Collecting Experience from using the eArchiving Maturity Model

eArchiving Initiative 2023-2024 event
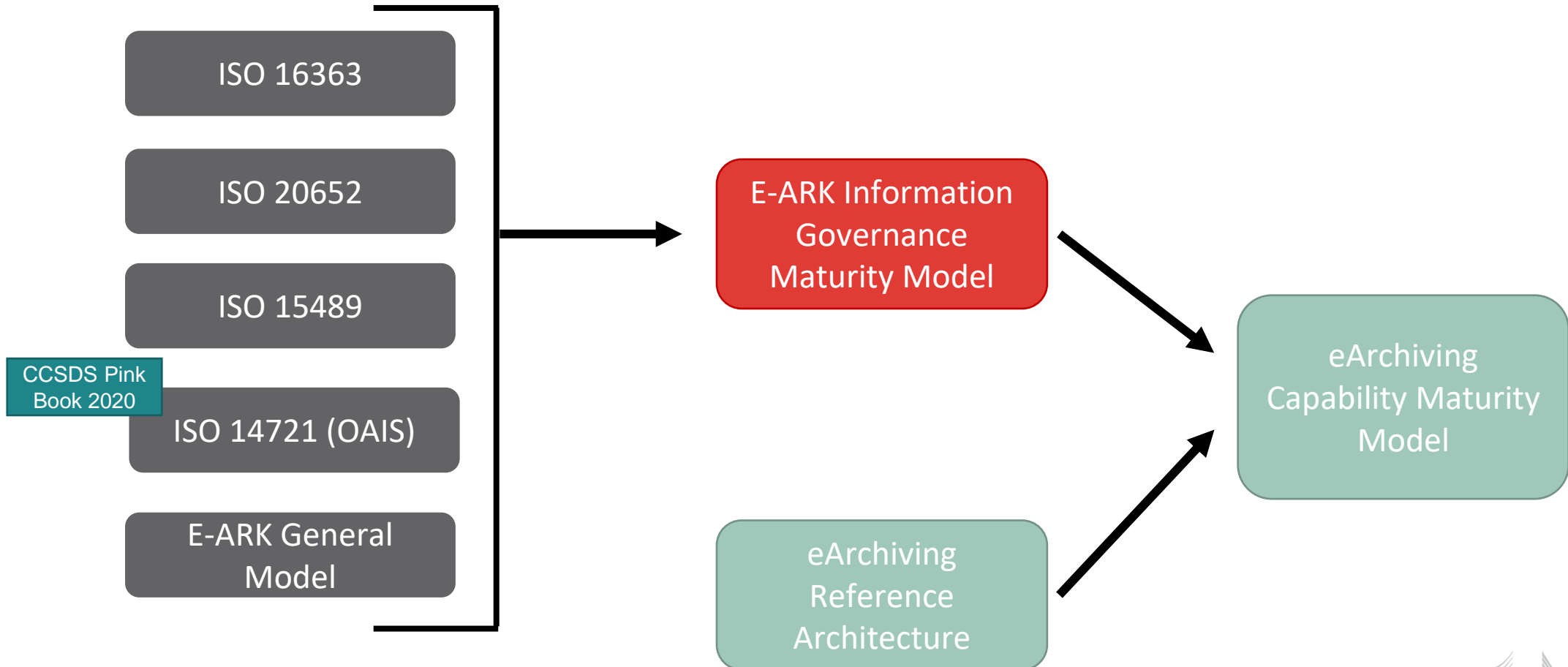
(25th and 26th April, 2023)

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Assessment Services
Capability Maturity Model

ISO 16363

ISO 20652

ISO 15489

CCSDS Pink Book 2020

ISO 14721 (OAIS)

E-ARK General Model

E-ARK Information Governance Maturity Model

eArchiving Reference Architecture

eArchiving Capability Maturity Model
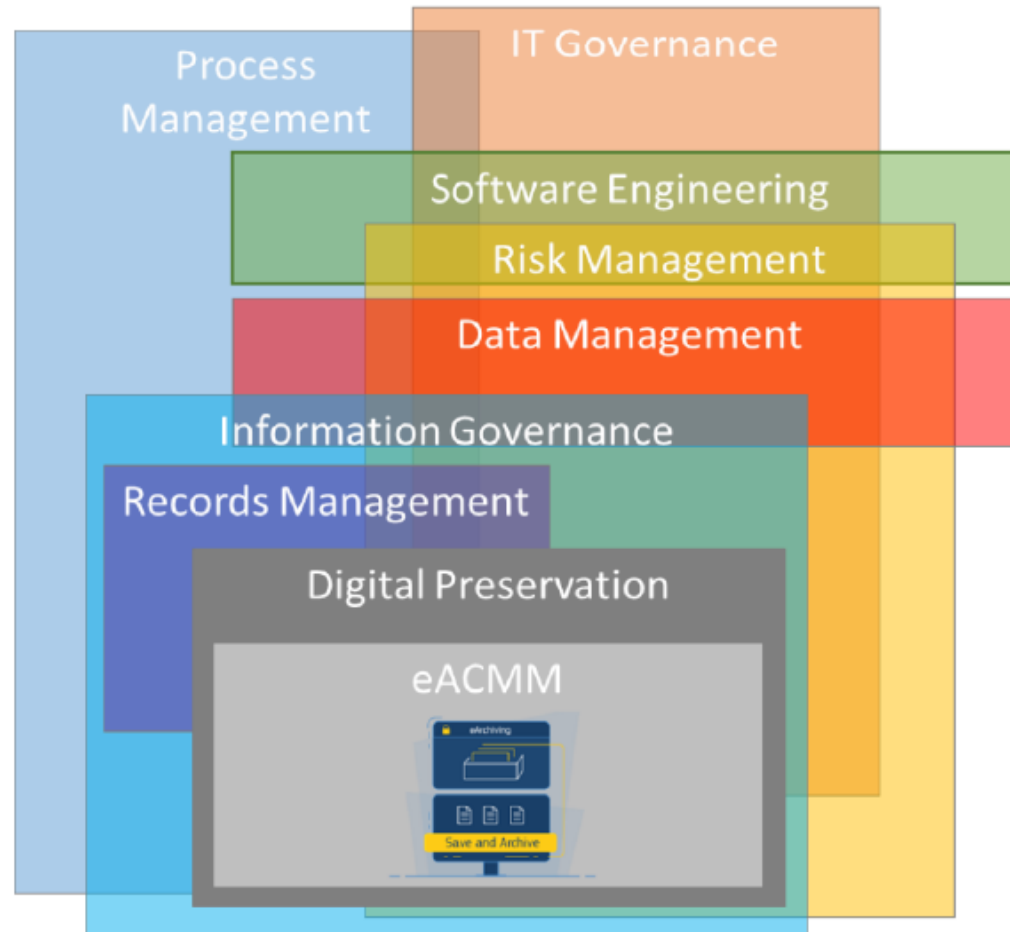
European Commission

