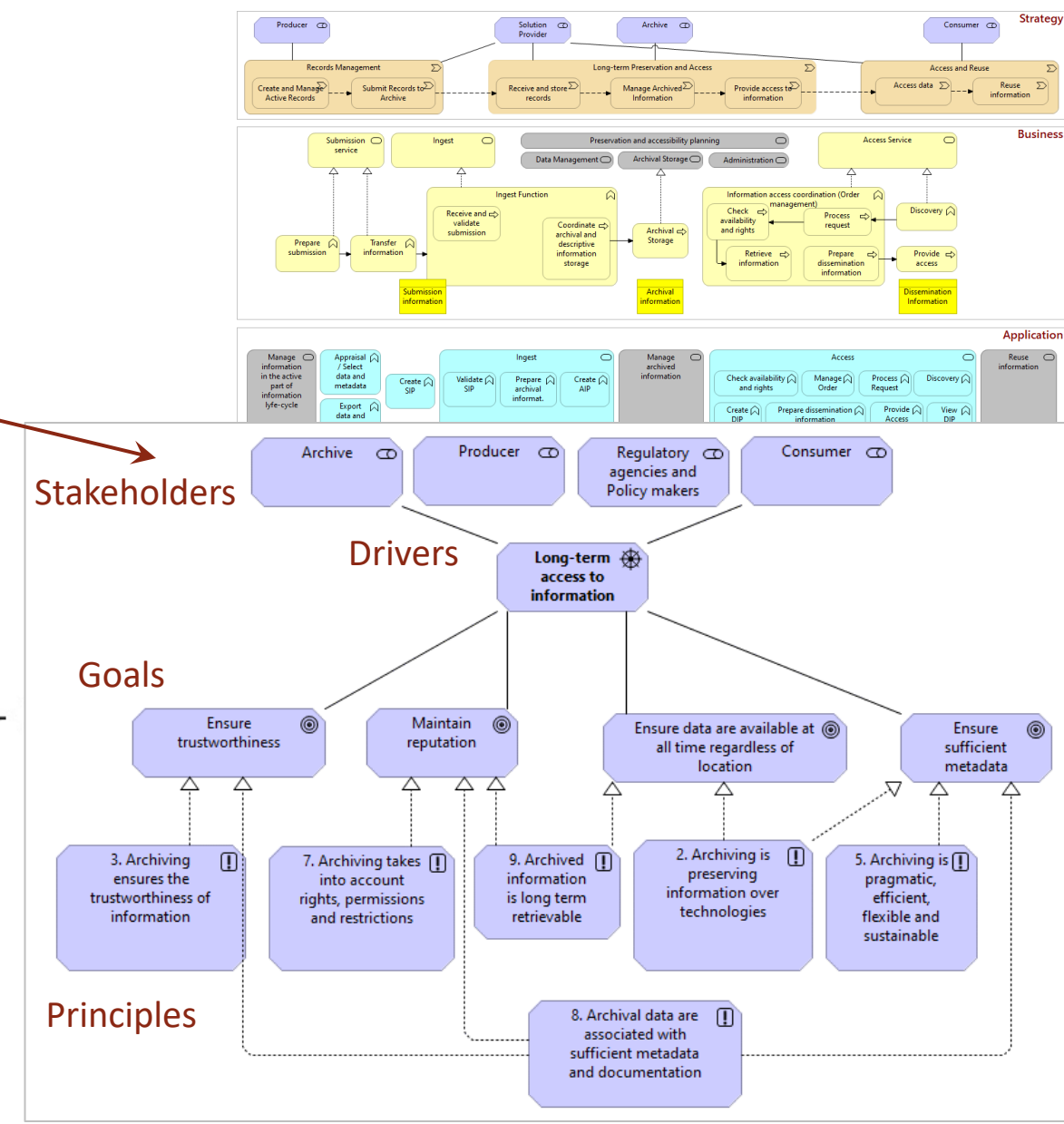
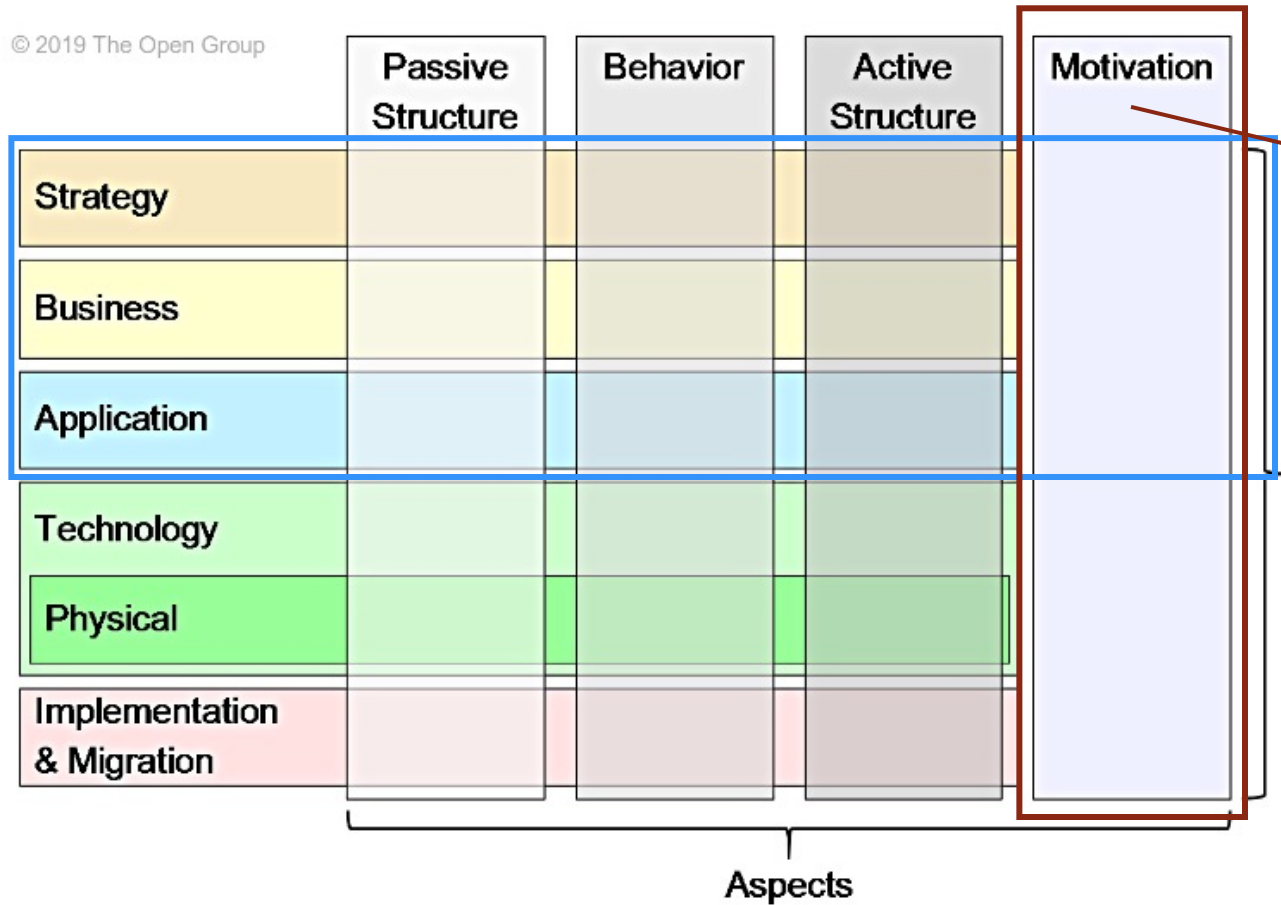
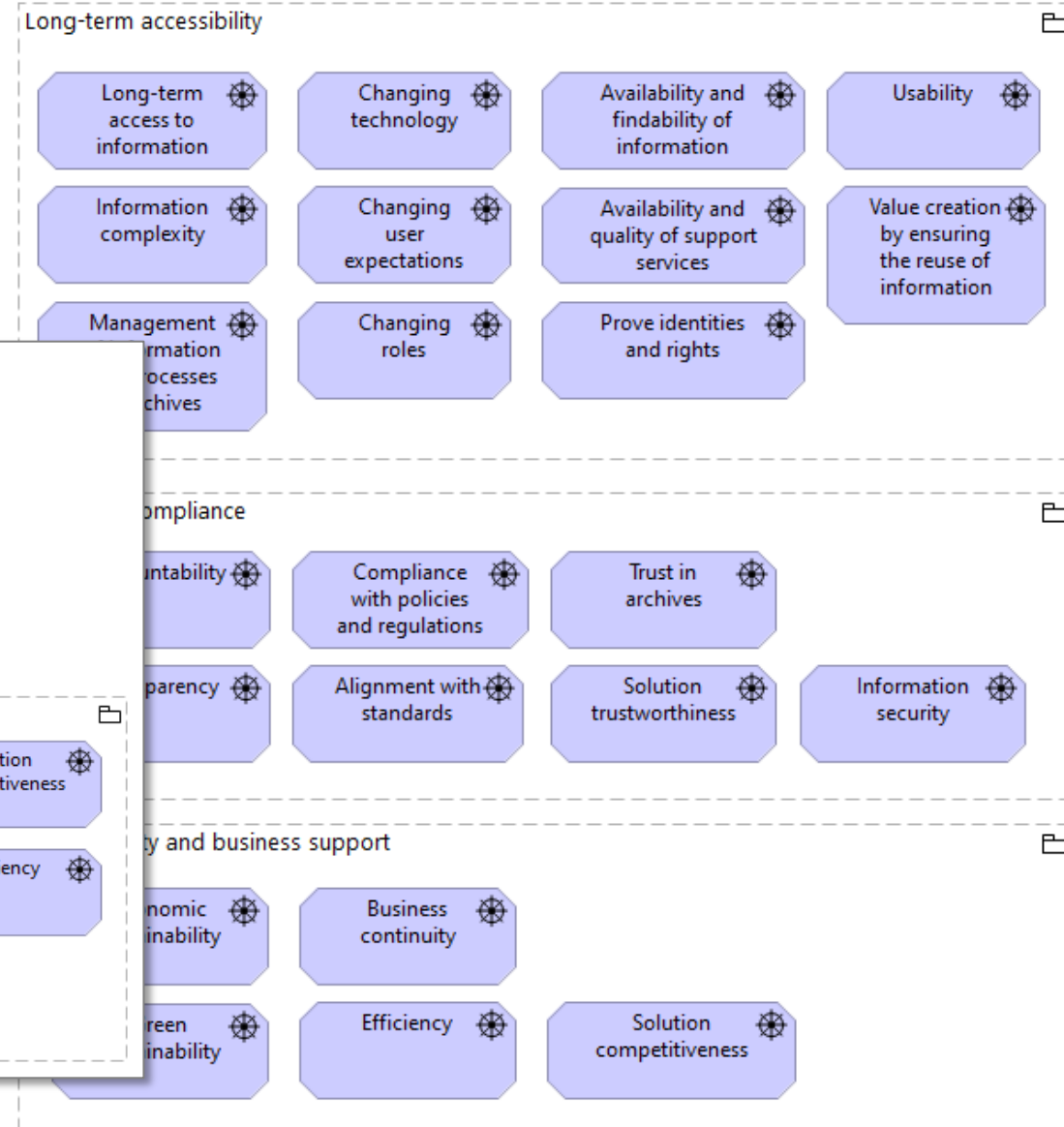
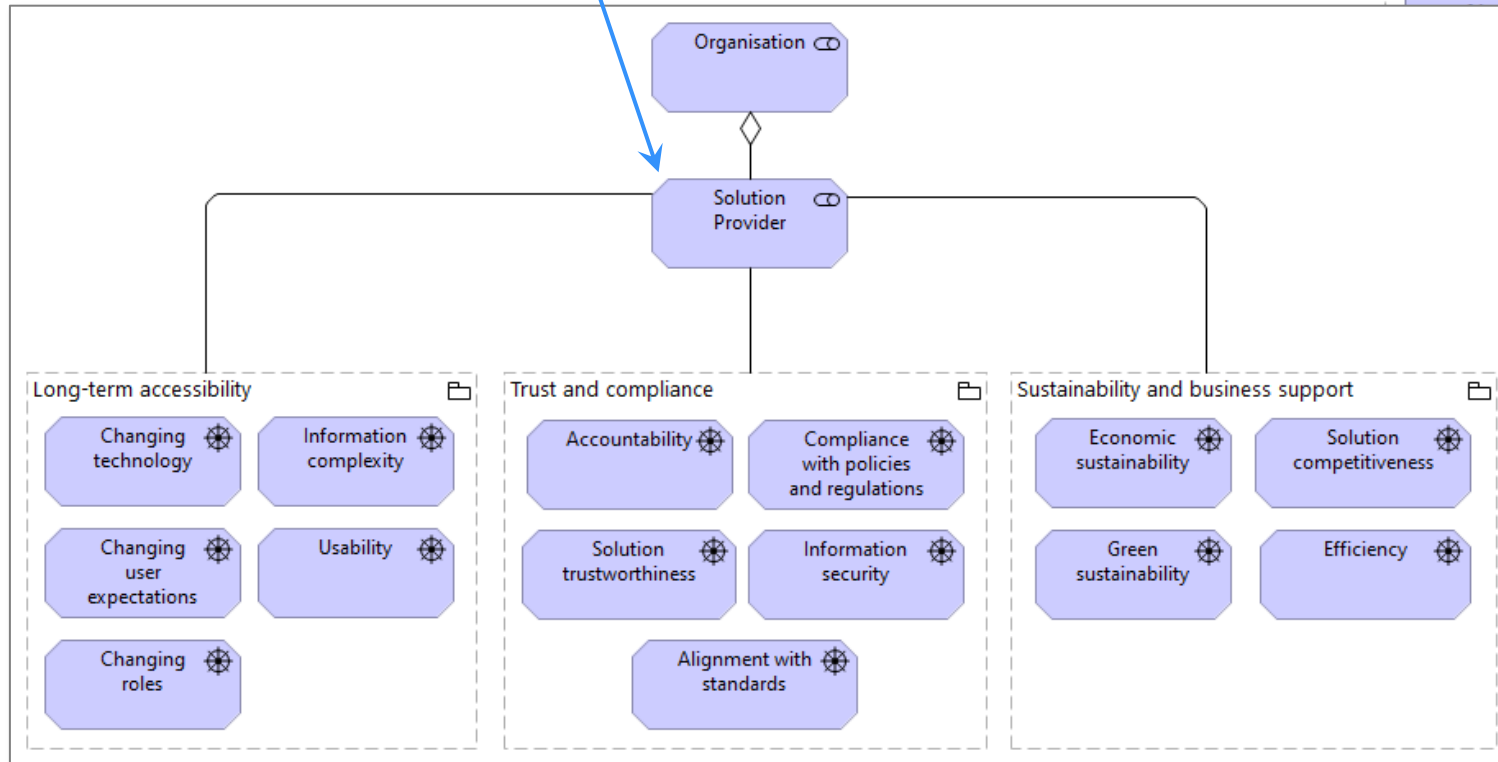
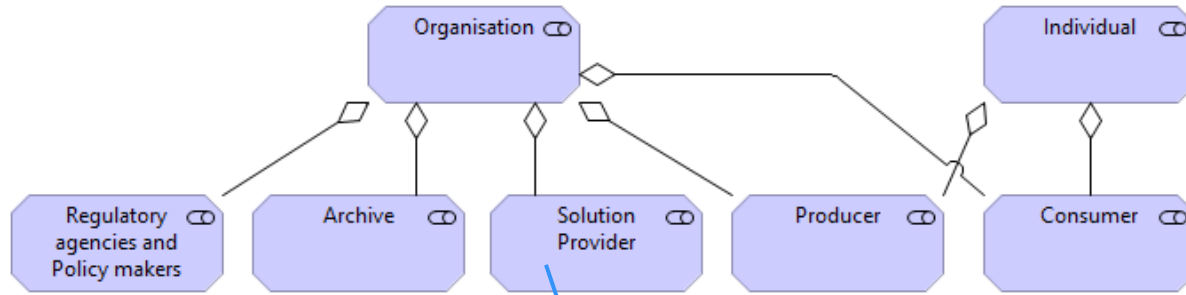
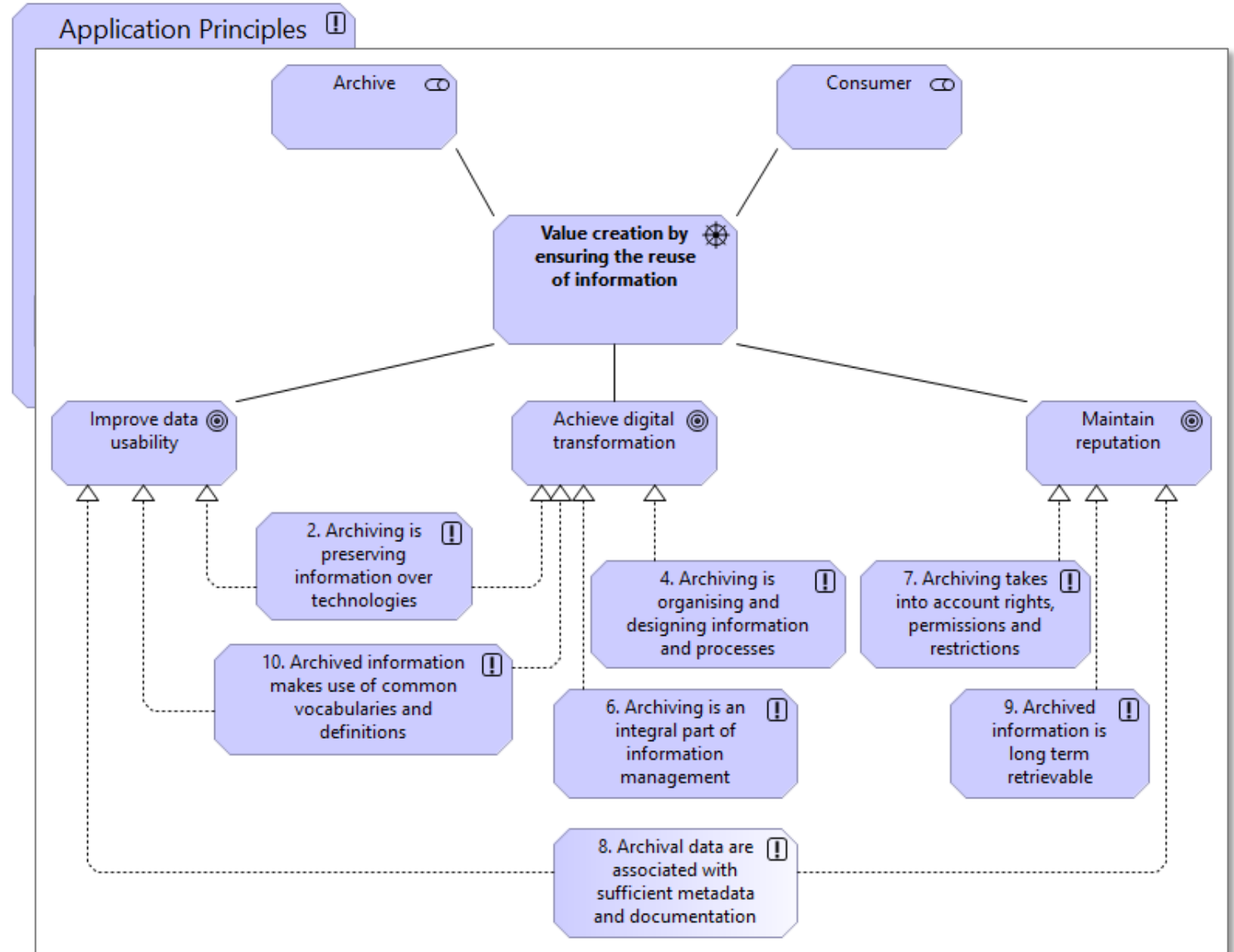
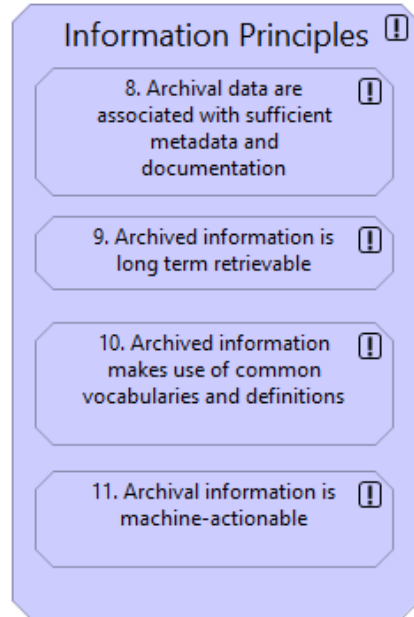


