DigitalPreservationCoalition

Singel&Partnersbv

NCDD

NETHERLANDS COALITION FOR DIGITAL PRESERVATION

“Constructing a network of nationwide facilities together”

Winner of the DPC DP Award 2016 in the category Research and Innovation

25th January 2017, online meeting (14:00 – 15:00 UK time)

presented by Joost van der Nat

Researcher NCDD

The solution is in the network

Heritage sector of the Netherlands

Agenda

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1. Introduction and context
2. Analytical framework of the research
3. Results
4. Scenario's
5. Ongoing / Next steps
6. Q&A session

The NCDD exists since 2008 as a cross-domain national coalition covering the entire public sector

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MISSION:
To establish an organisational and technical infrastructure for long-term access to all digital objects which are of crucial importance for science, culture and society

Platform catalyst
Cross domain

5 Members:

- The National Archive (NA)
- The National Library of the Netherlands (KB)
- Data Archiving and Networked Services (DANS)
- The Netherlands Cultural Heritage Coalition for Digital Preservation (CCDD)
- Dutch Institute for Sound and Vision (Beeld & Geluid)

The Dutch Digital Heritage Network

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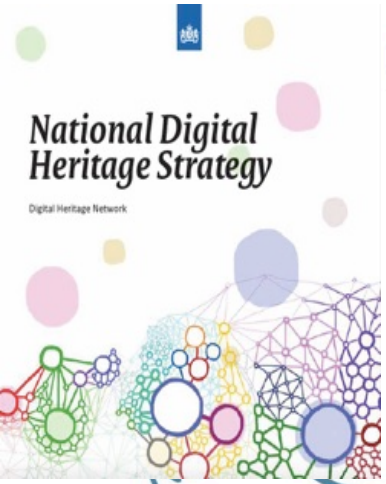
Ministerie van Onderwijs, Cultuur en Wetenschap



NCDD: the Content layer (Sustainable)

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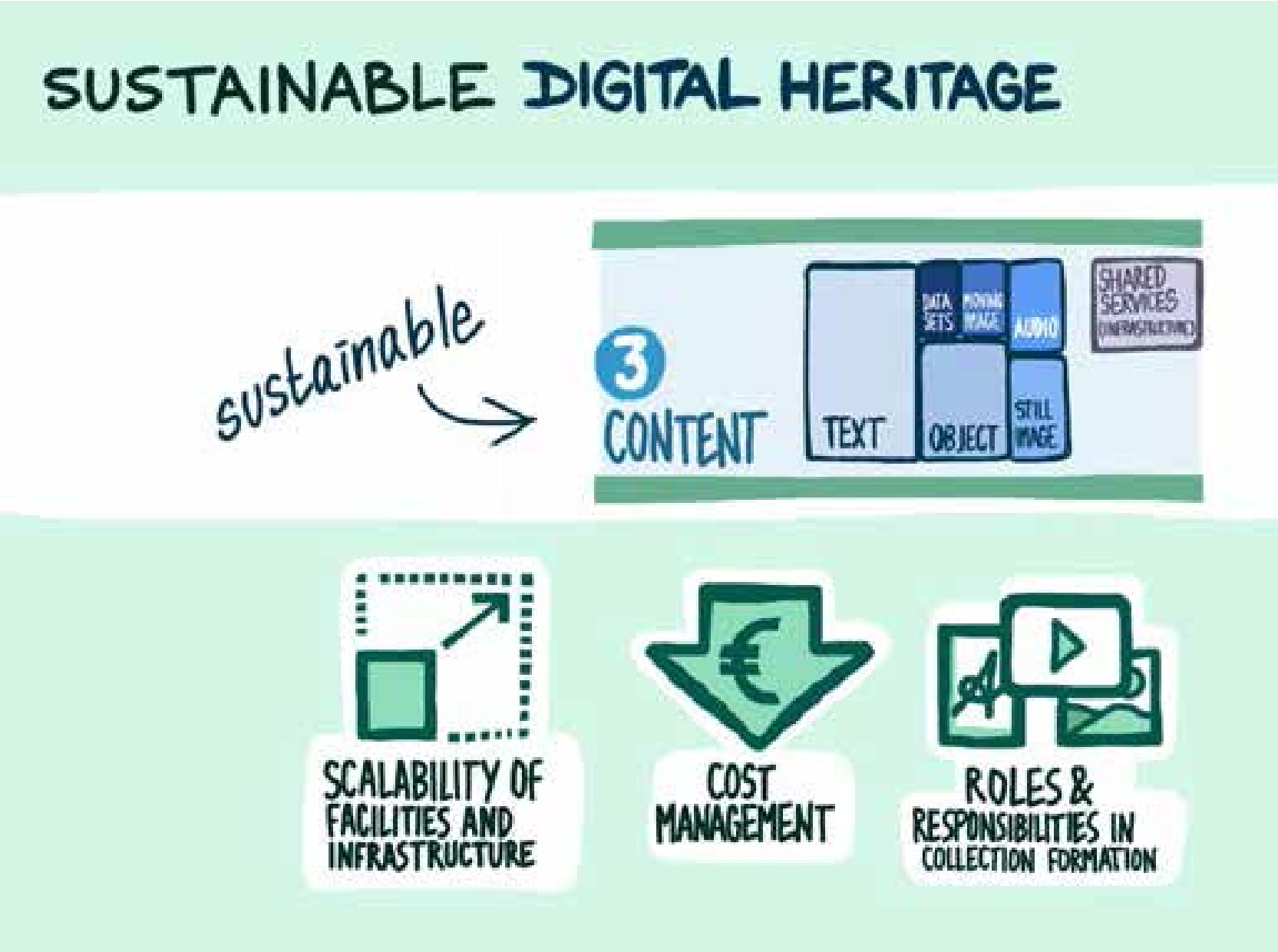

Overall objective of the project

To increase **Effectiveness** and **Efficiency**

The motto is:

Share what is possible, keep separate what must be separate.

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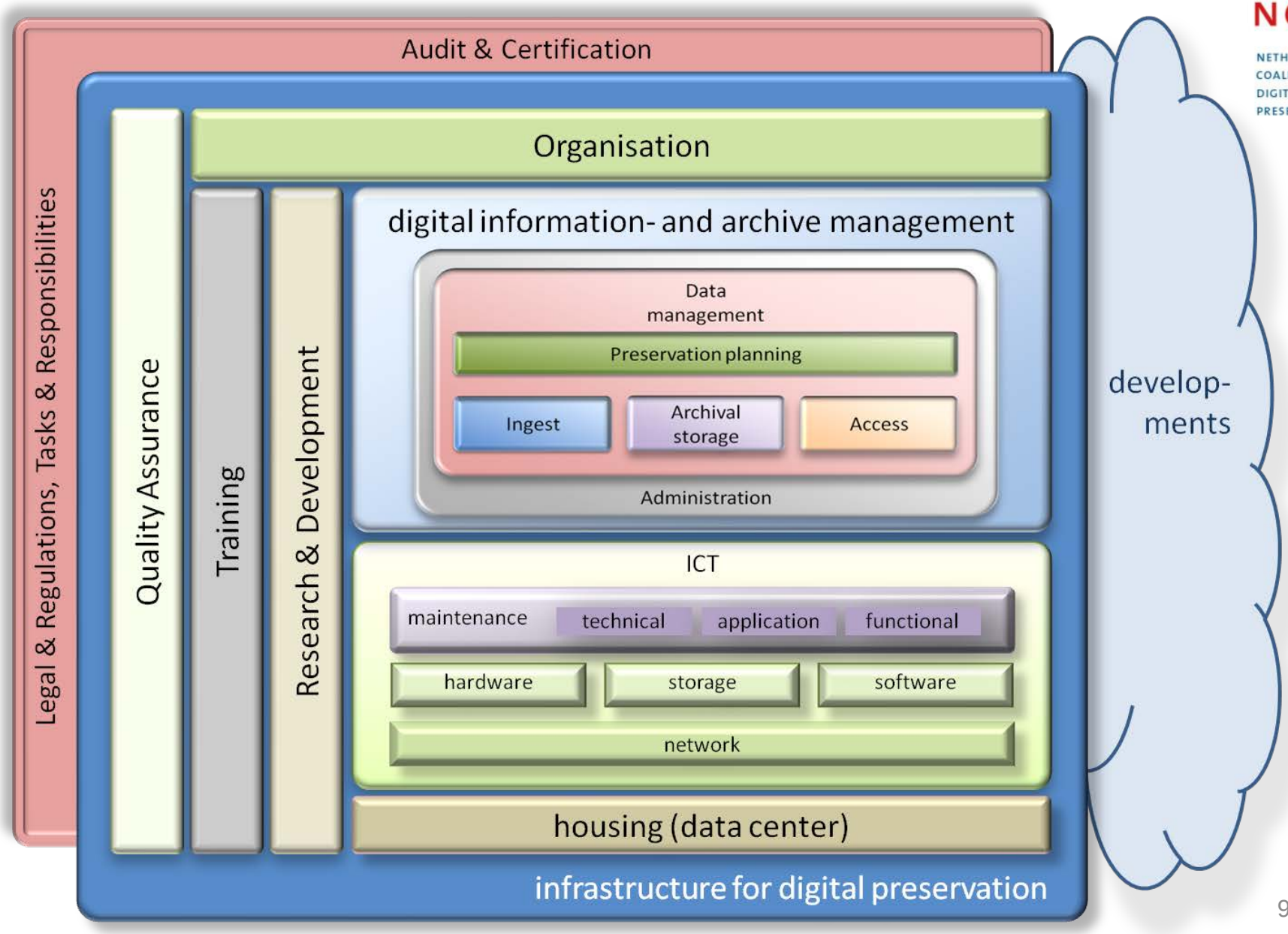
Analytical framework, “infrastructure”