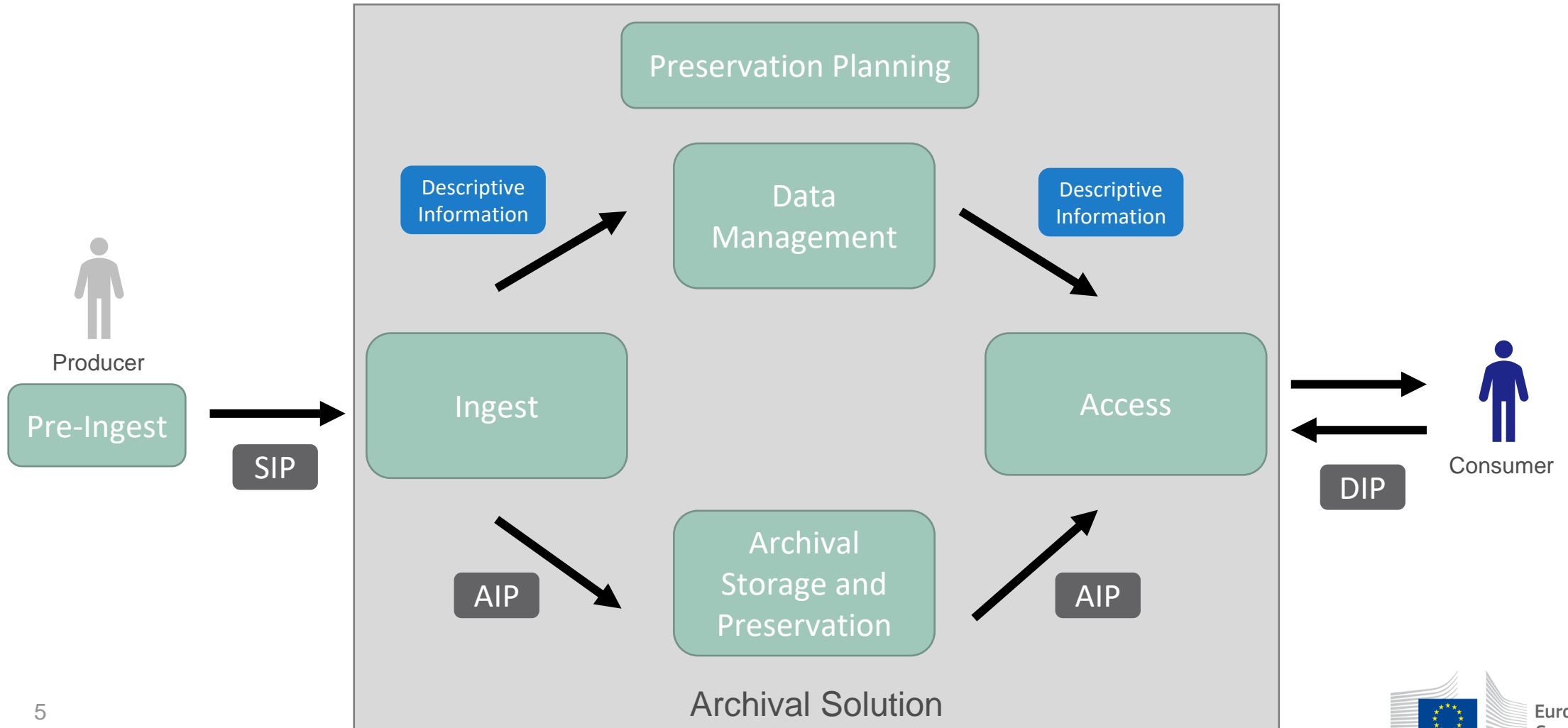# eArchiving Capability Maturity Model
Maturity Curve