Figure 3: ArchiMate Full Framework

Core Views – Motivation Aspect (stakeholders and drivers)



Core Views – Motivation Aspect (goals and principles)



Core Views – Motivation Aspect (principles document)

Principles for long-term accessibility of information

eArchiving Reference Architecture

v1.0

CEF eArchiving Building Block, E-ARK3

CEF-TC-2019-3 eArchiving

Principles

Business Principles

1. Archiving is focussed on use
2. Archiving is preserving information over technologies
3. Archiving ensures the trustworthiness of information
4. Archiving is organising and designing information and processes
5. Archiving is pragmatic, efficient, flexible and sustainable
6. Archiving is an integral part of information management
7. Archiving takes into account rights, permissions and restrictions

Information Principles

8. Archival data are associated with sufficient metadata and documentation
9. Archived information is long-term retrievable
10. Archived information makes use of common vocabularies and definitions
11. Archival information is machine actionable

Application Principles

12. Archival systems should plan for and manage their own obsolescence
13. Archiving can be implemented within any information system
14. Archival systems and their components are interoperable

Business Principles

1. Archiving is focussed on use

Statement	The choices made regarding collecting and preserving information are derived from the purpose for which that information might be used, now or in the future.
Rational	This is the most critical principle from which all other principles are derived. Archiving is essentially making choices. These choices determine which information is recorded by the data creators and must be kept accessible over time. The underlying question is what kind of information requires long-term accessibility. These choices are necessary to be able to target the finite resources needed to achieve sustainable accessibility. This explicitly includes answering the question of what time period the information must at least remain accessible.
Implications	This principle implies that the archival value of the information is appraised. The appraisal should be risk based, taking into account the needs of current, and if possible, future user groups (designated communities). Within the appraisal process, one should make explicit (as far as possible) what information is to be kept, the level of importance and for how long. When possible, the identified user groups should be involved in the appraisal process.
Notes (if any)	

2. Archiving is preserving information over technologies

Statement	The main goal of archiving is to ensure access to information, as long as necessary, without being reliant on originating systems, technologies and media.
Rational	Unlike paper-based records, digital records can hardly be kept accessible by default for a long time because systems are replaced, formats become obsolete and physical media deteriorate. To keep the digital records accessible, they must be migrated periodically to both new systems, formats, and media. Because the new system or format often provides different formatting, preservation, or presentation options than the original ones, each of those migration points represents a moment of risk. The goal of digital archiving is to tackle these moments of risk and to prevent losing context and information value over time. This principle should drive the archival decisions behind extracting and reformatting the information when migrating, so the context and information value is preserved in the next period.
Implications	This principle implies that when trying to achieve long-term accessibility, it must be clear how preservation actions will affect the context and information value of the preserved content and whether this poses an acceptable risk. More specifically, digital archivists must ensure that they document all aspects of the original technological environment, which are crucial for understanding and reusing the archived information. These are often lost in the process of archiving and long-term preservation (f.ex original database management platforms, GUIs, technical architectures, etc.).
Notes (if any)	

3. Archiving ensures the trustworthiness of information

Statement	Users must be able to assess the trustworthiness of the preserved information.
Rational	Archiving should ensure that all preservation or management actions are transparent and sufficiently documented to uphold the trustworthiness of the preserved information. These include actions carried out on both an archive as whole or individual pieces of data and metadata.
Implications	<ul style="list-style-type: none"> - Both preservation and data management activities should support the ability to trace changes in information packages and how those have changed the structure or content of information. Some examples of the documented changes are file format conversions or the splitting or merging of files. - When designing information systems, steps must be taken to ensure that all relevant processes create metadata, ideally automatically - Steps must be taken to ensure that the metadata and documentation created by people or systems remain available and usable as long as necessary
Notes (if any)	See information principle 8.) on how to underpin trustworthiness.