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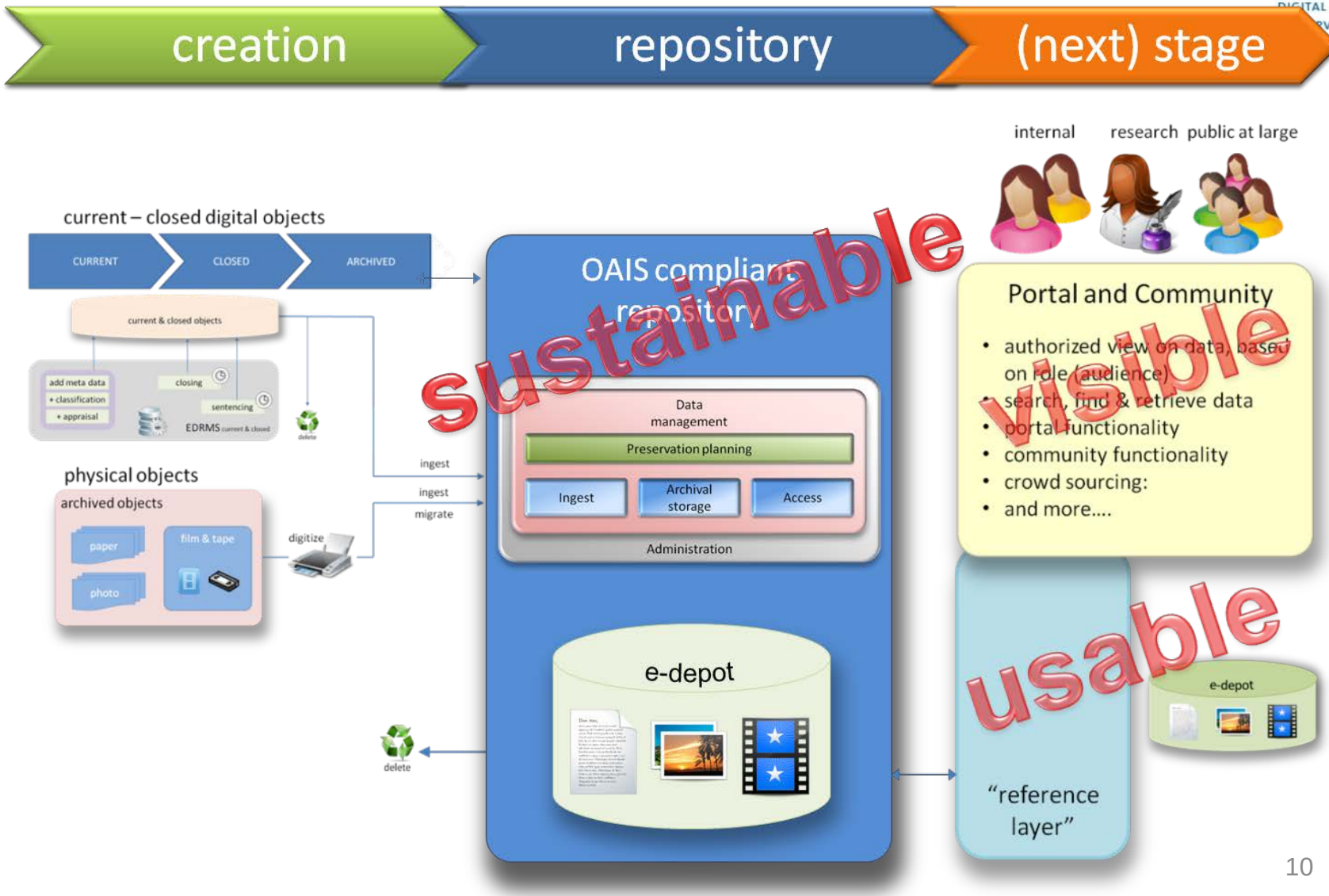
Analytical framework, 3 columns



APARSEN WP 21

	High-level service	Ingest	Preservation Planning	Data Management	Archival Storage	Administration	Access
1	Characterisation of SIPs	●					
2	Quality assurance of SIPs	●					
3	Policy-based assessment of SIPs	●					
4	Acquisition and maintenance of represent. info	●	●			❍	
4.1	Automated metadata creation/maint	●				●	
4.1.1	Metadata migration					●	
5	Environment monitoring (preservation watch)		●				
5.1	Knowledge model comparison		●				
6	Preservation plan formulation		●				
6.1	Obsolescence substitution		●				
6.2	Dependency management		●				
7	Authenticity evidence management		●				
8	Appraisal of collections		●	❍	❍	❍	
9	DRM clearinghouse		●				●
10	Brokerage between repositories		●				
11	Long-term archiving	❍		❍	●	❍	❍
11.1	Integrity checking				●		
11.2	Cloud storage for preservation				●		
12	Preservation policy construction					●	
13	Analysis of authenticity management policies					●	
14	Format transformation	●				●	
15	Finding aids						●
15.1	Federated search						●
16	PID resolver						●
17	Emulation facilities		❍				●
18	Full repository service	●	●	●	●	●	●
19	Audit and certification of repositories	●	●	●	●	●	●

● service is a key contributor to the corresponding OAIS functional entity

❍ indicates possible or marginal relevance

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Analytical framework, overall

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CREATION		DIGITAL REPOSITORY						NEXT USAGE
		Primary Process of Repository			Support	Secondary		
Creation	Handover	Ingest	Archival Storage	Access	Primary Process	Support	Handover	NEXT USAGE
Create object		Characterisation of SIPs	Long-term archiving	DRM clearinghouse	**Preservation Planning**	**Quality Control**		by designated communities or other repositories
		Quality assurance of SIPs	Integrity checking	Finding aids	Acquisition and maintenance of represent. info	Training		
Appraisal of collections		Policy-based assessment of SIPs	Cloud storage for preserv	Federated search	Environment monitoring (preservation v	R & D		
Characterisation of SIPs		Acquisition and maintenance of represent. info		PID resolver	Knowledge model comparison			ingest
Quality assurance of SIPs		Automated metadata creation/maint		Emulation facilities	Preservation plan formulation			Archival Storage
Policy-based assessment of SIPs		Format transformation			Obsolescence substitution			Access
Acquisition and maintenance of represent. info					Dependency management			Support Primary Process
Automated metadata creation/maint					Authenticity evidence management			Secondary Support
Format transformation					Appraisal of collections			*(each of which has services as mentioned to the left...)*
Brokerage between repositories					DRM clearinghouse			
Authenticity evidence management		**REMARKS:**			Brokerage between repositories			
Appraisal of collections		**NOT all 27 APARSEN services are mapped here**						
DRM clearinghouse		- cells this colour appear in more than 1 column...			**Data management**			
					Administration			
					Automated metadata creation/maint			
					Metadata migration			
					Preservation policy construction			
					Analysis of authenticity management policies			
					Format transformation			
IT maint. technical application functional		IT maintenance technical application functional						IT maint. technical application functional
software storage hardware		software storage hardware						software storage hardware
Housing (data center)		Housing (data center)						Housing (data center)