The eArchiving Capability Maturity Model expresses a path towards an increasingly organized and systematic way of deploying digital archiving and preservation capabilities in organizations.
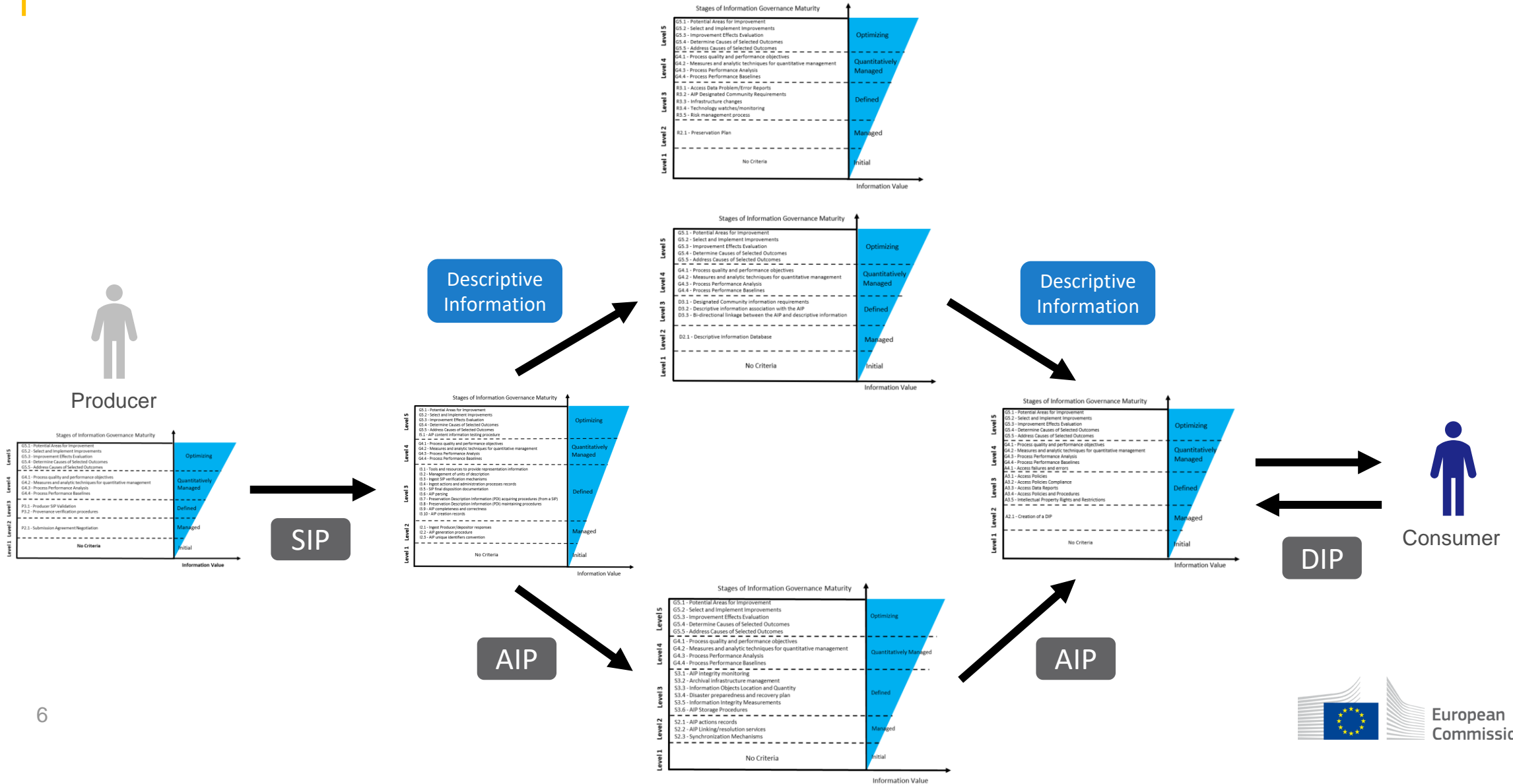
European Commission
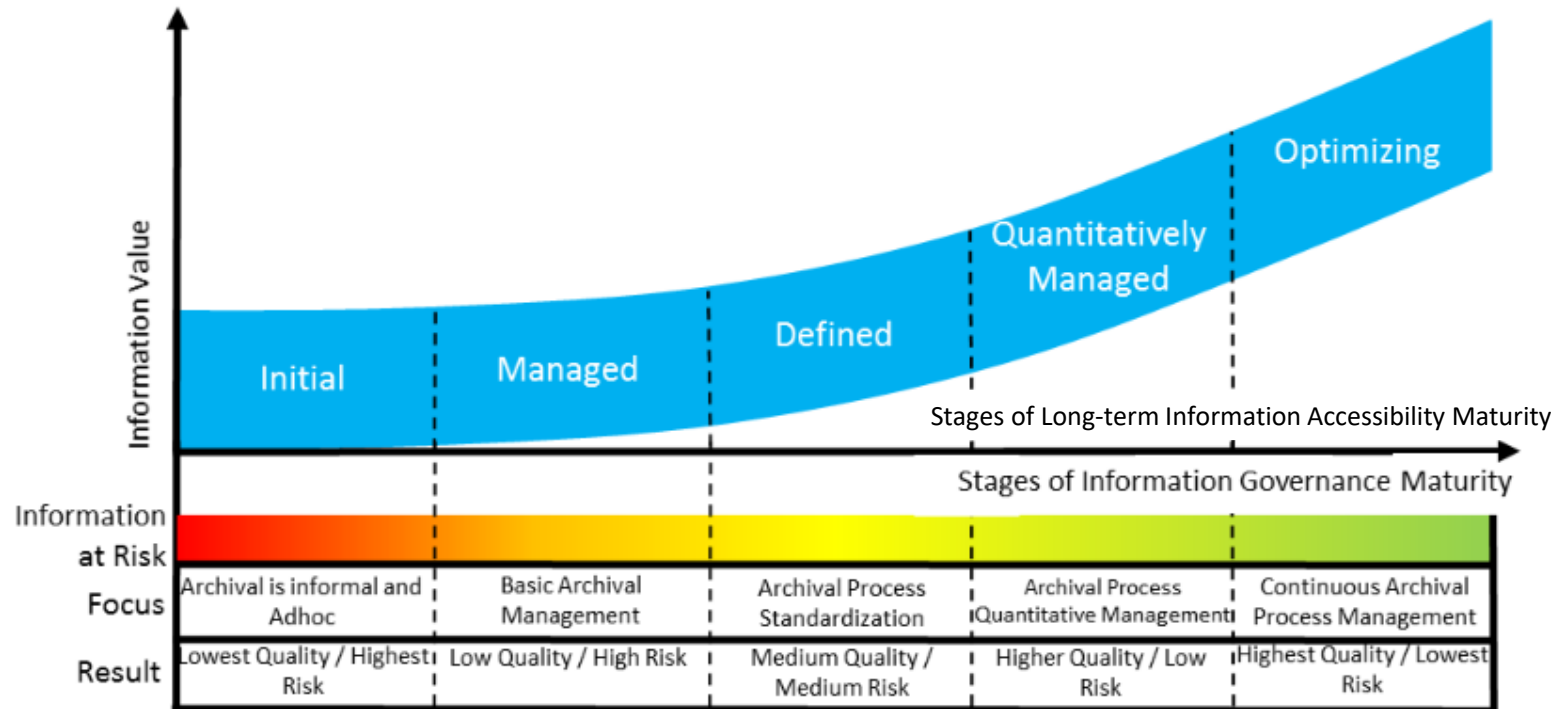
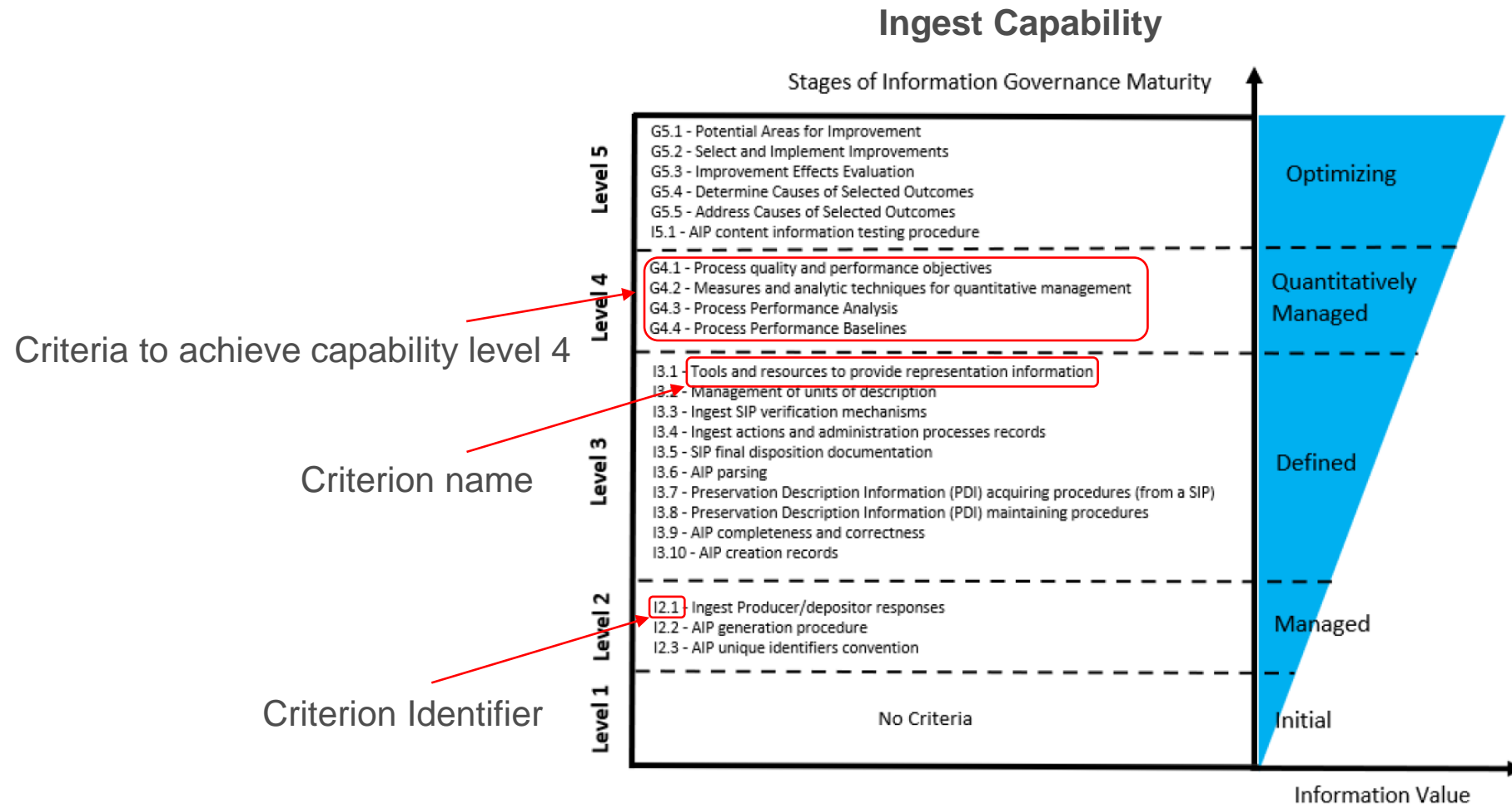# eArchiving Capability Maturity Model Domain Positioning