4. Archiving is organising and designing information and processes

Statement	During the design of work processes and information systems, choices about how information is archived are to be made.
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Core Views – Motivation Aspect (principles)

Principles

Business Principles

1. Archiving is focussed on use
2. Archiving is preserving information over technologies
3. Archiving ensures the trustworthiness of information
4. Archiving is organising and designing information and processes
5. Archiving is pragmatic, efficient, flexible and sustainable
6. Archiving is an integral part of information management
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Notes (if any)	

Information Principles

8. Archival data are associated with sufficient metadata and documentation

9. Archived information is long term retrievable

10. Archived information makes use of common vocabularies and definitions

11. Archival information is machine-actionable

9. Archived information is long term retrievable

Statement	Archiving should ensure that information is identifiable, retrievable and renderable.
Rational	Digital information is vulnerable because of changes in information preserving technologies. Archiving should ensure that the information is obtainable despite all changes in technology or preservation processes (like migration).
Implications	The preservation processes, standards and tools are used to facilitate data interpretation as information for designated communities. Proactive preservation planning and sufficient technical metadata are needed to support migration activities.
Notes (if any)	

Agenda

Introduction

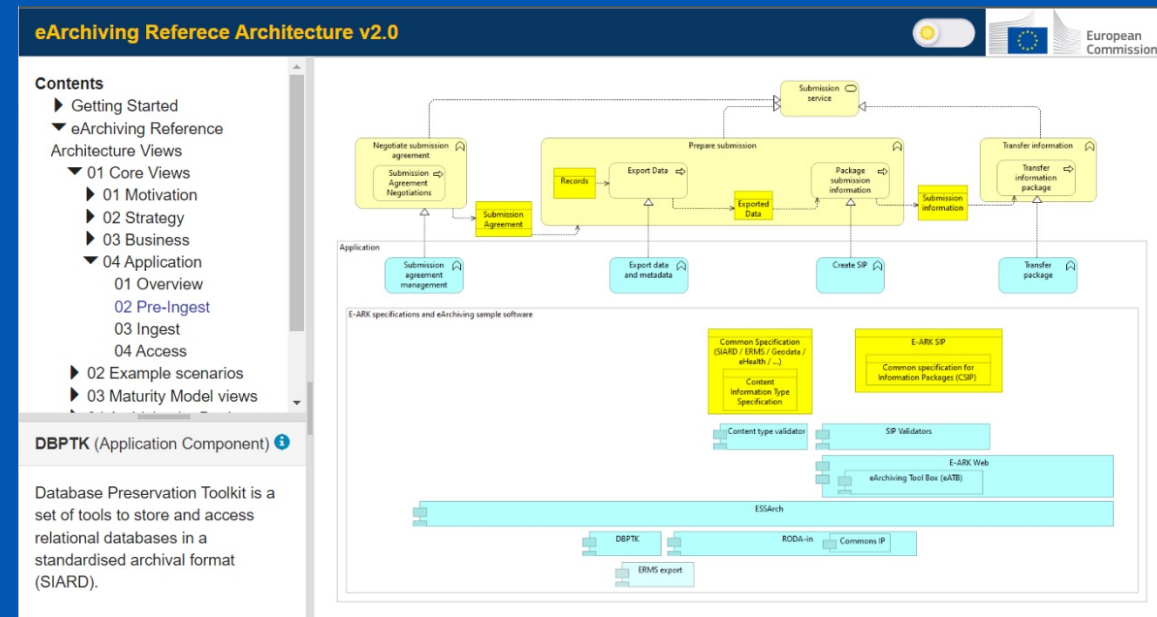
The ArchiMate Model

The Online Edition

What's new in version 2.0

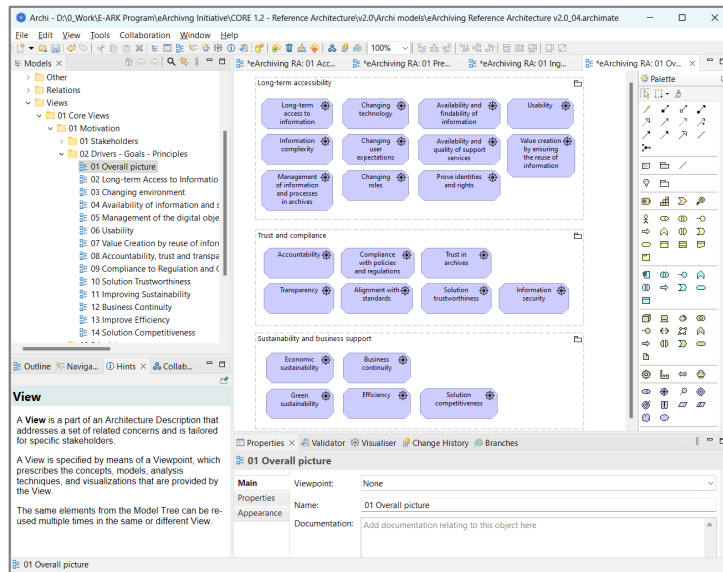
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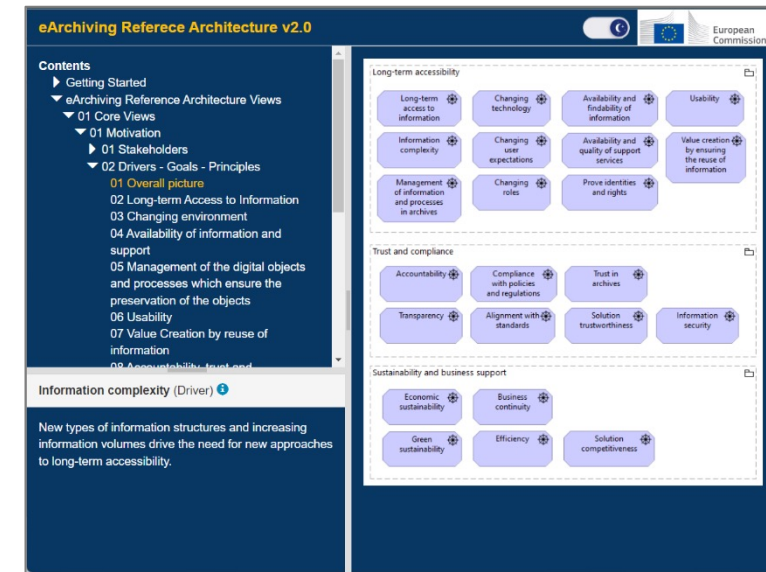
eArchiving Reference Architecture – The Editions

Archi model



- Full ArchiMate model (both elements and views)
- Reusable
- Requires a modelling environment and knowledge

Online edition



- No modelling experience needed
- Easily accessible with a browser
- Straightforward navigation
- Contains introductory and reference sections
- Download area

eArchiving Reference Architecture – Online Edition

The screenshot shows the 'E-ARK Products' section of the Knowledge Centre website. It features three main items:

- The DILCIS Board:** The Digital Information LifeCycle Interoperability Standards Board (DILCIS Board) develops, publishes and supports standards which provide practical interoperability in digital archiving.
- eArchiving Capability and Maturity Model:** An instrument for organisations to conduct a self-assessment and guide them regarding their capability on the core individual digital preservation process areas (namely, pre-ingest, ingest, preservation planning, data management, archival storage and access).
- eArchiving Reference Architecture v2.0:** This reference model of digital archiving has been created by the CEF eArchiving Building Block in cooperation with the E-ARK Consortium.

At the bottom, it lists 'Previous Versions' which are deprecated: eArchiving Reference Architecture v1.0 and E-ARK General Model. Logos for the creators (Técnicos Lisboa, Inesc-ID, E-ARK Forum, and European Commission) are also present.

The screenshot shows the 'eArchiving Reference Architecture v2.0' page. It features a central diagram with a central circle 'Who is it for?' containing 'Data Producers', 'Archives', and 'Solution Providers'. Surrounding this are four other circles: 'Why?', 'What do you do?', 'What do you need?', and 'How?'. The page is organized into four main sections:

- MOTIVATION:** Stakeholders, Drivers, Goals.
- BUSINESS:** Roles, Events, Processes.
- APPLICATION:** Functions, Components, Objects.
- STRATEGY:** Value stream, Capabilities.

A 'Contents' sidebar on the left lists: Getting Started, Background and Purpose, How to Use This Application, eArchiving Initiative, OAIS ReferenceModel, Archiving by Design, eArchiving Capability Maturity Model, ArchiMate Notation, eArchiving Reference Architecture Views, and Reference. The page is attributed to eArchiving Initiative and E-ARK Foundation.

<http://kc.dlmforum.eu/earchiving-ra20>

<http://kc.dlmforum.eu/eark-products>

eArchiving Reference Architecture – Online Edition

eArchiving Reference Architecture v2.0

European Commission

Contents

- ▼ Getting Started
 - Background and Purpose
 - How to Use This Application
 - eArchiving Initiative
 - OAIS Reference Model
 - Archiving by Design
 - eArchiving Capability Maturity Model
 - ▶ ArchiMate Notation
 - ▶ eArchiving Reference Architecture Views
 - ▶ Reference

MOTIVATION

- ▶ Stakeholders
- ▶ Drivers
- ▶ Goals

Who is it for?

- ✓ Data Producers
- ✓ Archives
- ✓ Solution Providers

What do you do?

BUSINESS

- ▶ Roles
- ▶ Events
- ▶ Processes

What do you need?

STRATEGY

- ▶ Value stream
- ▶ Capabilities

How?

APPLICATION

- ▶ Functions
- ▶ Components
- ▶ Objects

[eArchiving Initiative](#) [E-ARK Foundation](#)

Live demo

Agenda

Introduction

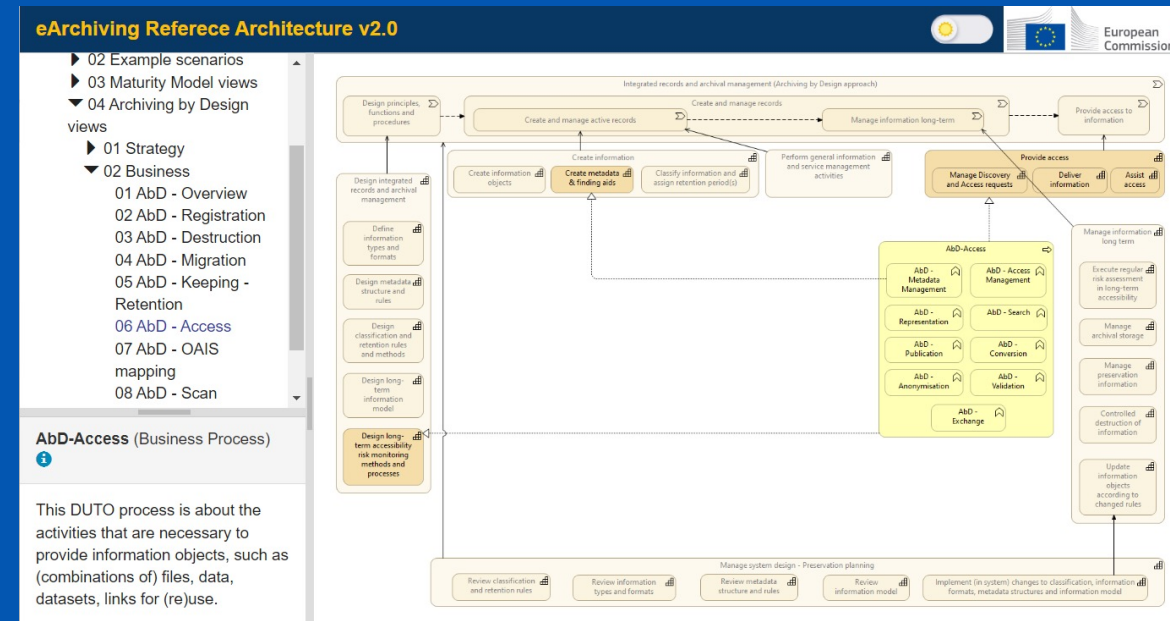
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What's new in version 2.0

Use cases of applying the RefArch

Future Plans

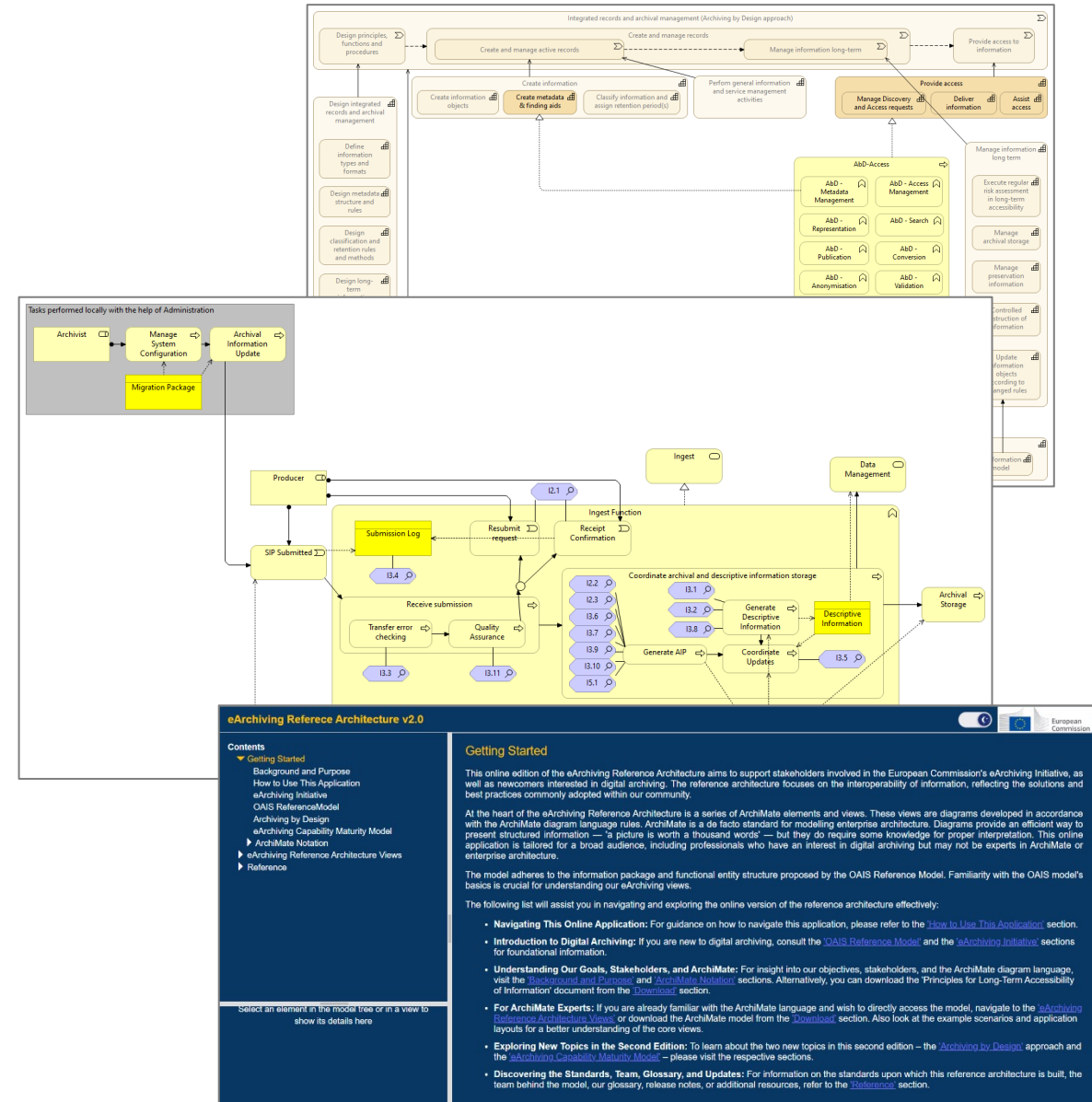


AbD-Access (Business Process)

This DUTO process is about the activities that are necessary to provide information objects, such as (combinations of) files, data, datasets, links for (re)use.