Analytical framework, “Business – IT stack”

Jack van Hoof’s IT Services Stack

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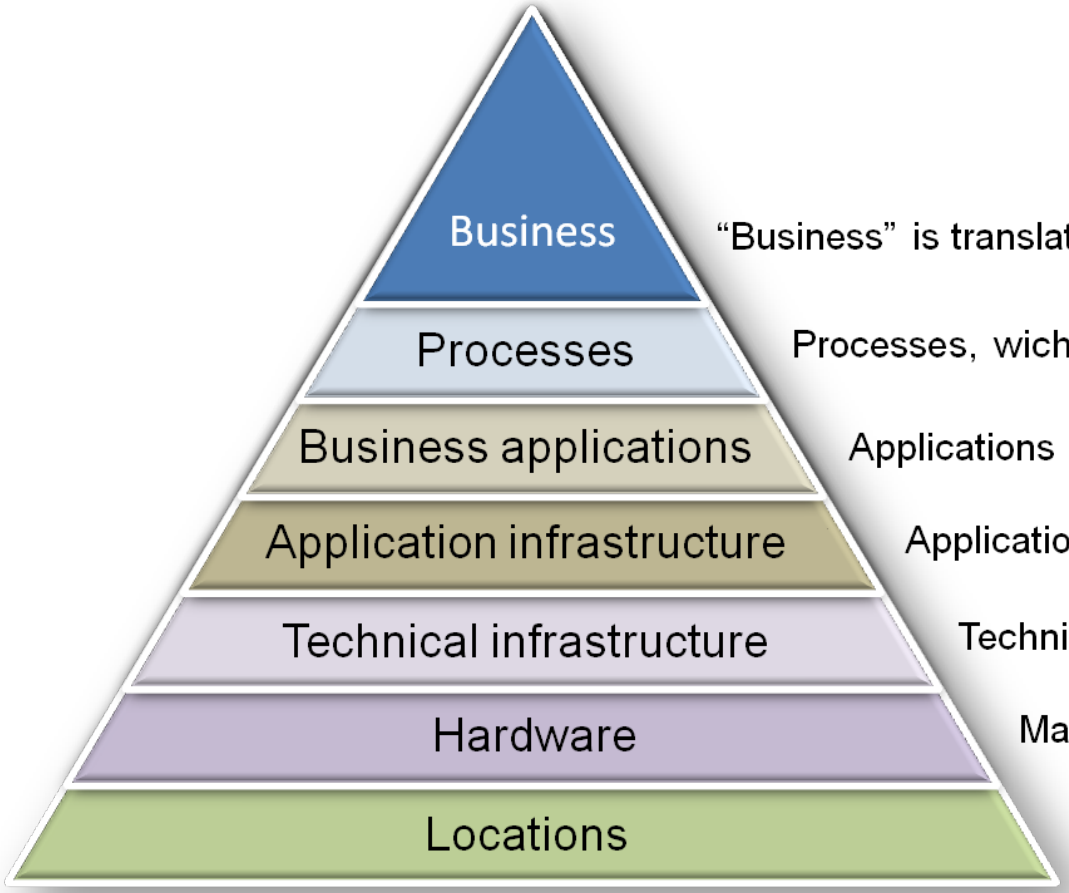

“Business” is translated into….

Processes, wich are supported by….

Applications & databases, that work in an….

Application infrastructure (servers), that runs on a….

Technical infrastructure (e.g. storage) that consists of….

Machines & networks that connect….

Offices & internet with data centers.

Building blocks general

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Organisation X
GENERIC BUSINESS – IT STACK

Business	TASKS & RESPONSIBIL.	PRODUCTS	SERVICES	TARGETS	ASSETS			
Processes	BUSINESS FUNCTIONS	VALUE CHAINS	ACTIVITIES	BUSINESS RULES	DEPARTMENTS	EMPLOYEES	CUSTOMERS	SUPPLIERS
Business Applications Landscape	APPLICATIONS	SPECIFIC SOFTWARE	GENERIC SOFTWARE	BUSINESS INTELLIGENCE				
Application Infrastructure	WEB SERVER	APPLICATION SERVER	FILE XFER (ESB)	B2B GATEWAY	PRESENTATION (PORTAL)	DBMS	DATA WAREHOUSE	
Technical Infrastructure	STORAGE (NAS/SAN)	DIRECTORY SERVICES	ACCESS MANAGEMENT	VIRTUAL MACHINE	OPERATING SYSTEM	NETWORK SERVICES		
Hardware	SERVERS	ROUTERS	WIRING	SWITCHES	PRINTERS			
Locations	DATA CENTERS	OFFICE	HOME	MOBILE				

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Organisations interviewed

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- The Rijksmuseum (Amsterdam)
- The National Library (KB, The Hague)
- DANS (Data Archiving and Networked Services, The Hague)
- The Dutch Institute for Sound and Vision (Hilversum)
- Het Nieuwe Instituut (former Architecture Institute, Rotterdam)
- The Amsterdam City Archive
- The National Archives (The Hague)
- The International Institute for Social History (Amsterdam)
- LIMA (sustainable access to media art, Amsterdam)
- Nationaal Museum van Wereldculturen
  (National Museum of Ethnology + Tropical Institute + Africa Museum)

Matrix, results

Elements	OVERALL TO BE and AS IS	separate per organisation	separate per domain	national level
Systems	Enterprise Architecture	①③-⑤-⑦⑨⑩⑪❸-❺	⑧❼❾⓫❶❻❽❿	
	ICT network	③⑥⑦⑧⑨⑩⑪	①④⑤❶❹❺❻❾	❸❼❽❿⓫
	ICT hardware	①③⑤⑥⑦⑨⑩⑪❺	④⑧❹❻❾	❶❸❼❽❿⓫
	ICT storage	①③⑤⑥⑦⑨⑩⑪❺❾	④⑧❹❻	❶❸❼❽❿⓫
	ICT technical operations	①③④⑤⑥⑦⑨⑩⑪❺	⑧❹❻❾	❶❸❼❽❿⓫
	ICT software	①③④⑤⑥⑦⑨⑩❺	⓫⑧❹❻❽❾⓫	❶❸❼❿
	ICT application management	①③④⑤⑥⑦⑨⑩❶❸check❹❺	⓫⑧❻❽❾⓫	❼❿
	ICT functional management	①③④⑤⑥⑦⑨⑩⑪❶❸check❹❺❻❼❾❿	⑧❽	
Pre Primary Process	Meta data obtain	①③-⑤⑥⑦⑧⑨⑩⑪❶-❺❻❼❾❿⓫	❸❽	
	conversion	①③-⑤⑥⑦⑧⑨⑩⑪❶❸-❺❻❼❾❿⓫	❽	
	enrichment	①③-⑤⑥⑦⑧⑨⑩⑪❶-❺❻❼❾❿⓫	❸❽	
Primary process	Ingest	①❶		
	SIP-check	①③④⑤⑥⑦⑧⑨⑩⑪❶❸❹❺❻❼❾❿❶❽		
	meta data obtain / maintenance	①③④⑤⑥⑦⑧⑨⑩⑪❶❸❺❻❼❾❿⓫	❹❽	
	meta data automated	--④⑤⑥⑦⑧⑨⑩⑪-❸❺❻❾❿⓫	❹❼❽	
	format transformation	①-⑤⑥⑦⑧⑨⑩⑪❶❺❻❼❾❿⓫	④❹❽	❶❸
	Archival Storage	①		❶
	appraisal	①③-⑥⑦⑧⑨⑩⑪-❻❼❾❿⓫	⑤❽	❺❶❸
	long term storage (Preservation as a service)	①-⑥⑦⑧⑨⑩⑪❾	④❹❼❽	⑤❶❸❺❻❿⓫
	integrity check	①-④⑥⑦⑧⑨⑩⑪❾	❹❼❽	⑤❶❸❺❻❿⓫
	Access	①❶		
	DRM clearinghouse	①③⑤⑥⑦⑧⑨⑩⑪❶❺❻❼❾	④❸❹❽⓫	❿
	finding aids	①③⑤⑥⑦⑧⑨❶❻❼	⓫❸check❽❾	④⑩❺❹❿⓫
	federated search	①--⑥⑦⑧⑨❶	⓫❼❾	⑤⑩❺❸check❹❻❽❿⓫
	PID resolver	①③⑤--⑧--	④	⑨❶❸❹❺❻❼❽❾❿⓫
	emulation facilities	------⑧-⑩--	❻	❸❹-❼❽❾❿⓫
Support of Primair Proces	Preservation Planning	-	❶	
	preservation watch (Format Registry)	-③④⑤⑥⑦⑨⑩⑪	❶❻	⑧❸❹❺❼❽❾❿⓫
	preservation plan formulation	-③④⑤⑥-⑨--❸❺⓫	⑦❾❶❹❼❽	❻❿
	dependency management	-③-⑤⑥--⑨--❺⓫	❾❶❹❼❽	❻❸❿
	authenticity evidence management	-③-⑤⑥⑦⑧⑨⑩-❸⓫	❾❶❹❼❽	❻❺❿
	exchange between repositories	-③⑥⑧⑨-	④⓫❶❸❹❾	⑦⑤❺❻❼❽❿⓫
	Data Management	①③⑤⑥⑦⑧⑨⑩⑪❶❸❺❻❼❾❿⓫	④❹❽	
	Administration	①⑤⑧❺	❶❽	
	preservation policy construction	-③④⑤⑥⑨⑩⑪❹❺❾❿⓫	⑦⑧❸❶❼❽	❻
	Preservation tools	-③⑤⑥⑦⑧⑨⑪	⑩❶	④❸❹❺❻❼❽❾❿⓫
Secondary support	Quality Assurance	①③④⑤⑥⑧⑨⑩❻❿	⑦⑪⓫❺❼❾❶❸❹❽	
	Training	①③-⑦⑧⑨⑩-	④❺❶❹❼❽❿	⑤⓫❸❻❾
	Research and development	①⑥⑧⑨⑩⑪	⑦④❻❺❶❹❽❿	⑤③⓫❸❾❼
Audit & Certification		①③check-⑦⑧⑨⑩-	⑤④❶❼❿	❸check❹❺❻❽❾⓫