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Capability Maturity Model
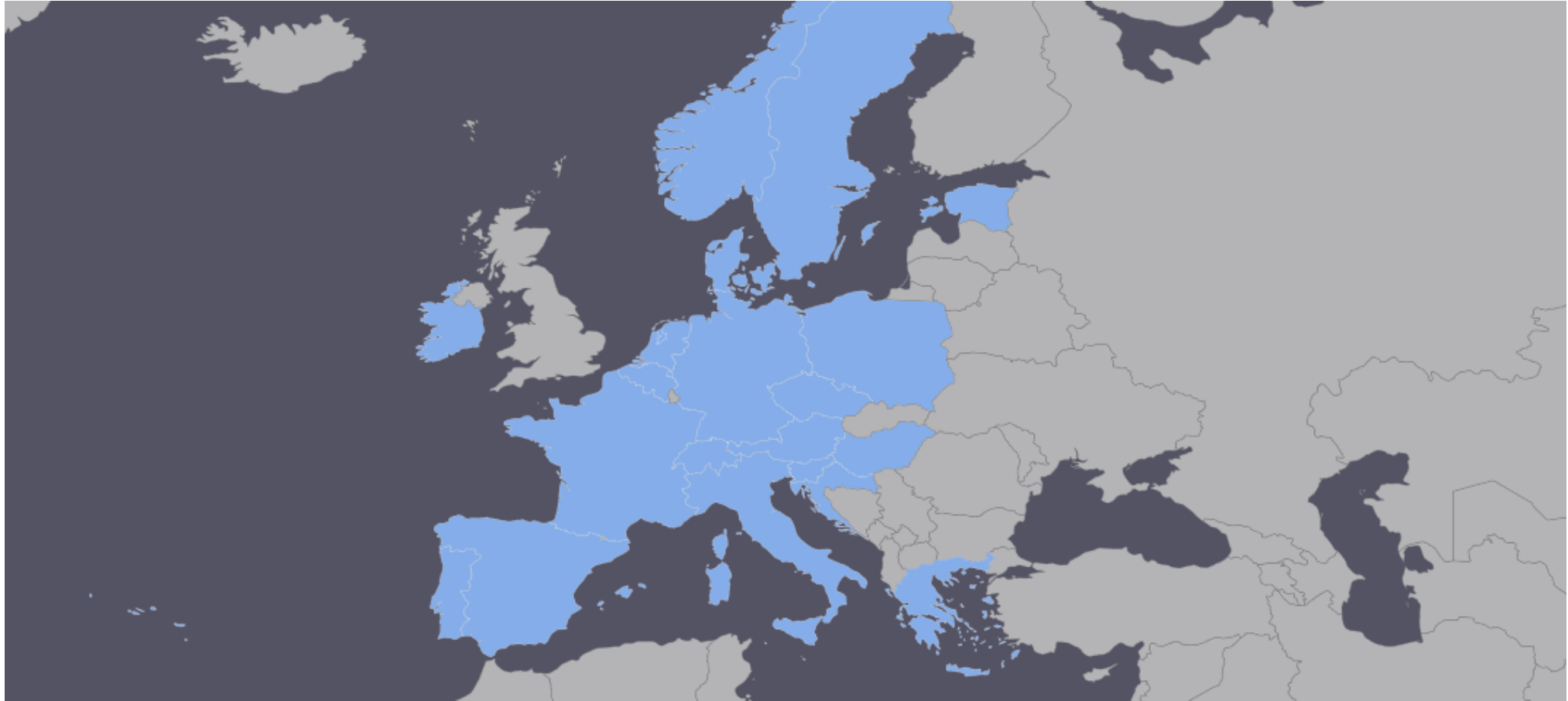
Assessment Services
Capability Maturity Model