What's new in version 2.0

- Archiving by Design views
- Maturity Model views
- Reworked business layer views
- Redesigned online application



Archiving by Design – Sources

Whitepaper

Archiving by Design

This document was prepared by the European Archives Group and provides a definition of Archiving by Design as one of the new principles of European information governance. The concept of sustainable accessibility to information is the premise for a pan-European approach for the records management community and archives to address the challenges of digital transformation.

Problem statement

Digital transformation keeps altering the playing field in which we operate as an archival and records management community.

- Information is everywhere, and its growth is exponential.
- Information takes on new forms.
- Information is used and re-used in novel ways utilizing new technologies.

“During the design or adjustment of information systems, the appropriate measures are taken to ensure that the information becomes, and stays, sustainably accessible”.

AbD Scan

Guidelines for using the archiving by design scan

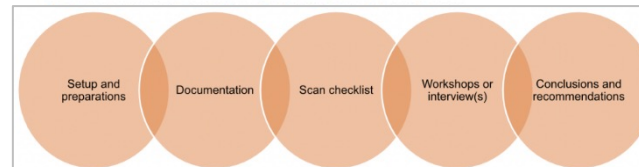
Foreword

In order to make and keep information accessible in a sustainable manner, information systems must be set up accordingly. The measures that are needed to do so are best determined at the moment of the purchasing, the design and building, the revamp or phasing out of an information system. Although there is an increasing interest in archiving by design, application in practice appears to be a challenge. Information professionals are not always naturally involved in the change processes in their own organisations. Suppliers are not always familiar with the requirements for sustainable accessibility. This results in implemented information systems that do not suit the needs of the users of the information. Also, the policy on information management of the organisation is sometimes difficult to apply in practice. There is no easy, standard solution to these problems. Information professionals start archiving by design themselves with the creation of tailor-made solutions.

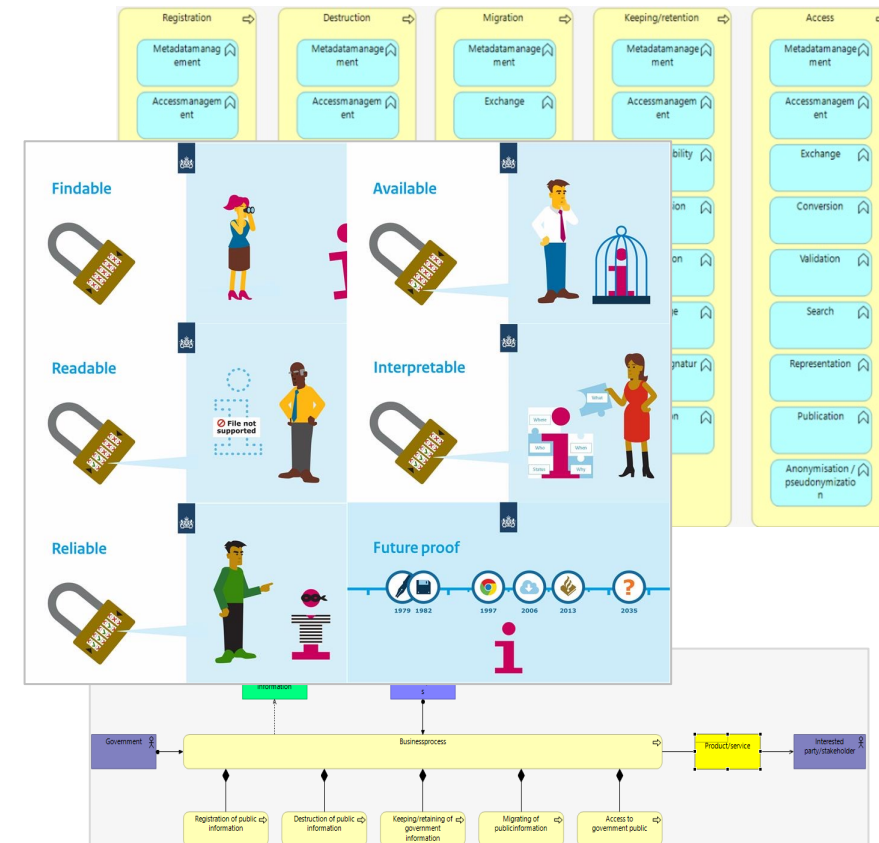
These guidelines present a methodology for archiving by design. We call this methodology the archiving by design scan (AbD-scan). The AbD-scan provides organisations with a format to take the first steps towards implementing archiving by design. Based on feedback, note that these guidelines can be subject to improvements in the future.

The methodology provides steps to apply archiving by design during the purchasing, the design and building, the revamp or phasing out of an information system within a public administration. It is addressed to the public body, agency or department that owns (and/or uses) the system to be developed or revamped and that decides to undertake an archiving by design scan. The object of the scan is the information system that is going to be newly purchased and/or developed, or an existing system that is going to be revamped or phased out, and the related work processes, the processed information and its users. The system might be developed in-house or outsourced.

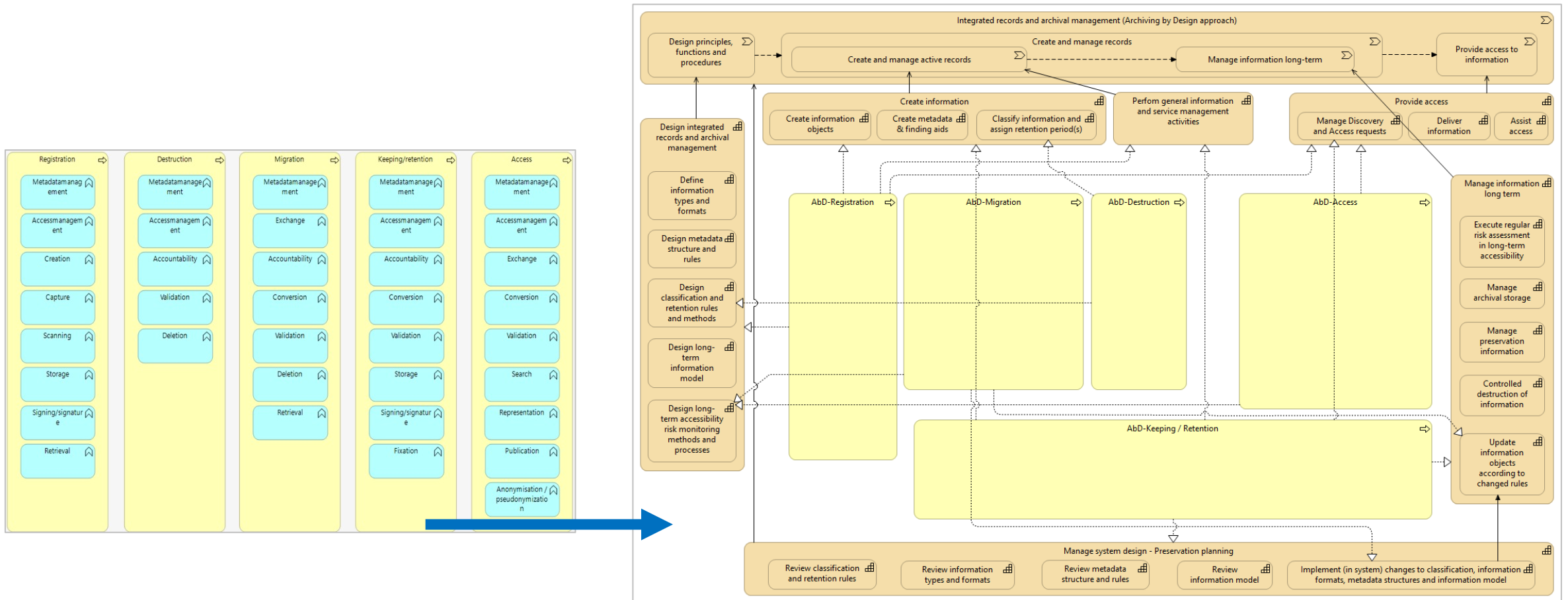
More general background information about archiving by design can be read in the White Paper.