LEGENDA

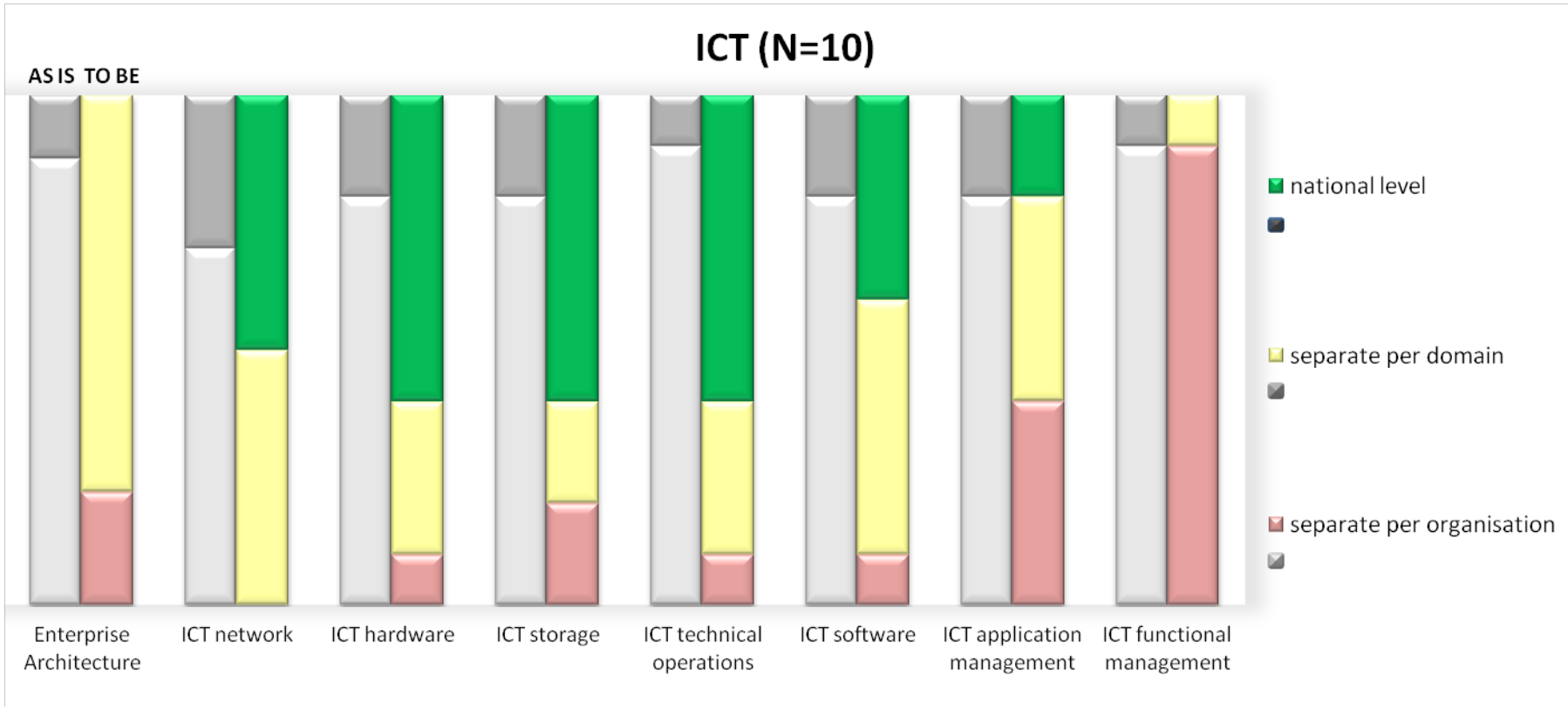
① as is

❶ to be

1 Rijksmuseum
~~2 Rijksdienst voor het Cultureel Erfgoed (RCE)~~
3 Koninklijke Bibliotheek
4 DANS
5 Instituut voor Beeld & Geluid
6 Het Nieuwe Instituut
7 Stadsarchief ASD
8 Nationaal Archief
9 IISG
10 LIMA
11 RMWC