Ingest Capability

Stages of Information Governance Maturity

Level 5 — Optimizing
- G5.1 - Potential Areas for Improvement
- G5.2 - Select and Implement Improvements
- G5.3 - Improvement Effects Evaluation
- G5.4 - Determine Causes of Selected Outcomes
- G5.5 - Address Causes of Selected Outcomes
- I5.1 - AIP content information testing procedure

Level 4 — Quantitatively Managed
- G4.1 - Process quality and performance objectives
- G4.2 - Measures and analytic techniques for quantitative management
- G4.3 - Process Performance Analysis
- G4.4 - Process Performance Baselines

Criteria to achieve capability level 4

Level 3 — Defined
- I3.1 - Tools and resources to provide representation information
- I3.2 - Management of units of description
- I3.3 - Ingest SIP verification mechanisms
- I3.4 - Ingest actions and administration processes records
- I3.5 - SIP final disposition documentation
- I3.6 - AIP parsing
- I3.7 - Preservation Description Information (PDI) acquiring procedures (from a SIP)
- I3.8 - Preservation Description Information (PDI) maintaining procedures
- I3.9 - AIP completeness and correctness
- I3.10 - AIP creation records

Criterion name

Level 2 — Managed
- I2.1 - Ingest Producer/depositor responses
- I2.2 - AIP generation procedure
- I2.3 - AIP unique identifiers convention

Level 1 — Initial
- No Criteria

Criterion Identifier

Information Value

7

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# Capability Maturity Model

ID	I2.3
Title	AIP unique identifiers convention
Question	Is there a procedure to generate and manage persistent and unique identifiers for an AIP?
Purpose	The purpose is to identify if the organization generates persistent, unique identifier for each AIP so that an IAP can be found in the future. This also ensures that an AIP can be distinguished from all other AIP in the repository. Understand if the organization has records that detail how changes to unique identifiers are to be performed so that AIP don't lose context, are not lost and can be distinguished from all other AIP in the repository.
Notes	Examples of evidence to demonstrate this can be documentation describing naming conventions and physical evidence of its application (e.g., logs).
eArchiving RA Mapping	Views -> 03 Business Layer -> 02 Ingest -> Prepare archival information Views -> 03 Business Layer -> 02 Ingest -> Coordinate archival and descriptive information storage
Terms	-
Answers	No: There is no procedure to generate and manage persistent and unique identifiers for an AIP.
	Yes: There is a procedure to generate and manage persistent and unique identifiers for an AIP.
Source	TRAC – Criterion 4.2.4 [6]

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We have 25+ reported organizations that used the capability maturity model