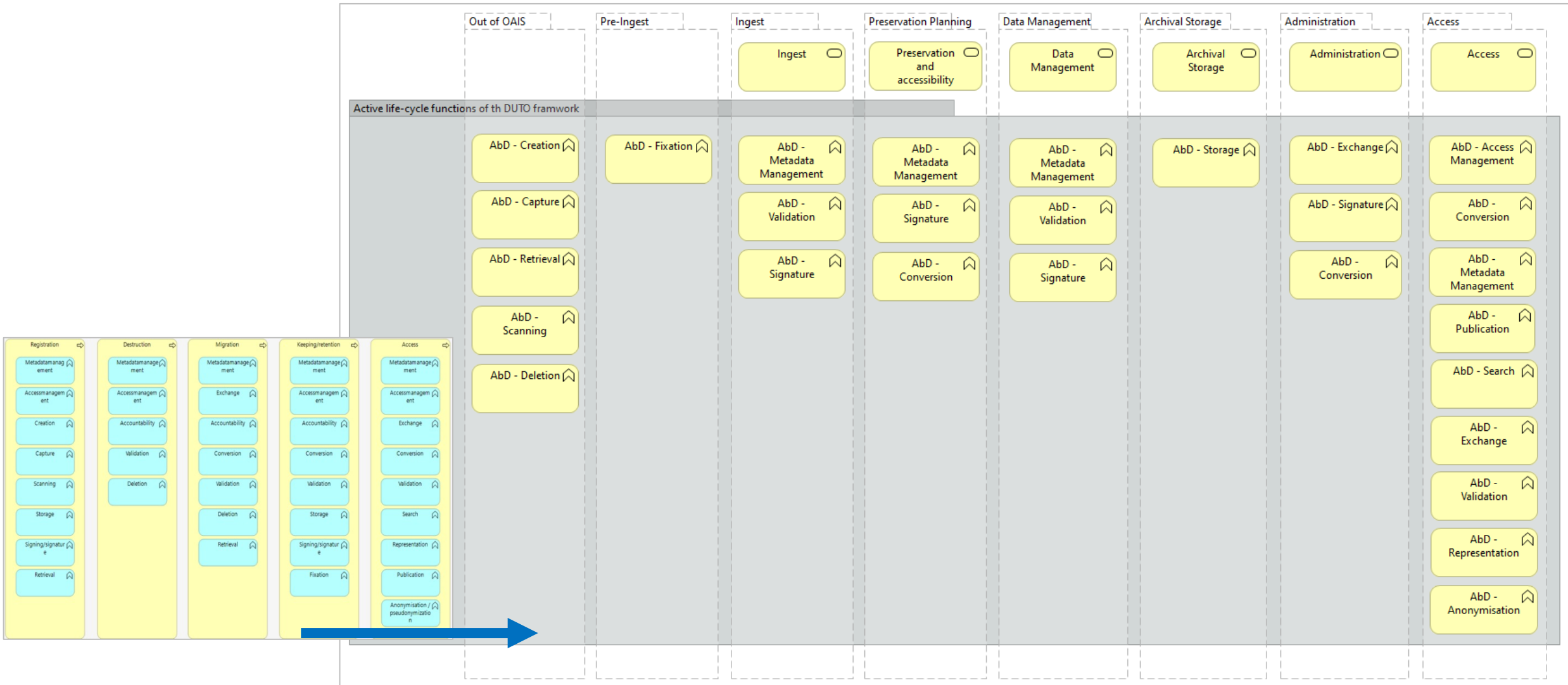
Dutch DUTO framework



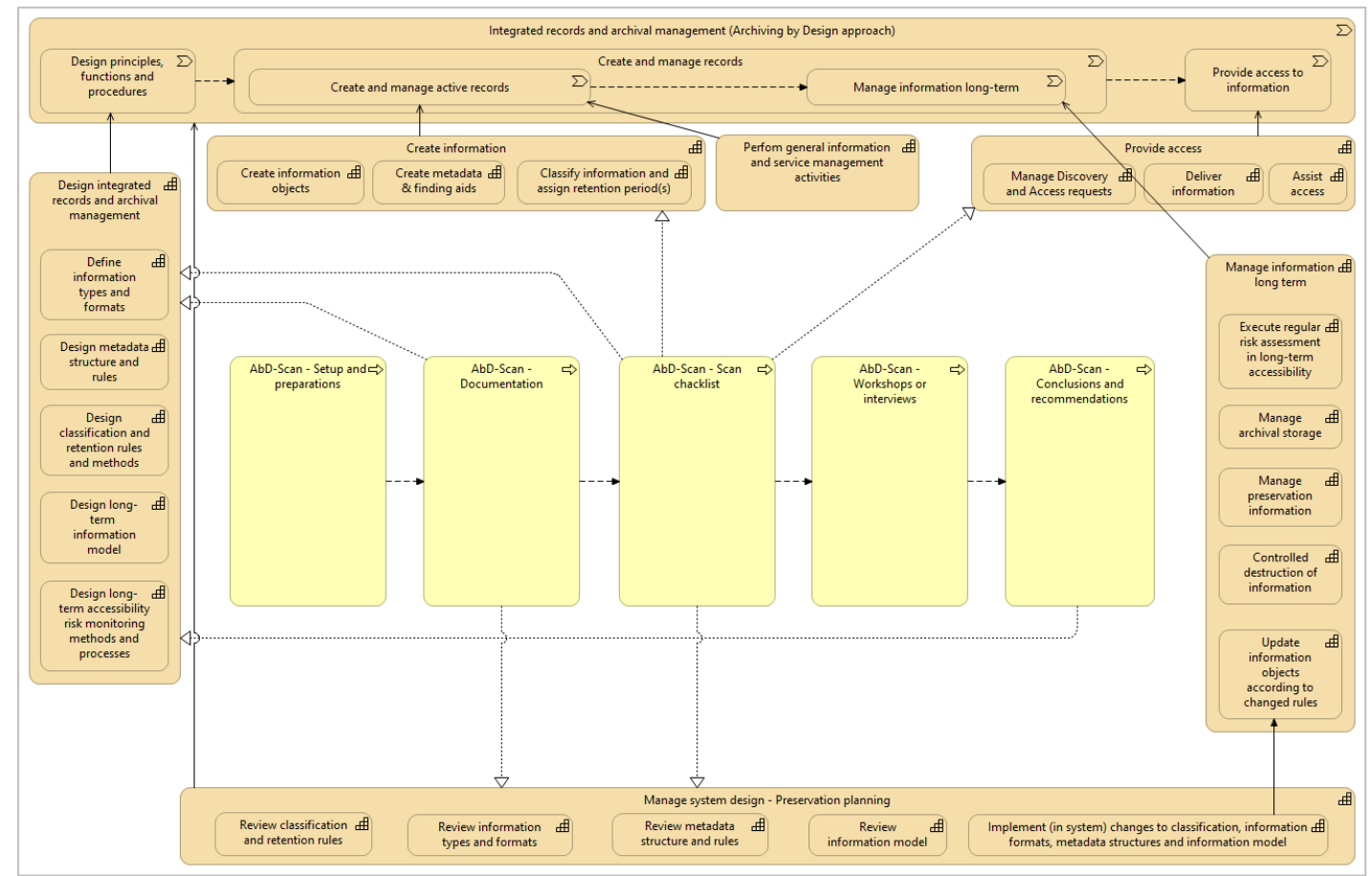
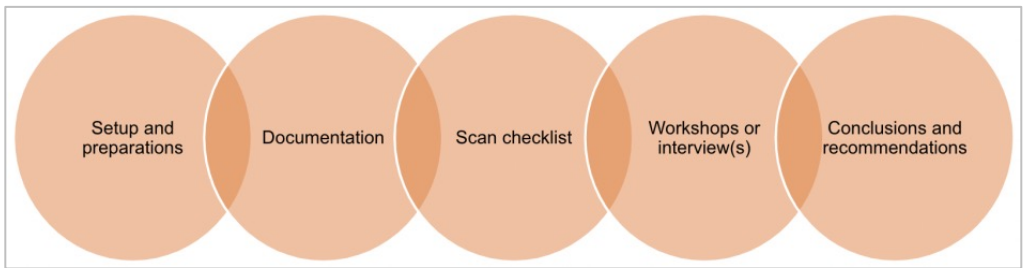
Archiving by Design – Strategy framework and DUTO functions



DUTO function to OAIS mapping



Modelling AbD Scan Method



Archiving by Design – Business Layer Views

Views

> 01 Motivation

> 02 Strategy

> 03 Business

> 01 Pre-Ingest

> 02 Ingest

> 03 Access

> 04 Preservation Planning

> 05 Data Management

> 06 Archival Storage

> 07 Archiving by Design

01 AbD - Overview

02 AbD - Registration

03 AbD - Destruction

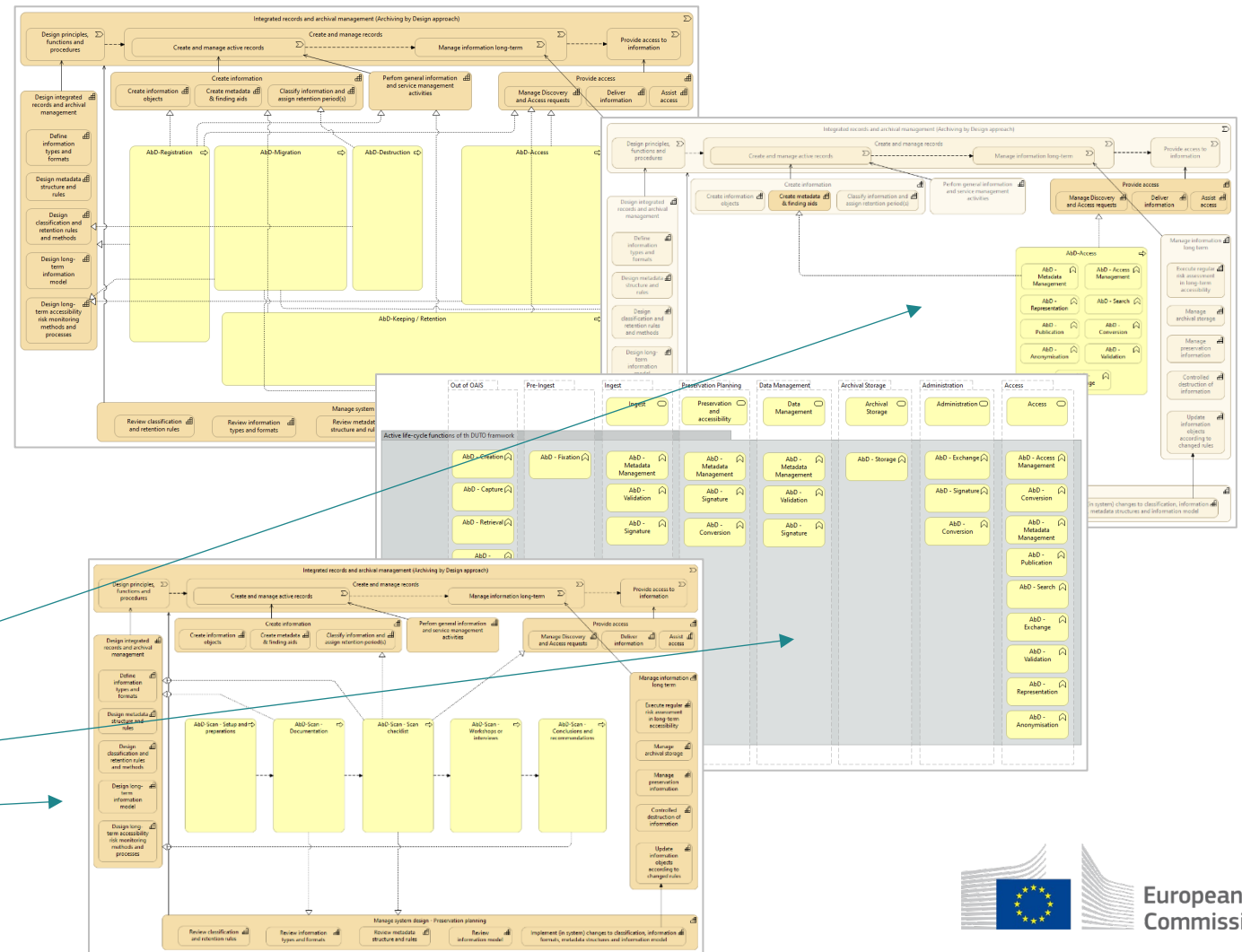
04 AbD - Migration

05 AbD - Keeping - Retention

06 AbD - Access

07 AbD - OAI mapping

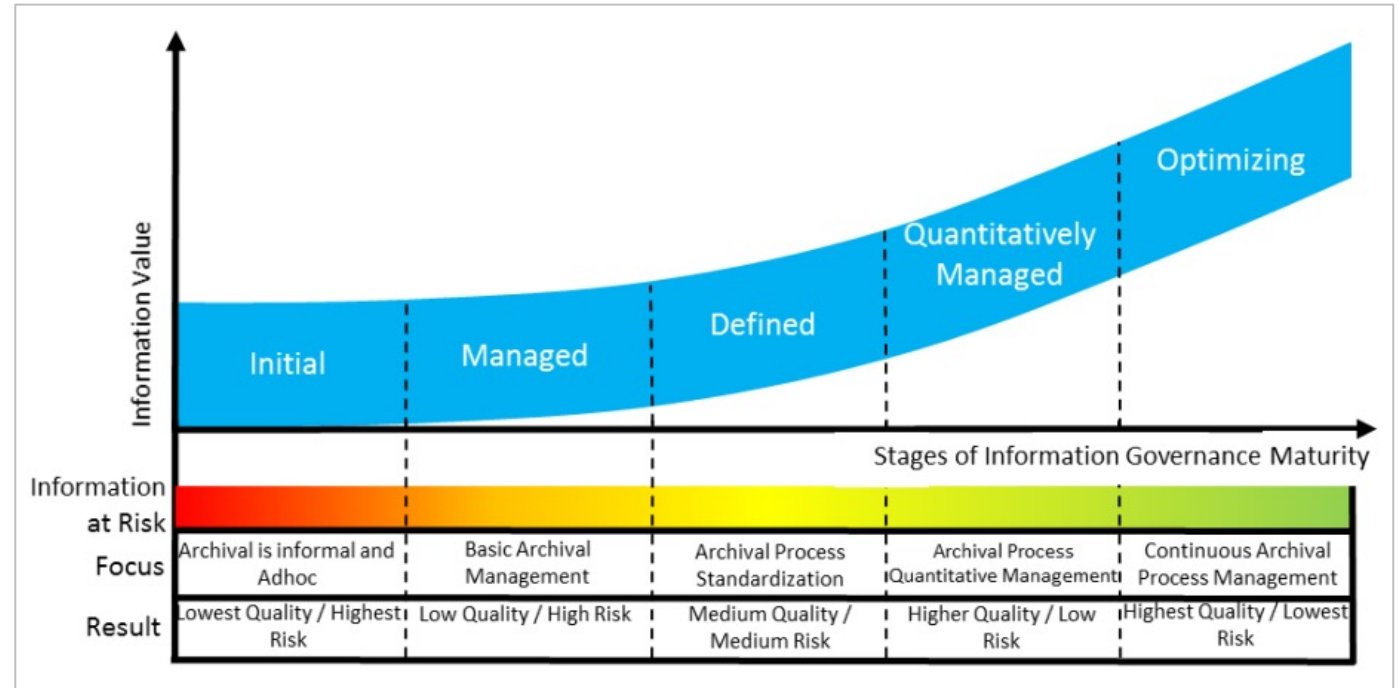
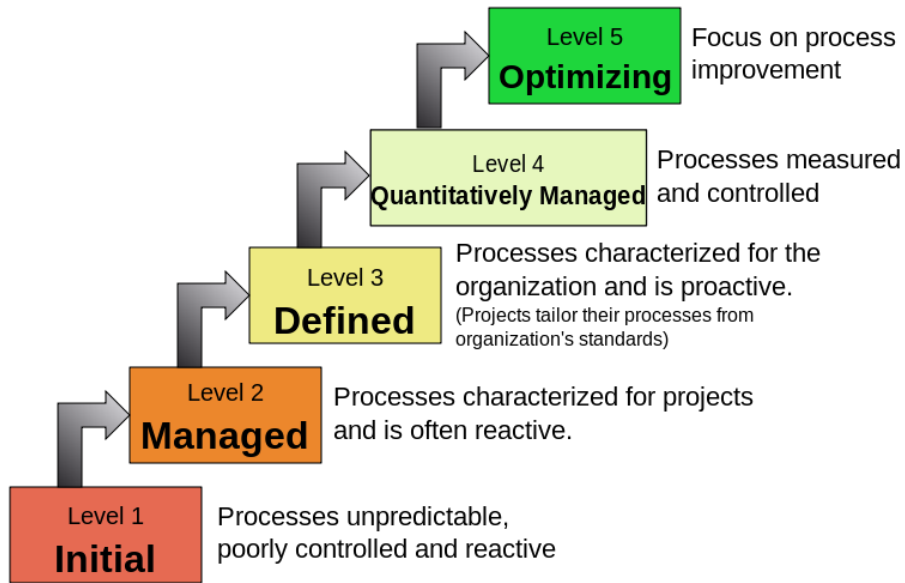
08 AbD - Scan process



eArchiving Capability Maturity Model

The screenshot shows the E-ARK Products website. The main heading is "E-ARK Products". Below it, there is a section for "The DILCIS Board" with a logo and text: "The Digital Information LifeCycle Interoperability Standards Board (DILCIS Board) develops, publishes and supports standards which provide practical interoperability in digital archiving". To the right, there is a section for "eArchiving Capability and Maturity Model" with a logo and text: "The eArchiving Capability and Maturity Model is an instrument for organisations to conduct a self-assessment and guide them regarding their capability on the core individual digital preservation process areas (namely, pre-ingest, ingest, preservation planning, data management, archival storage and access)". Below this, there is a section for "eArchiving Reference Architecture v2.0" with text: "This reference model of digital archiving has been created by the CEF eArchiving Building Block in cooperation with the E-ARK Consortium." At the bottom, there are logos for "TECNICO LISBIA", "PASCAL", "E-ARK", and the European Union flag.