Interview results matrix

ICT



Interview results matrix

Primary processes

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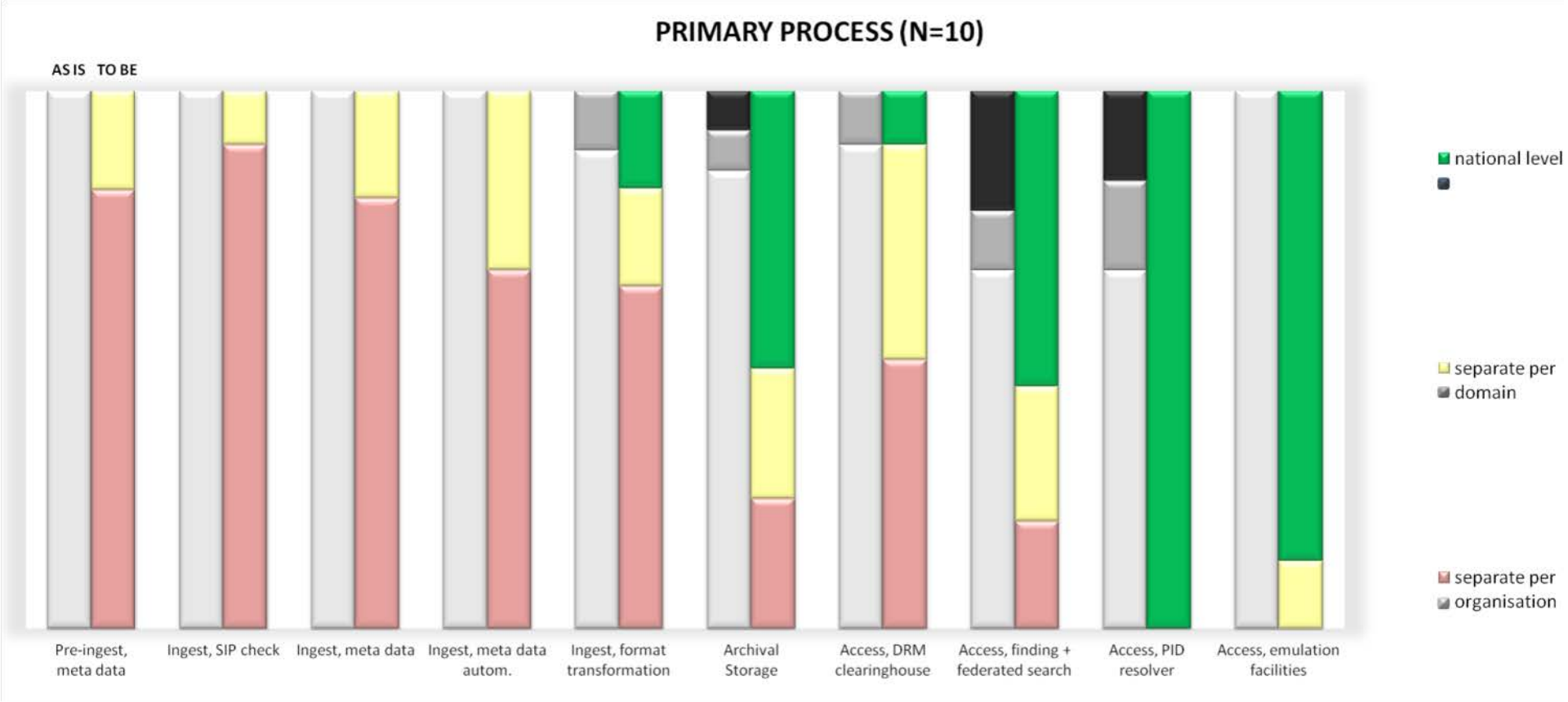
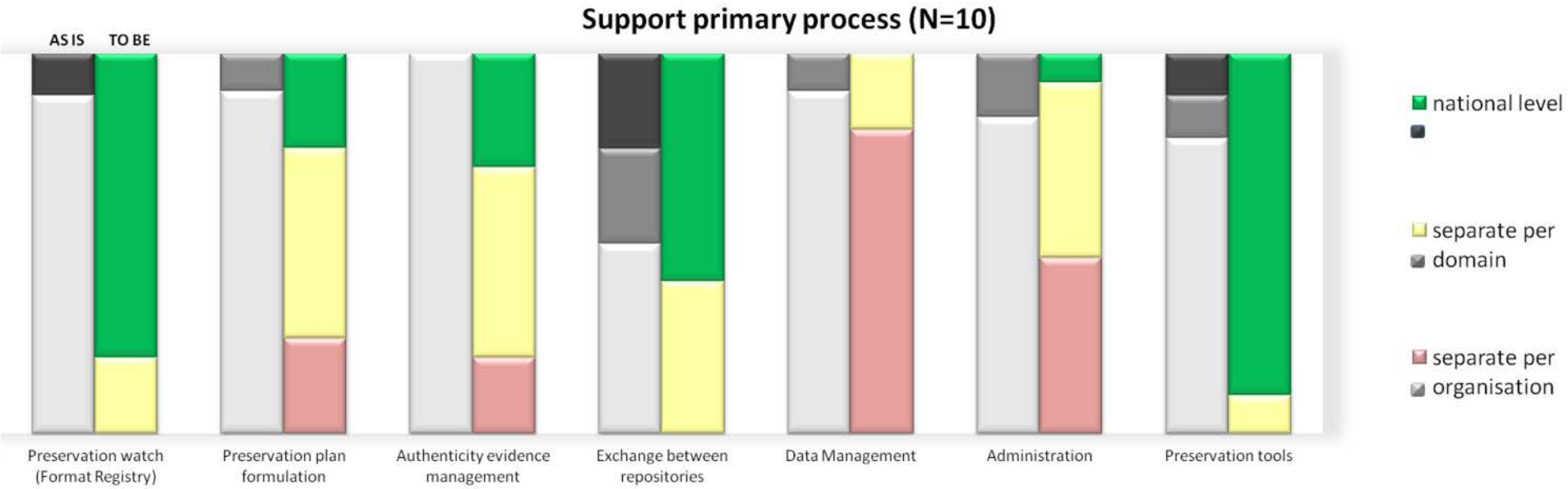