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Assessment Services Improvement Process
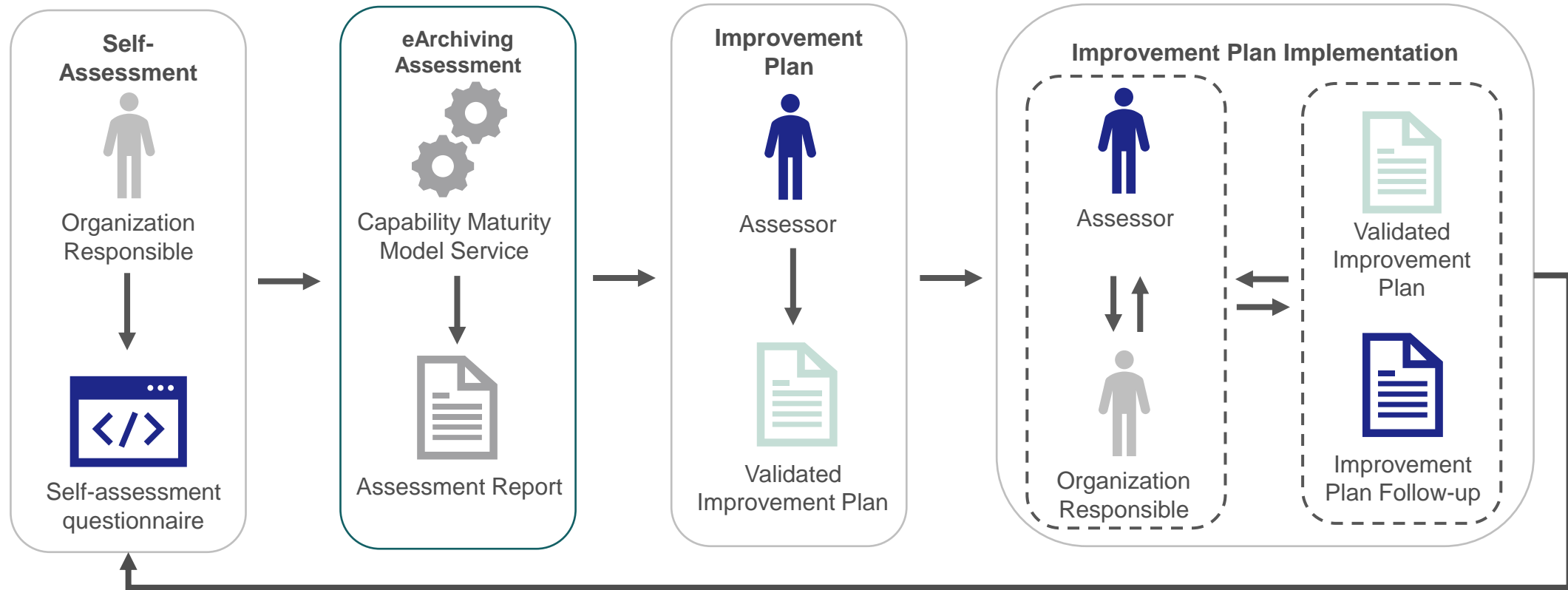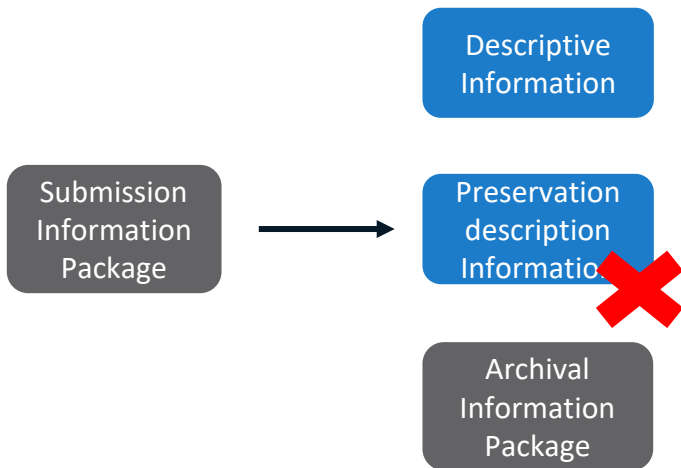
Assessment Services Feedback

1. It allows for flexible performance monitoring

2. Can help identify areas where organizations aren't operating as desired

3. Allows to determine strategies that can improve their operation and processes

4. Emphasizes learning and improvement

5. By identifying the current maturity level, the model can reveal what needs to change to move to the next level

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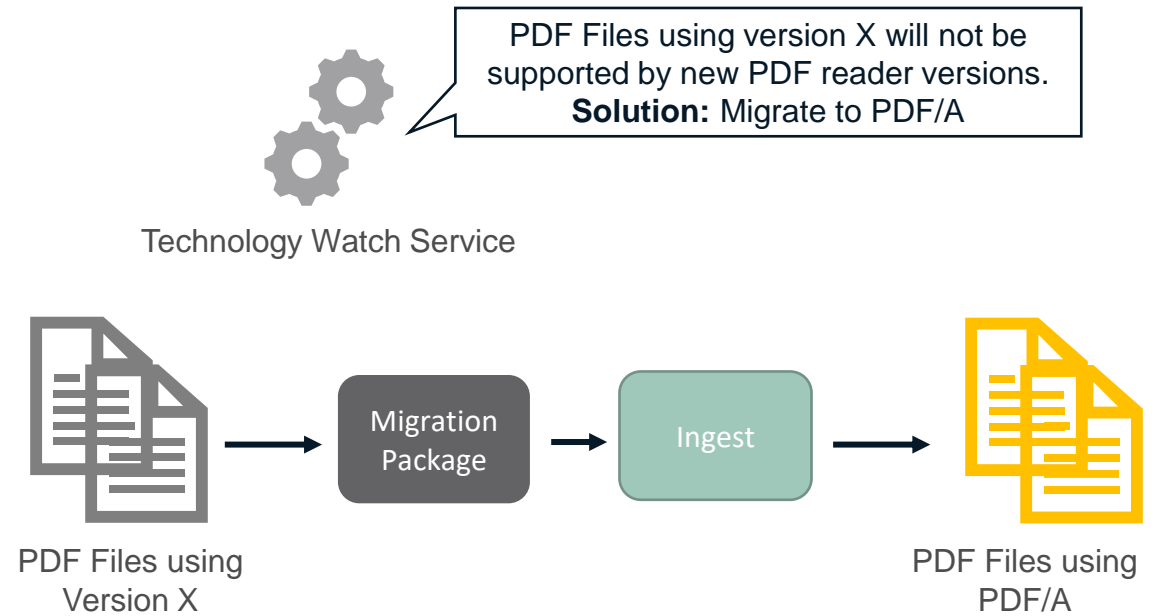# Assessment Services Findings