Characteristics of the Maturity levels



eACMM self-assessment

Name	Size	Type
eArchiving Capability and Maturity Model Dashboard.xlsx	193 KB	Microsoft Excel Worksheet
eArchiving Capability and Maturity Model.pdf	1 433 KB	Adobe Acrobat Document

P2.1 - Submission Agreement Negotiation

Is there a procedure to negotiate the terms of the submission agreement the Producer and the Archive?

Purpose: The purpose is to identify if the Archive can negotiate the terms of the submission agreement with Producers. Terms of agreement might include the specification of the metadata that must be included at the time of submission, the schedule and method of submission, the responsibilities of the Producer and the Archive regarding the information being ingested, among other examples.

Notes: An example of evidence to demonstrate is the documentation of the procedure to negotiate the terms of the submission agreement between the Producer and the Archive.

eArchiving Reference Architecture Mapping:
Views -> 03 Business Layer -> 01 Pre-Ingest -> Negotiate Submission Agreement

Answer ("Y" for yes, "N" for no) **Y**

Observations
(in case there are some comments to your answer that you would like to share, please add them below)



P3.1 - Producer SIP Validation

Does the Archive validate if the Producer SIP complies with the defined format and structure specifications?

Purpose: The purpose is to identify if the Archive validates the Producer SIP regarding format and structure. If the SIP has deviations the Archive might reject the SIP and request the Producer to deliver a corrected SIP.

Notes: Examples of evidence to demonstrate this can be the logs of the validation procedures; documentation of the validation procedures, among others.

eArchiving Reference Architecture Mapping:
Views -> 03 Business Layer -> 01 Pre-Ingest -> Prepare submission

Answer ("Y" for yes, "N" for no) **N**

Observations
(in case there are some comments to your answer that you would like to share, please add them below)

Introduction | **Pre-Ingest** | Ingest | Archival Storage | Data Management | Access | Pre

Capability / Aspect	Level	Question	Answer	Count	Criteria met?	Points
Pre-Ingest	2	P2.1	Y	1	YES	1
	3	P3.1	N	0	NO	0
Ingest	2	I2.1	0	0	NO	0
		I2.2	N	1		0
	I2.3	Y	1	1		
	I3.1	Y	1	1		
	I3.2	Y	1	1		
	I3.3	N	0	0		
	I3.4	N	0	0		
	I3.5	Y	1	1		
	I3.6	Y	1	1		
	I3.7	Y	1	1		
Archival Storage & Preservation	2	I5.1	Y	1	YES	1
		S2.1	Y	1	1	
	S2.2	Y	2	NO	1	
	S2.3	0	0	0		
	S3.1	Y	1	1		
	S3.2	Y	1	1		
	S3.3	N	3	NO	0	
Data Management	3	S3.4	0	0	0	
		S3.5	Y	1	1	
	D2.1	Y	1	YES	1	
	D3.1	N	1	NO	0	
	D3.2	N	1	NO	0	
2	D3.3	Y	1	1		
	A2.1	Y	1	YES	1	

Capability	Level
Pre-Ingest	2
Ingest	1
Archival Storage & Preservation	1
Data Management	2
Access	2
Preservation & Accessibility	2

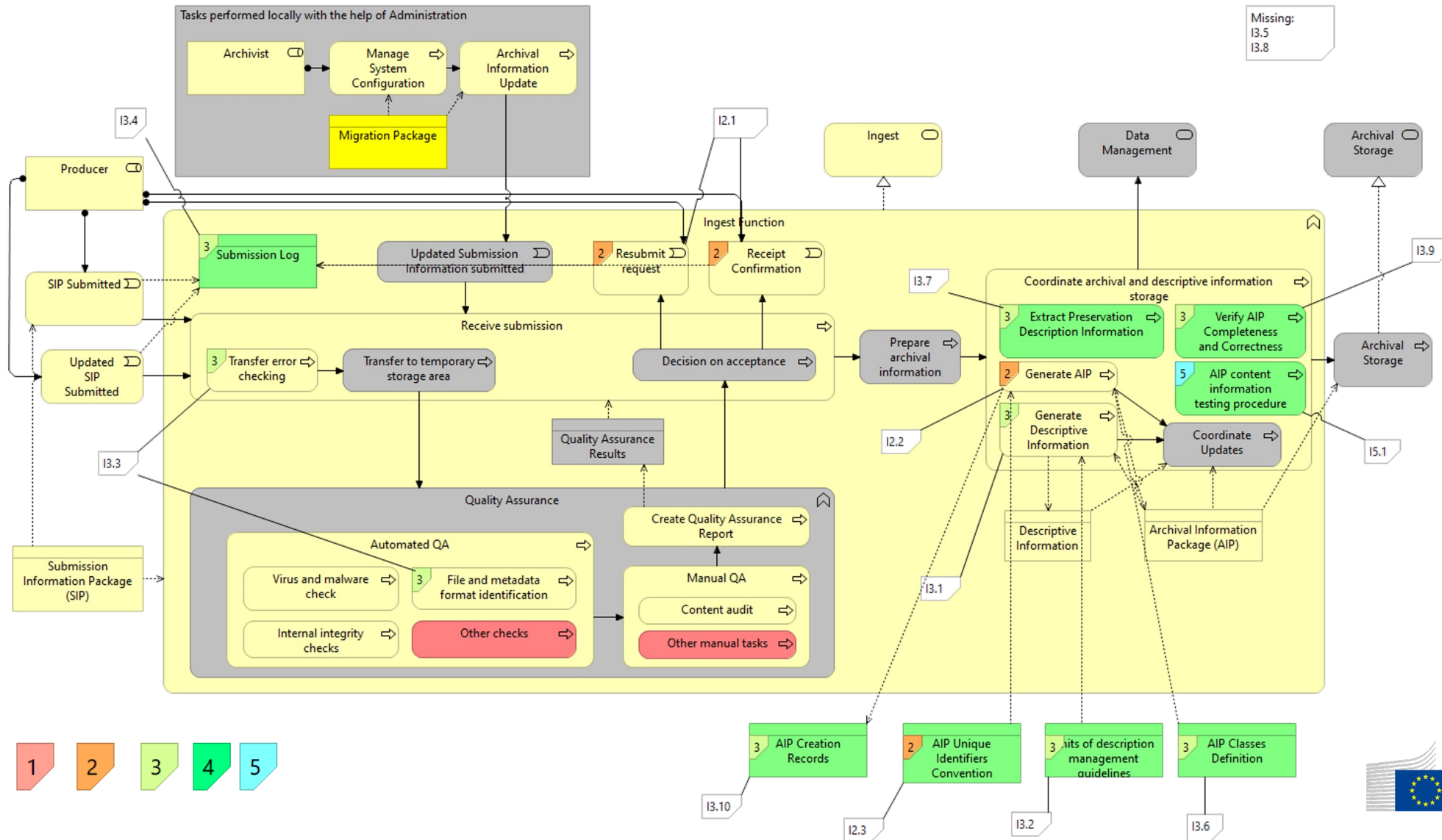
Criteria met	Percentage	Count
Criteria met	60%	30
Negative responses	34%	17

Capability	Percentage	Count
Pre-Ingest	50%	1
Ingest	64%	9
Archival Storage & Preservation	63%	5
Data Management	50%	2
Access	43%	3
Preservation & Accessibility	67%	4
[General]	67%	6

Levels	Percentage	Count
Level 2	70%	7
Level 3	52%	15
Level 4	80%	4
Level 5	67%	4

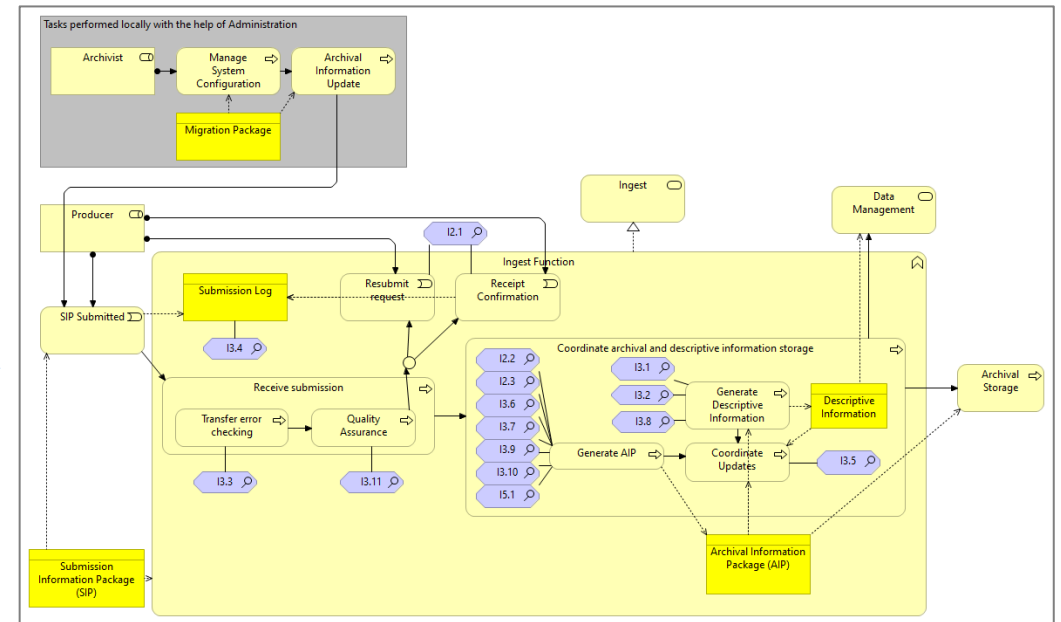
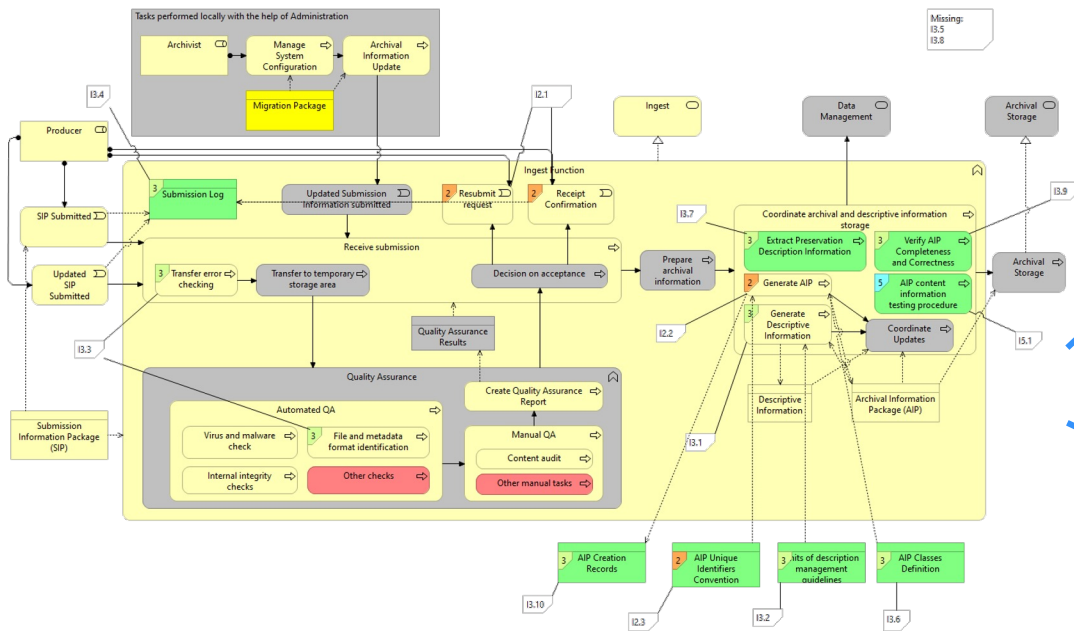
... | Archival Storage | Data Management | Access | Preservation & Accessibility PI | General | **Dashboard** | Results | 4

Reference Architecture – eACMM – Gap Analyses



Reference Architecture – eACMM views

Re-thought, re-designed and often simplified business layer views



Reference Architecture – eACMM views

eArchiving Reference Architecture v2.0

European Commission

Contents

- ▶ Getting Started
- ▼ eArchiving Reference Architecture Views
 - ▶ 01 Core Views
 - ▶ 02 Example scenarios
 - ▼ 03 Maturity Model views
 - 01 Pre-Ingest
 - 02 Ingest
 - 03 Access
 - 04 Preservation and accessibility planning
 - 05 Data Management

13.9 (Assessment)

Title: AIP completeness and correctness

Purpose: The purpose is to identify if the organization verifies the completeness and correctness of each AIP when it is created to ensure that all AIP can be traced back to the SIP provided by Producers.