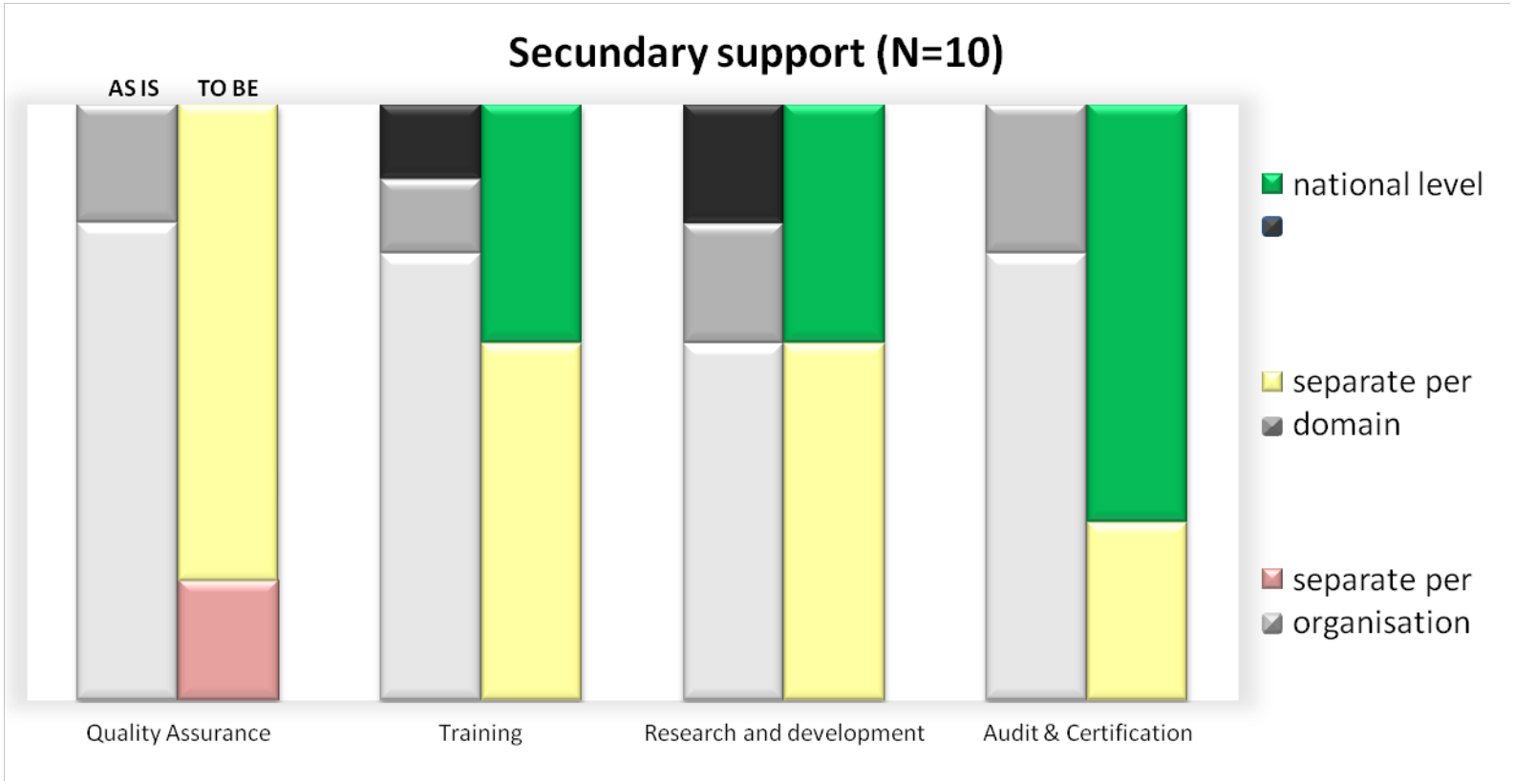
Interview results matrix

Support primary processes



Interview results matrix

Secundary support



Building blocks, Long Term Digital Preservation

dark blue is added for LTDP

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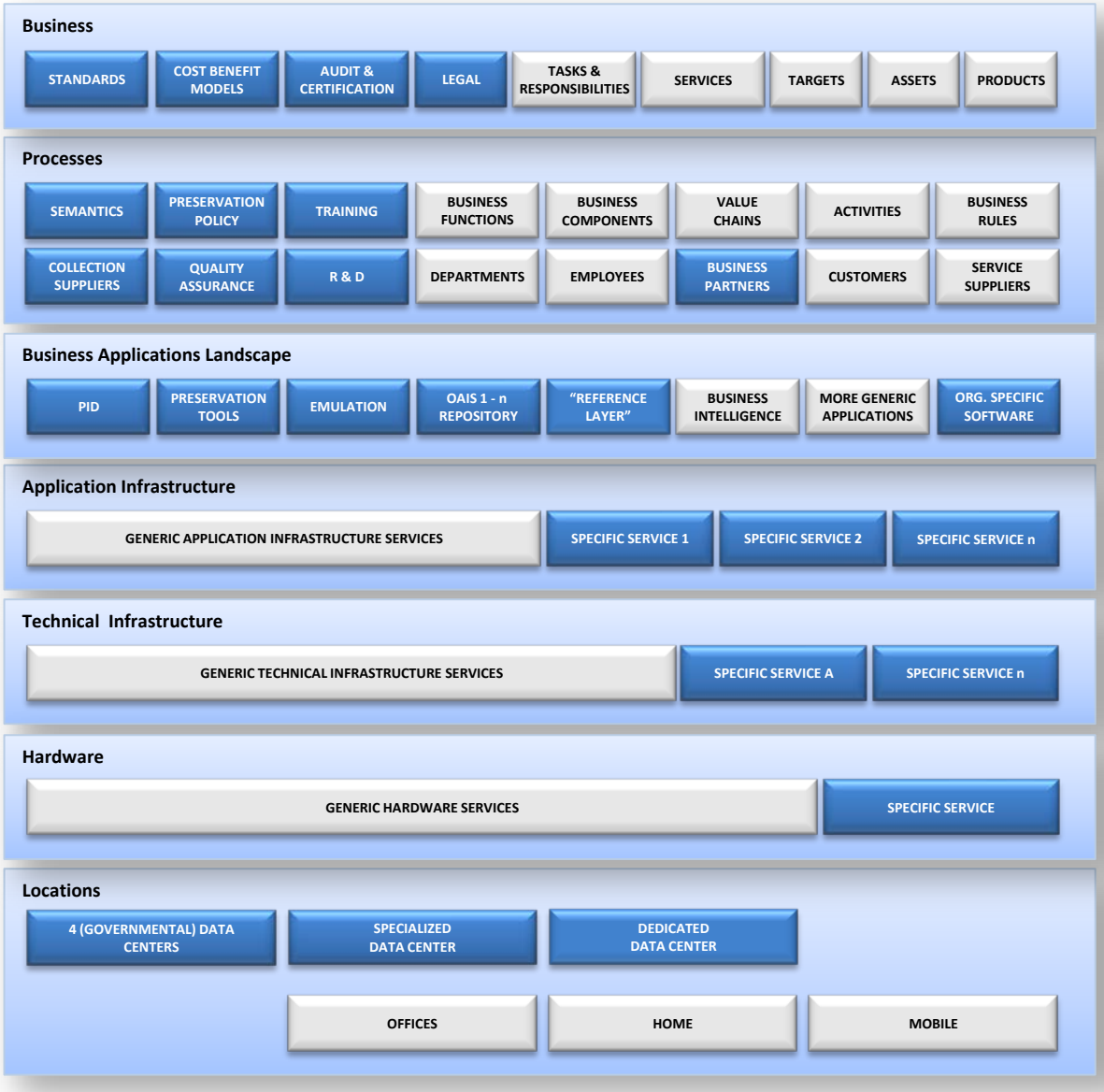

Building blocks, Long Term Digital Preservation

organisation specific

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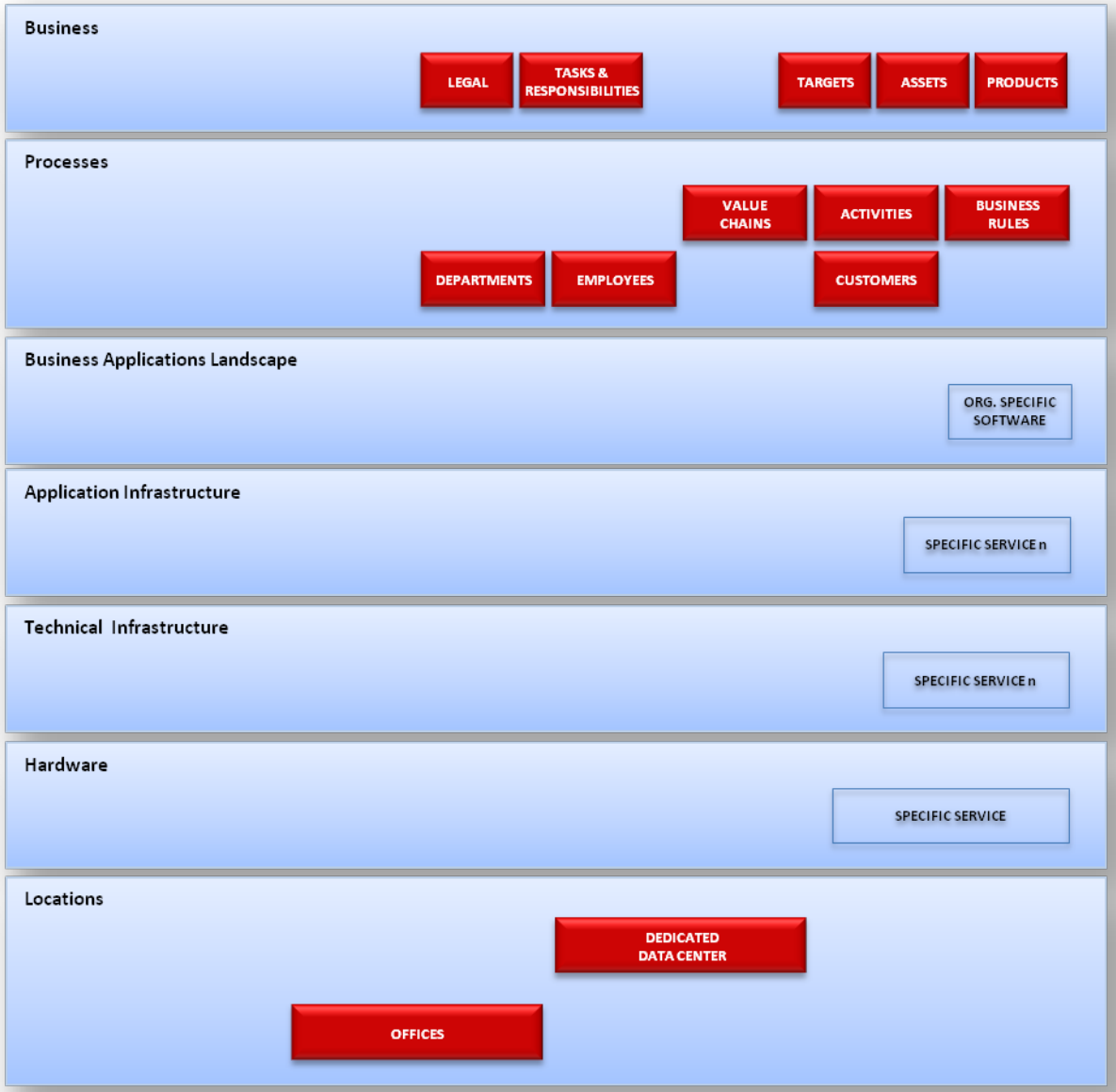