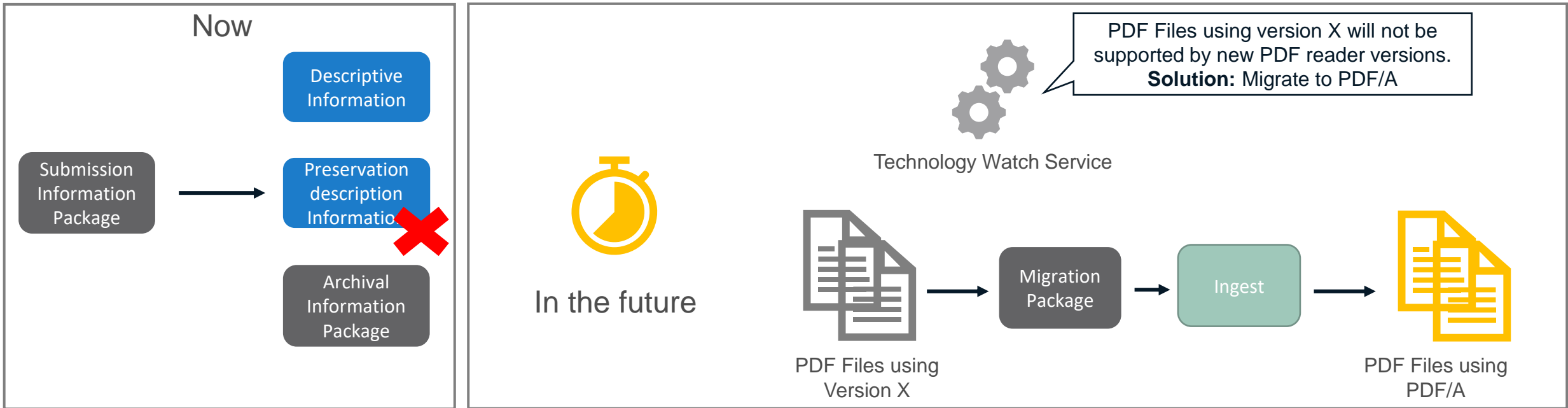| ID	I3.7
Title	Preservation Description Information (PDI) acquiring procedures (from a SIP)
Question	Are there procedures for acquiring Preservation Description Information (PDI), from the SIP?
Purpose	The purpose is to identify if the organization has defined procedures to ensure that the PDI is associated with the relevant content information. This will support authenticity of the preserved objects and enable the detection of unauthorized changes.
Notes	Examples of evidence to demonstrate this can be operating procedures, documentation of the Ingest process, and documentation on how the archive acquires and manages Preservation Description Information (PDI).

Now

Descriptive Information

Submission Information Package → Preservation description Information

Archival Information Package

In the future

Technology Watch Service

PDF Files using version X will not be supported by new PDF reader versions.
Solution: Migrate to PDF/A

PDF Files using Version X → Migration Package → Ingest → PDF Files using PDF/A

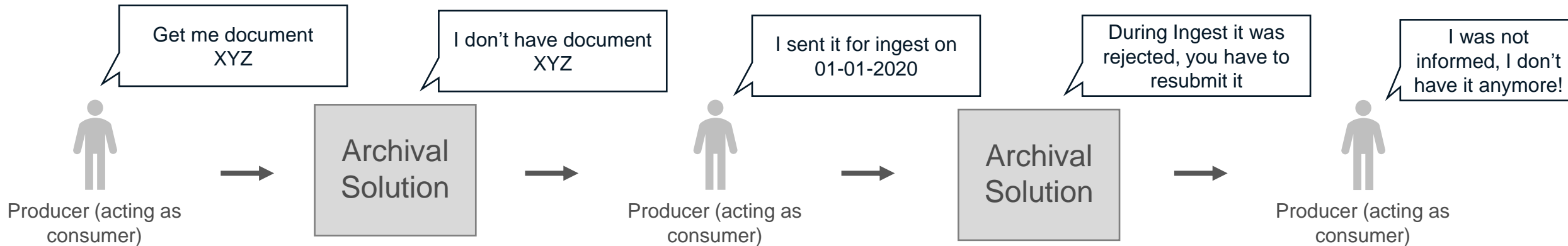European Commission

Assessment Services Findings

How can we check if the migration was successful?

How can we prove that the migration action did not change the document content?
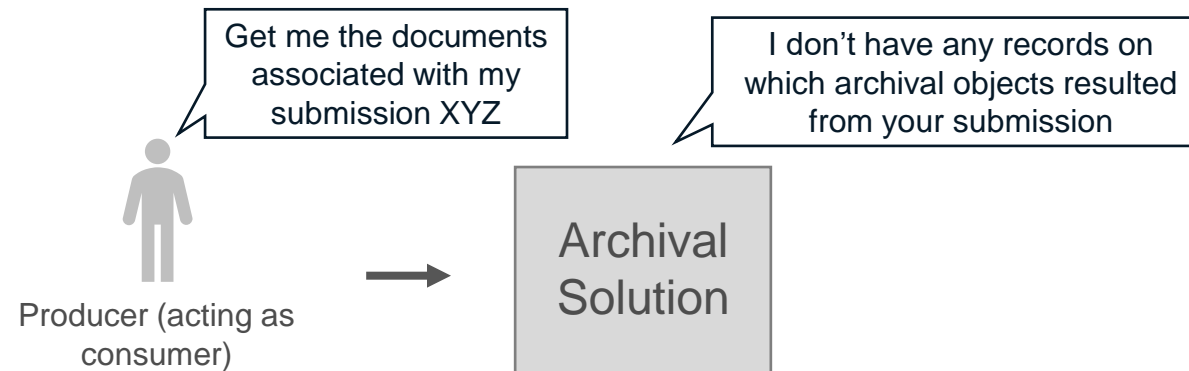
Assessment Services Findings

ID	I2.1
Title	Ingest Producer/depositor responses
Question	Is there a procedure to provide appropriate responses to the Producer, at the agreed points, during the Ingest process?
Purpose	The purpose is to identify if the organization provides responses to the Producer at the agreed points to ensure that are no faults in communication that might lead to loss of a SIP.
Notes	Examples of evidence to demonstrate this can be submission or deposit agreements, process documentation, operating procedures, or evidence of responses such as reports, memos, or emails.