Notes: AIP completeness and correctness is not universal and depends on what was agreed between the Producer and Archive during the submission agreement negotiations. An AIP is correct if it complies with the schema that was defined. A SIP is complete if all information necessary to understand, identify and retrieve the AIP is present. Examples of evidence to demonstrate this can be a description of the procedure that verifies completeness and correctness of the AIP and logs of the procedure.

The diagram illustrates the eArchiving Reference Architecture process. It starts with a **Producer** submitting a **Submission Information Package (SIP)**. This leads to the **Receive submission** step, which includes **Transfer error checking** (13.3) and **Quality Assurance** (13.11). The **Quality Assurance** step is highlighted with a blue arrow from the assessment section. The process then moves to the **Ingest Function**, which includes **Submission Log** (13.4), **Resubmit request**, and **Receipt Confirmation** (12.1). The **Ingest Function** is linked to **Ingest** and **Data Management**. The **Ingest Function** leads to the **Coordinate archival and descriptive information storage** block, which includes **Generate AIP** (13.10), **Generate Descriptive Information** (13.1, 13.2, 13.6, 13.7, 13.8), **Coordinate Updates** (13.5), and **Descriptive Information**. The final output is the **Archival Information Package (AIP)**, which is then stored in **Archival Storage**.

Redesigned menu structure

eArchiving Reference Architecture v2.0



Contents

- ▼ Getting Started
 - Background and Purpose
 - How to Use This Application
 - eArchiving Initiative
 - OAIS ReferenceModel
 - Archiving by Design
 - eArchiving Capability Maturity Model
- ▶ ArchiMate Notation
- ▼ eArchiving Reference Architecture Views
 - ▶ 01 Core Views
 - ▶ 02 Example scenarios
 - ▶ 03 Maturity Model views
 - ▶ 04 Archiving by Design views
- ▼ Reference
 - Release notes
 - Download
 - Standards
 - Glossary
 - Links
 - Credit

eArchiving Reference Architecture Views

The reference architecture comprises a set of ArchiMate elements and views. In this online version, only the views are available. (The complete model is accessible for download in the Download section of this application.)

The views are organised into four sections:

Core Views

The views encompass the motivation aspect as well as the strategy, business and application layer views of digital archiving. The motivation aspect covers stakeholders, drivers, goals and principles. The strategy view outlines the capabilities required for digital archiving. The business views showing the business services, processes and functions, follow the functional entity structure of the OAIS Reference Model. The application layer views focus on positioning the specifications and software components of the eArchiving Initiative within the business framework of the model.

Example Scenarios

The core model is augmented with example scenarios that illustrate the application and interpretation of the ArchiMate views. This extension includes step-by-step business scenarios, with elements relevant to a specific step highlighted within the original ArchiMate view. Additionally, this section presents real-world application examples, including the application element architecture of three national archives (Slovenian, Estonian, Finnish) and two digital archiving solutions (ESS Arch, RODA).

Maturity Model views

These views support the self-assessment methodology of the eArchiving Capability Maturity Model. The views contain the business layer views of the core model, showing the corresponding requirements of the Maturity Model.

Archiving by Design views

The Archiving by Design (or Sustainable Access) is a new approach in digital archiving emphasizing the importance of ensuring information accessibility throughout the entire information lifecycle. The views in this section support this approach by defining the required capabilities and positioning the AbD business functions within this ArchiMate strategy framework.



New Getting Started and Introductory Sections



Contents

▼ Getting Started

- Background and Purpose
- How to Use This Application
- eArchiving Initiative
- OAIS ReferenceModel
- Archiving by Design
- eArchiving Capability Maturity Model
 - ▶ ArchiMate Notation
- ▶ eArchiving Reference Architecture Views
- ▶ Reference

Select an element in the model tree or in a view to show its details here

Getting Started

This online edition of the eArchiving Reference Architecture aims to support stakeholders involved in the European Commission's eArchiving Initiative, as well as newcomers interested in digital archiving. The reference architecture focuses on the interoperability of information, reflecting the solutions and best practices commonly adopted within our community.

At the heart of the eArchiving Reference Architecture is a series of ArchiMate elements and views. These views are diagrams developed in accordance with the ArchiMate diagram language rules. ArchiMate is a de facto standard for modelling enterprise architecture. Diagrams provide an efficient way to present structured information — 'a picture is worth a thousand words' — but they do require some knowledge for proper interpretation. This online application is tailored for a broad audience, including professionals who have an interest in digital archiving but may not be experts in ArchiMate or enterprise architecture.

The model adheres to the information package and functional entity structure proposed by the OAIS Reference Model. Familiarity with the OAIS model's basics is crucial for understanding our eArchiving views.

The following list will assist you in navigating and exploring the online version of the reference architecture effectively:

- **Navigating This Online Application:** For guidance on how to navigate this application, please refer to the '[How to Use This Application](#)' section.
- **Introduction to Digital Archiving:** If you are new to digital archiving, consult the '[OAIS Reference Model](#)' and the '[eArchiving Initiative](#)' sections for foundational information.
- **Understanding Our Goals, Stakeholders, and ArchiMate:** For insight into our objectives, stakeholders, and the ArchiMate diagram language, visit the '[Background and Purpose](#)' and '[ArchiMate Notation](#)' sections. Alternatively, you can download the 'Principles for Long-Term Accessibility of Information' document from the '[Download](#)' section.
- **For ArchiMate Experts:** If you are already familiar with the ArchiMate language and wish to directly access the model, navigate to the '[eArchiving Reference Architecture Views](#)' or download the ArchiMate model from the '[Download](#)' section. Also look at the example scenarios and application layouts for a better understanding of the core views.
- **Exploring New Topics in the Second Edition:** To learn about the two new topics in this second edition – the '[Archiving by Design](#)' approach and the '[eArchiving Capability Maturity Model](#)' – please visit the respective sections.
- **Discovering the Standards, Team, Glossary, and Updates:** For information on the standards upon which this reference architecture is built, the team behind the model, our glossary, release notes, or additional resources, refer to the '[Reference](#)' section.

New Getting Started and Introductory Sections

eArchiving Reference Architecture v2.0

Contents

Getting Started

- Background and Purpose
- How to Use This Application
- eArchiving Initiative
- OAIS Reference Model
- Archiving by Design
- eArchiving Capability Maturity Model
- ▶ ArchiMate Notation
- ▶ eArchiving Reference Architecture Views
- ▶ Reference

The eArchiving Initiative

Important information should be kept... funded by the European Union's Digital... promote sustainable eArchiving across... training resources, and outreach services.

The eArchiving Initiative builds upon... Connecting Europe Facility (CEF) e... TC-2018-15 eArchiving (2018-2019)... (2014-2017) was funded by the European... Innovation Framework Programme, C...

The first version of the eArchiving Reference... eArchiving Building Block program... eArchiving Initiative.

Getting Started

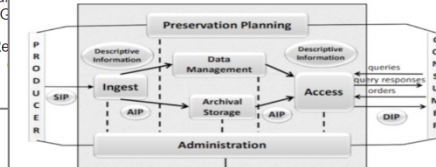
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OAIS Reference Model

The OAIS Reference Model is designed to provide a comprehensive framework to help organizations maintain information over the long term. It is widely used by archives, libraries, and other institutions responsible for preserving digital information.

The OAIS Reference Model is a guiding framework for organizations seeking to develop systems for the long-term preservation of digital information. It covers the entire lifecycle of digital archiving, from the initial acquisition of data to its long-term preservation and access, ensuring that the information remains understandable well into the future.



the OAIS Reference Model. Familiarity with the OAIS model's

architecture effectively:

please refer to the 'How to Use This Application' section.

the 'Reference Model' and the 'eArchiving Initiative' sections

archives, stakeholders, and the ArchiMate diagram language, you can download the 'Principles for Long-Term Accessibility

to directly access the model, navigate to the 'eArchiving Reference Architecture' section. Also look at the example scenarios and application

in this second edition – the 'Archiving by Design' approach and

standards upon which this reference architecture is built, the 'Reference' section.

valent name Sustainable Access) is a new approach in digital archiving.

Archiving by Design Working Group of The European Archives Group (EAG) summarizes the playing field in which we operate as an archival and records management organization. Its growth is exponential.

in novel ways utilizing new technologies.

Records management no longer prove to be effective in the public sector. Records management systems we have created. There is too much information from the first moment in the life cycle to be used and reused outside the organization. It starts after the working process is finished. It is more effective when information is secured. When this is combined with early identification of the information lifecycle, information of enduring value will be preserved and accessed more

It is necessary to take measures even before information is created or received. We

in information systems, the appropriate measures are taken to ensure that

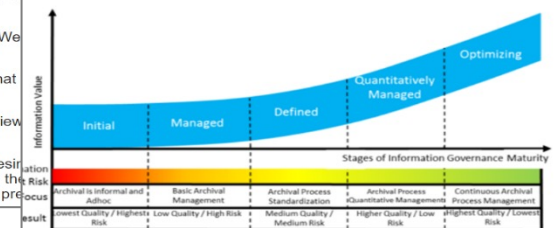
the working group has decided to support this approach by creating some views of this new approach and the eArchiving Initiative.

Under the DUTO framework, the only existing implementation of the Archiving by Design approach, we haven't tried to consolidate the DUTO and OAIS language, because the functions as they appear in DUTO. To prevent misunderstanding we have pre-

The eArchiving Capability Maturity Model (eACMM) enables the assessment of the information governance practice in organizations regarding digital archiving. It provides a set of relevant references for digital archiving especially those that are being improved in the context of the former eArchiving Initiative.

The model has been developed and accepted, both in industry and academia because of their simplicity and effectiveness. They can help to identify a certain aspect in a meaningful way, so that stakeholders can clearly identify strengths and weaknesses and see what must be done to reach a higher level. This can be used to show the outcomes that will result from that investment. The outcomes justify the effort and/or investment.

The model includes "maturity levels" (often six) which are, from the lowest to the highest, (0) Non-Existent, (1) Initial, (2) Defined, (3) Quantitatively Managed, (4) Standardized, and (5) Optimizing. A Maturity Model also provides a way for organizations to see clearly what they must do to reach a higher maturity level.



New Reference Section

eArchiving Reference Architecture v2.0

Contents

- ▶ Getting Started
- ▶ eArchiving Reference Architecture Views
- ▼ **Reference**
 - Release notes
 - Download
 - Standards
 - Glossary
 - Links
 - Credit

Download

This area contains the downloadable files be

- [Principles for long-term accessibility](#)

Although the principles belong to the *accessibility of information* because of that served as the theoretical foundation

- [ArchiMate model of the eArchiving R](#)

The ArchiMate® model created with the

Glossary

Archival terms and concepts are not consistent throughout the

Archive and Archiving
In professional terminology Reference Architecture uses accessibility measures. As s

Accordingly, the term *Archiv* processes within larger info

Information versus Data
Information is considered business context are referre

Archival information versus archived information
The term *archival information* refers to any data element or piece of information anywhere throughout the entire archival process from pre-ingest to access. On the other hand, *archived information* only referred to data elements or pieces of information already stored in an archival repository (e.g. in an Archival Information Package).

Available versus Retrievable versus Accessible versus Usable
These terms are not easy to differentiate. They are synonyms in everyday language but used in very specific meanings in several standards. Unfortunately, these particular meanings are inconsistent in those documents. We have decided to use them in the following sense: If *available*, then data in its purest sense are there. If you have methods and tools, you can *retrieve* them. If it is *available and retrievable*, then the information is *accessible* if you have the proper rights to access it (or, in general, if one could have the rights to access it). Finally, information is only *usable* if you can view and interpret it along with its context.

Trustworthiness versus Reliability versus Integrity versus Authenticity
One of the critical aspects of any archive is to ensure that the information it keeps can be trusted. More specifically, the E-ARK Reference Architecture understands *Trustworthiness* as a quality of both the Archive and the Information it holds.

For Archives, *Trustworthiness* is about carrying out their processes in a controlled and repeatable fashion. For Information, *Trustworthiness* does have the sub-characteristics of *reliability, authenticity and accuracy* (<https://interparestrust.org/terminology/term/trustworthiness>):

Release Notes

The first version of the eArchiving Reference Architecture was developed by the E-ARK Consortium in the scope of the eArchiving Building Block program of the Commission. This second major iteration has been developed by the E-ARK Consortium in the scope of the eArchiving Initiative.

Versioning

Owners and vendors of eArchiving components adhere to the semantic versioning scheme. The structure for semantic versions recommended adheres to the widely recognized convention of three segments: MAJOR.MINOR.PATCH

The eArchiving Reference Architecture manifests in two forms, both of which are designated as reference architectures. The primary eArchiving Reference Architecture, articulated in the ArchiMate language, is curated using the Archi tool. The online rendition of the model, a web application, offers enhanced accessibility to the ArchiMate views, complete with introductory narratives, hyperlinks, a glossary, and a download section. Distinct version numbers are assigned to the Archi model and its corresponding web application.