Building blocks, Long Term Digital Preservation

potential to be shared

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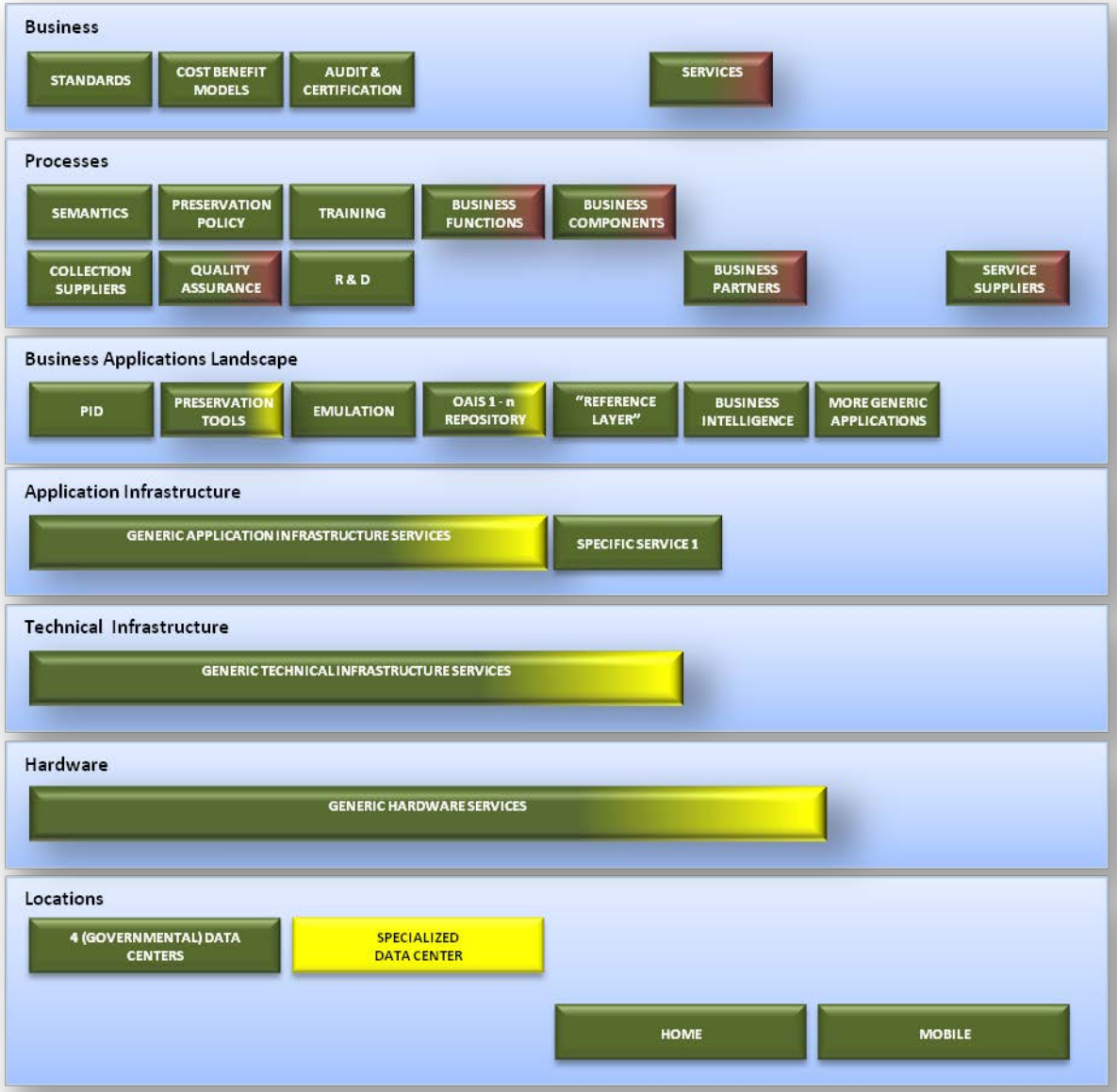
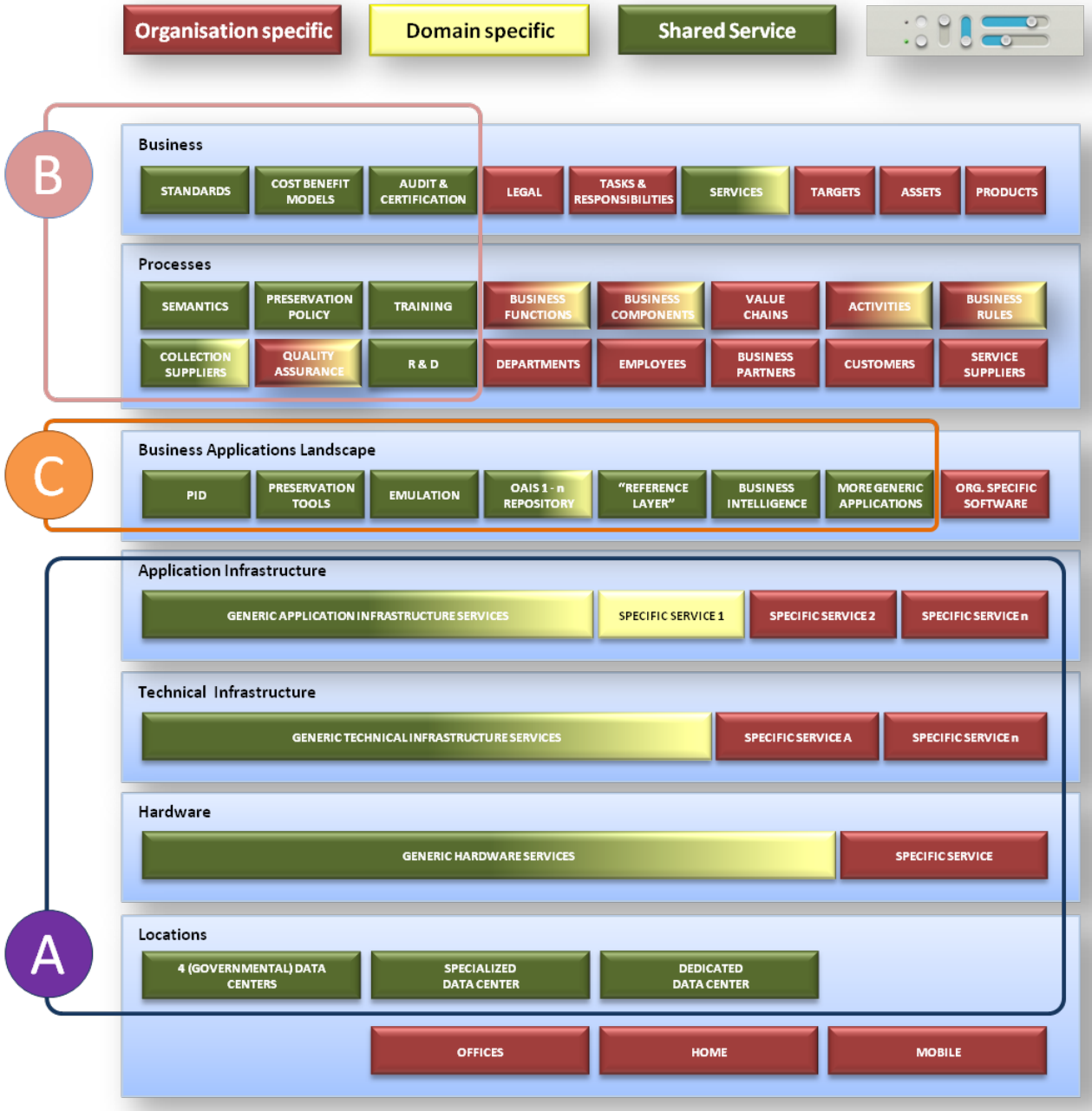