Assessment Services
Findings

ID	I3.10
Title	AIP creation records
Question	Does the Ingest process produces records, according to their legal and regulatory environment, to serve as evidence of the actions performed to create an AIP?
Purpose	The purpose is to identify if the organization has records, according to their legal and regulatory environment, to serve as evidence of the actions performed to create an AIP, as to ensure that nothing is omitted from AIP records which might be needed to verify that all AIP have been properly created and in accordance with the documented procedures.
Notes	Examples of evidence to demonstrate this can be documentation of decisions and/or action taken with timestamps; preservation metadata logged, stored, and linked to relevant digital objects.
eArchiving RA Mapping	Views -> 03 Business Layer -> 02 Ingest -> Prepare archival information Views -> 03 Business Layer -> 02 Ingest -> Coordinate archival and descriptive information storage
Terms	-
Answers	No: There are no records, according to their legal and regulatory environment, to serve as evidence of the actions performed to create an AIP.
	Yes: There are records, according to their legal and regulatory environment, to serve as evidence of the actions performed to create an AIP.
Source	TRAC – Criterion 4.2.10 [6]

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Capability Maturity Model

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

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 General Model 2.0

eArchiving is a Building Block at the Connecting Europe Facilities program of the European Commission
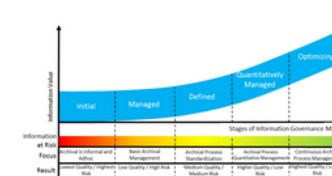

eArchiving Reference Architecture v1.0

This reference model of digital archiving has been created by the CEF eArchiving Building Block in cooperation with the E-ARK Consortium.
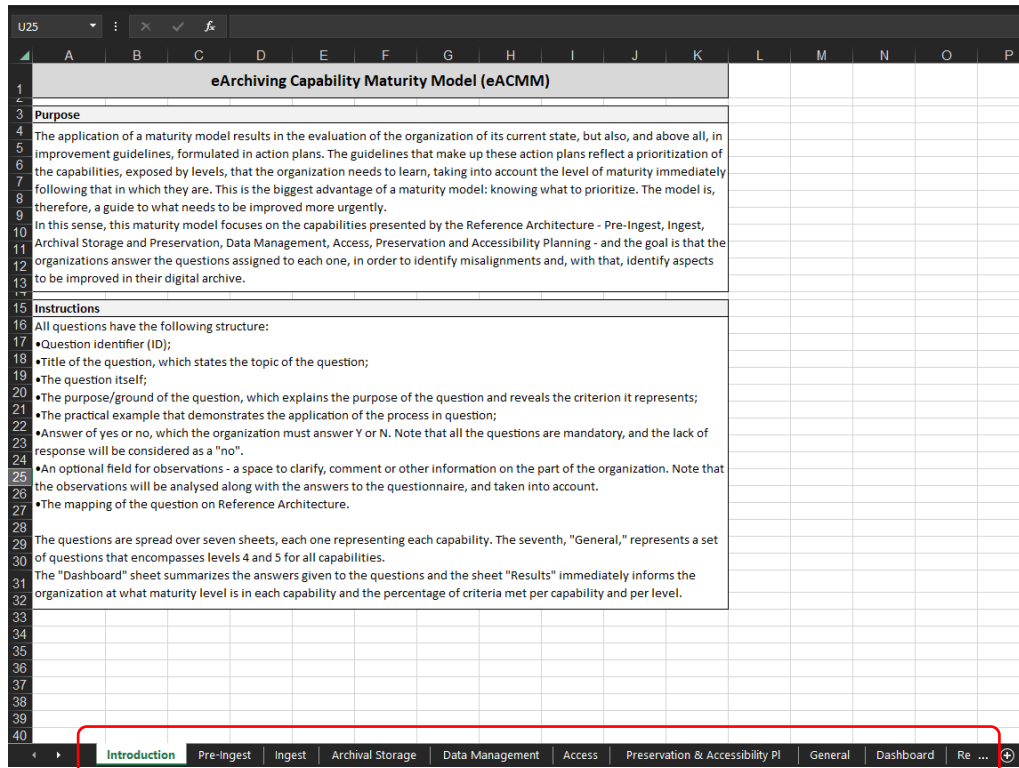

eArchiving Capability and Maturity Model

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).

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eArchiving Capability Maturity Model Documents nad Tools

Excel File with Questionnaire

Instructions, Capabilities and Result Dashboards

PDF Document

eArchiving Capability Maturity Model Documents nad Tools

Excel File with Questionnaire

Left panel — Questionnaire form:

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)

Right panel — Results table:

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
		P3.2	N	0		0
Ingest	2	I2.1	Y			1
		I2.2	N	2	NO	0
		I2.3	Y			1
	3	I3.1	Y			1
		I3.2	Y			1
		I3.3	N			0
		I3.4	N			0
		I3.5	Y			1
		I3.6	Y	7	NO	1
		I3.7	Y			1
		I3.8	Y			1
		I3.9	N			0
		I3.10	Y			1
	5	I5.1	Y	1	YES	1
Archival Storage & Preservation	2	S2.1	Y			1
		S2.2	Y	3	YES	1
		S2.3	Y			1
	3	S3.1	Y			1
		S3.2	Y			1
		S3.3	N			0
		S3.4	Y	5	NO	1
		S3.5	Y			1
		S3.6	Y			1
Data Management	2	D2.1	Y	1	YES	1
	3	D3.1	N			0
		D3.2	N	1	NO	0
		D3.3	Y			1
Access	2	A2.1	Y	1	YES	1
	3	A3.1	N			0
		A3.2	Y			1
		A3.3	N	1	NO	0
		A3.4	N			0
		A3.5	N			0
	4	A4.1	Y	1	YES	1
	2	R2.1	Y	1	YES	1

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

Levels	Percentage	Count
Level 2	90%	9
Level 3	55%	17
Level 4	80%	4
Level 5	67%	4

	Percentage	Count
Criteria met	65%	34
Negative responses	35%	18

Capability	Percentage	Count
Pre-Ingest	33%	1
Ingest	71%	10
Archival Storage & Preservation	89%	8
Data Management	50%	2
Access	43%	3
Preservation & Accessibility	67%	4
[General]	67%	6

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eArchiving Capability Maturity Model Documents nad Tools

Excel File with Questionnaire

Thank you

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