New in version 2.0.0 of the Model

- All the business layer views have been reviewed and reworked as part of the alignment of the model with the eArchiving Maturity Model.
- The model has been extended with a set of views supporting the Archiving by Design approach. These views focus on the capabilities required by the new approach as well as the relationship between the functions of the new approach and the OAIS reference model functional entities.

Relation to other initiatives

Enterprise architecture standards and models

This reference architecture is based on the generally accepted concepts of **ISO/IEC/IEEE 42010:2011** (Systems and software engineering – architecture description). It has been developed using the **ArchiMate® Specification**, which is a standard of The Open Group. The ArchiMate® Specification is an open and independent modelling language for Enterprise Architecture that various tool vendors and consulting firms support.

Other reference architectures cover a similar scope or parts of the scope. This reference architecture does not aim to produce one perfect reference architecture to replace all others. On the contrary, it can be used to refer to different architectures or point to parts of other reference architectures suggesting how they can be integrated and used in the best way.

Relevant references architectures include, but are not limited to:

- SHAMAN (Sustaining Heritage Access through Multivalent Archiving) – the Results of the EU project.
- EIRA® (European Interoperability Reference Architecture), developed by ISA² Programme.
- DERA (Digitaal Erfgoed Referentie Architectuur) – the Digital Heritage Reference Architecture of the Dutch Digital heritage network.

Domain standards

The eArchiving reference architecture is based on the archiving and digital preservation reference model, the Open Archival Information System (OAIS) — Reference Model (ISO 14721:2012).

Other preservation-related ISO standards used include the:

- Producer-Archive Interface – Methodology Abstract Standard – PAIMAS (ISO 20652:2006).
- Audit and certification of trustworthy digital repositories — TRAC (ISO 16363:2012).
- Producer-Archive Interface Specification (PAIS) – (ISO 20104:2015).

The eArchiving reference architecture has also benefited from other outputs of the eArchiving building block, such as specifications and software components.

Useful Links

eArchiving Initiative
<https://digital-strategy.ec.europa.eu/en/a>

E-ARK Foundation
<https://www.opengroup.org/archimate-fo>

The ArchiMate® Enterprise Architecture
<https://www.e-ark-foundation.eu/>

Archi@ – Open Source ArchiMate model
<https://www.archimatetool.com/>

OAIS Reference Model
<https://www.e-ark-foundation.eu/>

eArchiving Capability Maturity Model
The documentation and self-assessment

Archiving by Design Whitepaper
<https://commission.europa.eu/document>

Reference Architecture – New design and surface

eArchiving Reference Architecture v2.0

Contents

- Getting Started
 - Background and Purpose
 - How to Use This Application
 - eArchiving Initiative
 - OAIS Reference Model
 - Archiving by Design
 - eArchiving Capability Maturity Model
 - ArchMate Notation
- Reference
 - eArchiving Reference Architecture Views
 - Reference
 - Release notes
 - Download
 - Standards
 - Glossary
 - Links
 - Credit

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- For ArchMate Experts:** If you are already familiar with the ArchMate language and wish to directly access the model, navigate to the ['eArchiving Reference Architecture Views'](#) or download the ArchMate model from the ['Download'](#) section. Also look at the example scenarios and application layouts for a better understanding of the core views.
- Exploring New Topics in the Second Edition:** To learn about the two new topics in this second edition — the ['Archiving by Design'](#) approach and the ['eArchiving Value Stream and Capabilities Model'](#) — please visit the respective sections.
- Discovering the Standards, Team, Glossary, and Updates:** For information on the standards upon which this reference architecture is built, the team behind the model, our glossary, release notes, or additional resources, refer to the ['Reference'](#) section.

eArchiving Reference Architecture v2.0

Contents

- Getting Started
 - Background and Purpose
 - How to Use This Application
 - eArchiving Initiative
 - OAIS Reference Model
 - Archiving by Design
 - eArchiving Capability Maturity Model
 - ArchMate Notation
- Reference
 - eArchiving Reference Architecture Views
 - Reference
 - Release notes
 - Download
 - Standards
 - Glossary
 - Links
 - Credit

Select an element in the model tree or in a view to show its details here

Getting Started

This online edition of the eArchiving Reference Architecture aims to support stakeholders involved in the European Commission's eArchiving Initiative, as well as newcomers interested in digital archiving. The reference architecture focuses on the interoperability of information, reflecting the solutions and best practices commonly adopted within our community.

At the heart of the eArchiving Reference Architecture is a series of ArchMate elements and views. These views are diagrams developed in accordance with the ArchMate diagram language rules. ArchMate is a de facto standard for modelling enterprise architecture. Diagrams provide an efficient way to present structured information — 'a picture is worth a thousand words' — but they do require some knowledge for proper interpretation. This online application is tailored for a broad audience, including professionals who have an interest in digital archiving but may not be experts in ArchMate or enterprise architecture.

The model adheres to the information package and functional entity structure proposed by the OAIS Reference Model. Familiarity with the OAIS model's basics is crucial for understanding our eArchiving views.

The following list will assist you in navigating and exploring the online version of the reference architecture effectively:

- Navigating This Online Application:** For guidance on how to navigate this application, please refer to the ['How to Use This Application'](#) section.
- Introduction to Digital Archiving:** If you are new to digital archiving, consult the ['OAIS Reference Model'](#) and the ['eArchiving Initiative'](#) sections for foundational information.
- Understanding Our Goals, Stakeholders, and ArchMate:** For insight into our objectives, stakeholders, and the ArchMate diagram language, visit the ['Background and Purpose'](#) and ['ArchMate Notation'](#) sections. Alternatively, you can download the 'Principles for Long-Term Accessibility of Information' document from the ['Download'](#) section.
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eArchiving Reference Architecture v2.0

Contents

- Getting Started
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 - How to Use This Application
 - eArchiving Initiative
 - OAIS Reference Model
 - Archiving by Design
 - eArchiving Capability Maturity Model
 - ArchMate Notation
- Reference
 - eArchiving Reference Architecture Views
 - Reference
 - Release notes
 - Download
 - Standards
 - Glossary
 - Links
 - Credit

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eArchiving Reference Architecture v2.0

Contents

- Getting Started
 - Background and Purpose
 - How to Use This Application
 - eArchiving Initiative
 - OAIS Reference Model
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 - eArchiving Capability Maturity Model
 - ArchMate Notation
- Reference
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 - Glossary
 - Links
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Agenda

Introduction

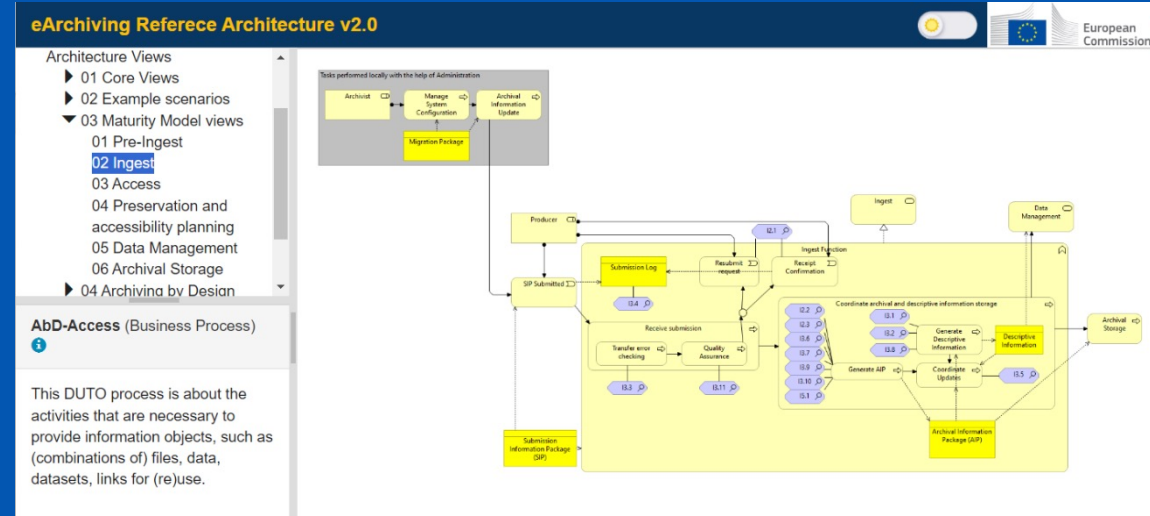
The ArchiMate Model

The Online Edition

What's new in version 2.0

Use cases of applying the RefArch

Future Plans



Possible use cases of applying the Reference Architecture

Use as reference

- You are an IT architect at your organisation running digital archiving processes
→ Consult the recommended architecture.
- You are an archivist at your organisation running digital archiving processes
→ Check how it is done by others.
- You are a decision maker at a digital archiving solution provider
→ Check how it is done by others.
- You work for a regulatory agency or policy maker planning to set new rules for the concerned organisations
→ Check the Motivation Aspect for drivers, goals and principles matching your initiative.
- ...

Possible use cases of applying the Reference Architecture

Use as a learning tool

- You are a decision maker at your organisation planning to implement digital archiving processes
→ Check the capabilities needed and the components provided by eArchiving
- You are an IT architect new to digital archiving
→ See the introductions, OAIS and the views
- You are an archivist and want to get acquainted with modern concepts and European best practices
→ See the AbD views, the Glossary and check the business layer views for new features
- ...

Possible use cases of applying the Reference Architecture

Special purpose use cases

- Your organisation wants to measure the maturity of information processing and digital archiving practice and set a roadmap to improve
 - Use the eArchiving Capability Maturity Model and corresponding views for self-assessment and better understanding the concepts.
- You want to assess or map digital archiving principles, processes, applications or standards
 - Use the overviews for a basis of the catalogues or maps
- ...

Agenda

Introduction

The ArchiMate Model

The Online Edition

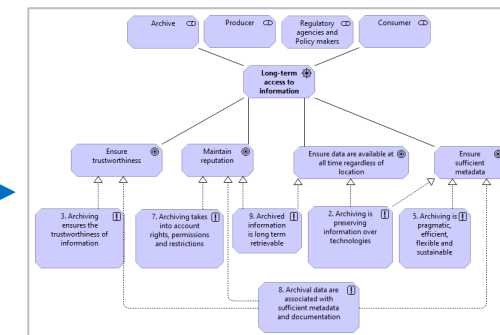
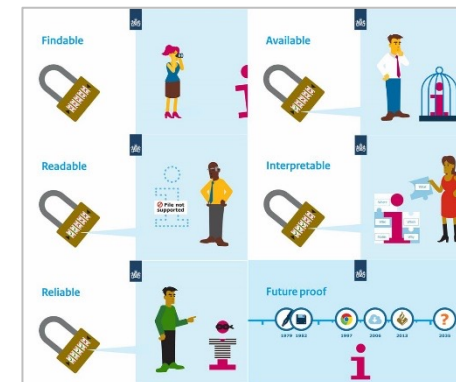
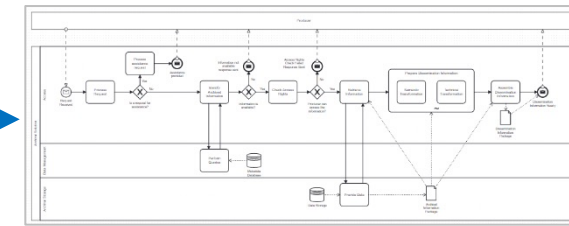
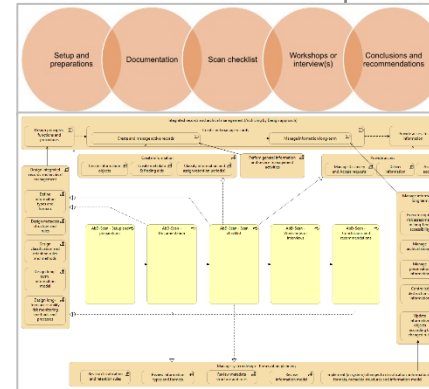
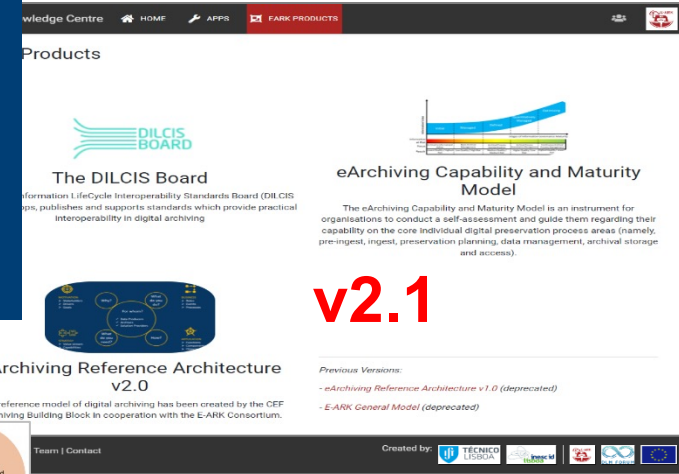
What's new in version 2.0

Use cases of applying the RefArch

Future Plans

Future plans

- Views supporting the new electronic archiving trusted service of the eIDAS regulation
- Detail the AbD Scan view → process model
- Address DUTO attributes and values in the drivers – goals – principles structure of the reference architecture



Questions & Answers

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Thank you

Contact



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