Groups of Building Blocks for LTDP



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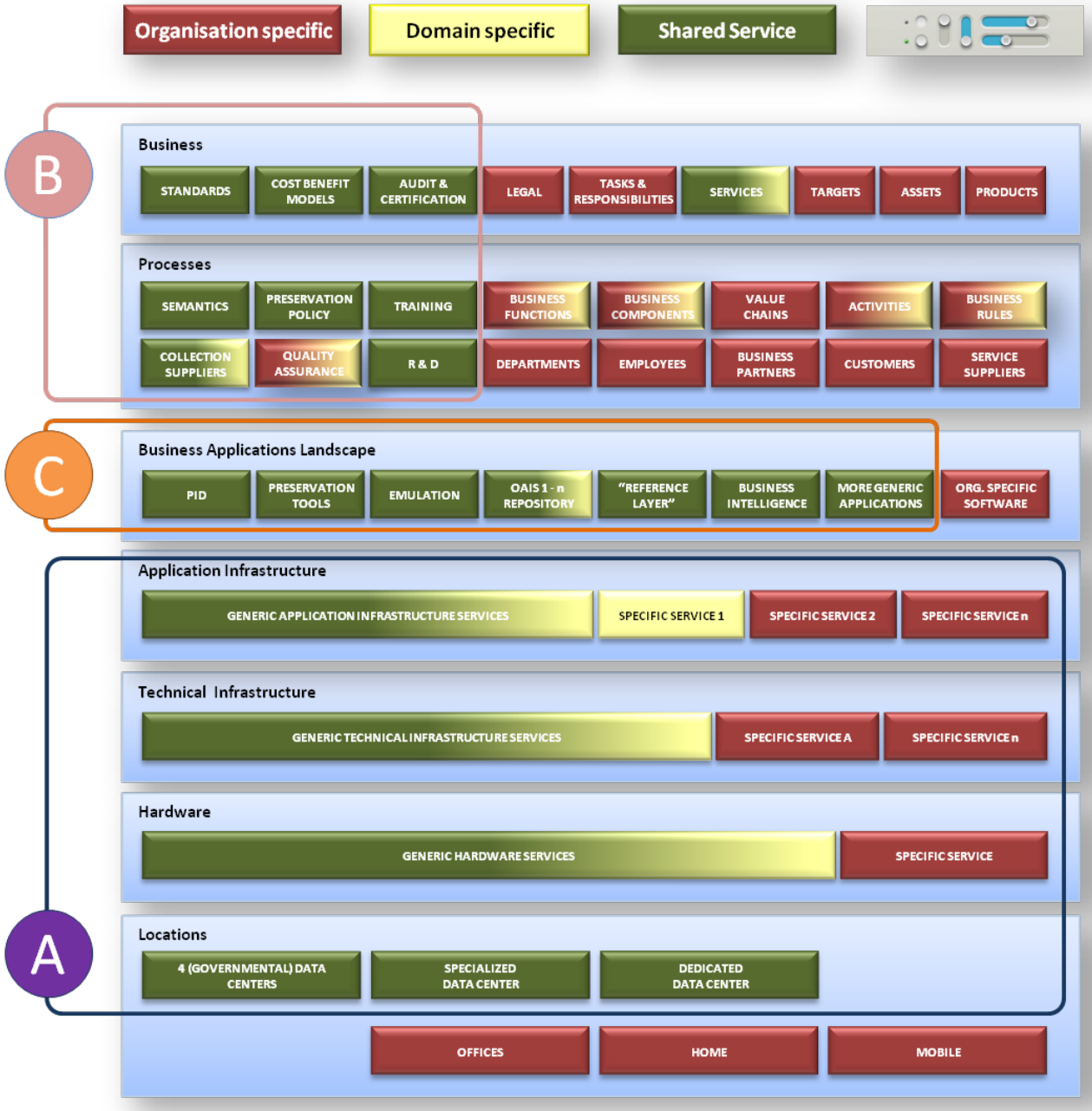

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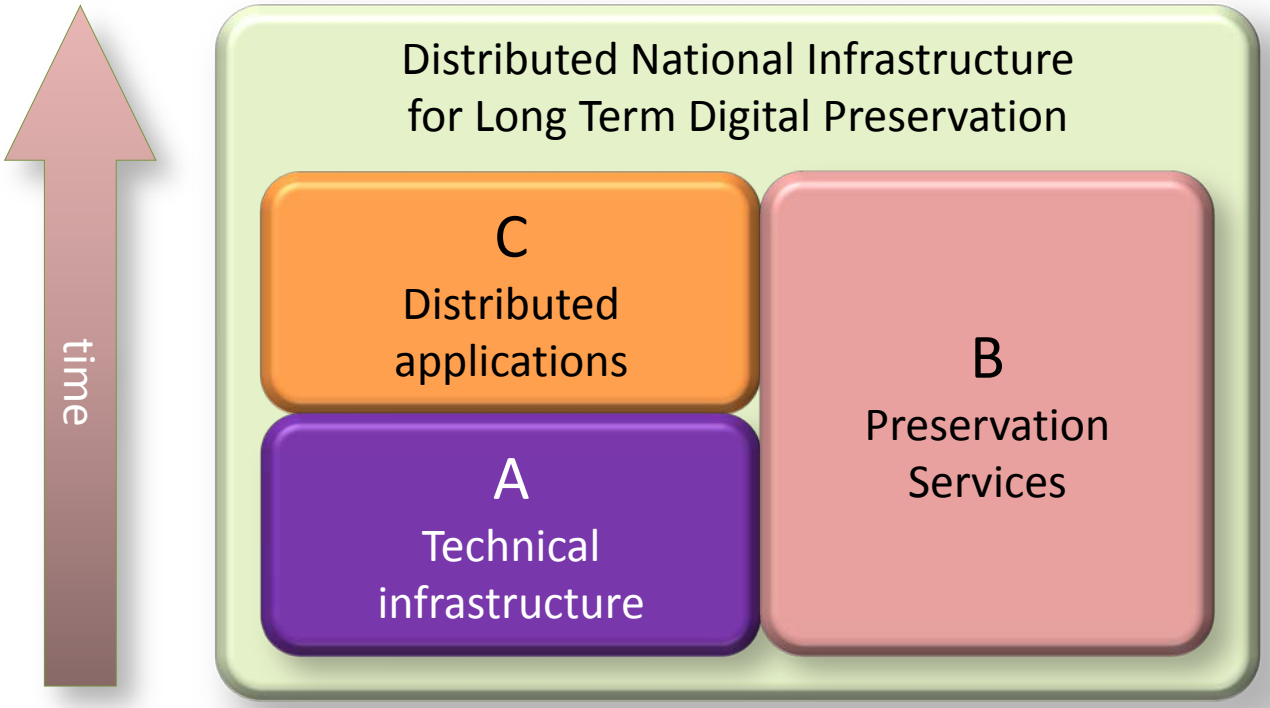
Preferred Scenario for Deployment



- Technical infrastructure (A) en Preservation Services (B) can run **parallel**
- Technical infrastructure (A) is **conditional** for Distributed applications for Digital Preservation (C)
- First steps for A are in progress: 4 “Governmental Data Centres”
  For Archives, the National Archive is deploying its e-Depot
- NCDD is developing Services for B in its present projects

Practical Example: “Vid-ceedings”

one word for “proceedings on video”…

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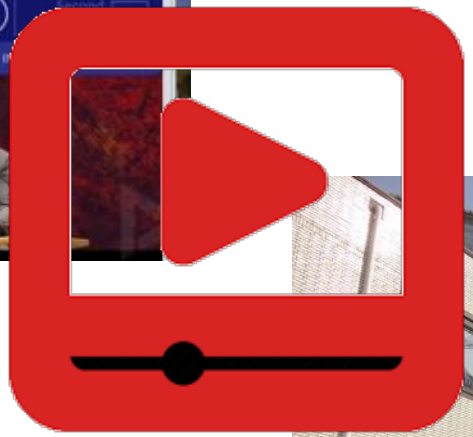
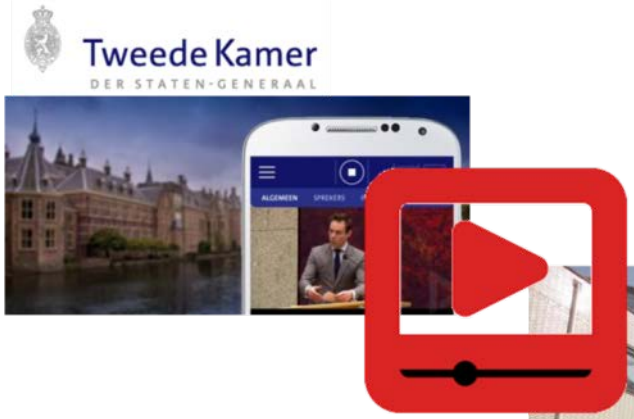
Tweede Kamer
DER STATEN-GENERAAL



Practical Example: “Vid-ceedings”



Parliament makes “vid-ceedings”

+

- National Archive (NA) has the legal duty to store “vid-ceedings”
- NA does not have the infrastructure or the expertise for AV material
- NA keeps Appraisal & Selection and Access

Institute of Sound & Vision does the LTDP of the “vid-ceedings”

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What is ongoing in the Netherlands

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NDE / NCDD projects:

- ✓ First draft of a Services Catalogue
- ✓ Persistent Identifier
- ✓ Preservation Policy Catalogue
- ✓ LTDP Learning Environment
- ✓ Dutch Web archiving platform
- ✓ Cost modelling (based on 4C)
- ✓ Expertise Centre Preservation
- ✓ Roadmap for Certification
- ✓ Decision Tree Digital Collection

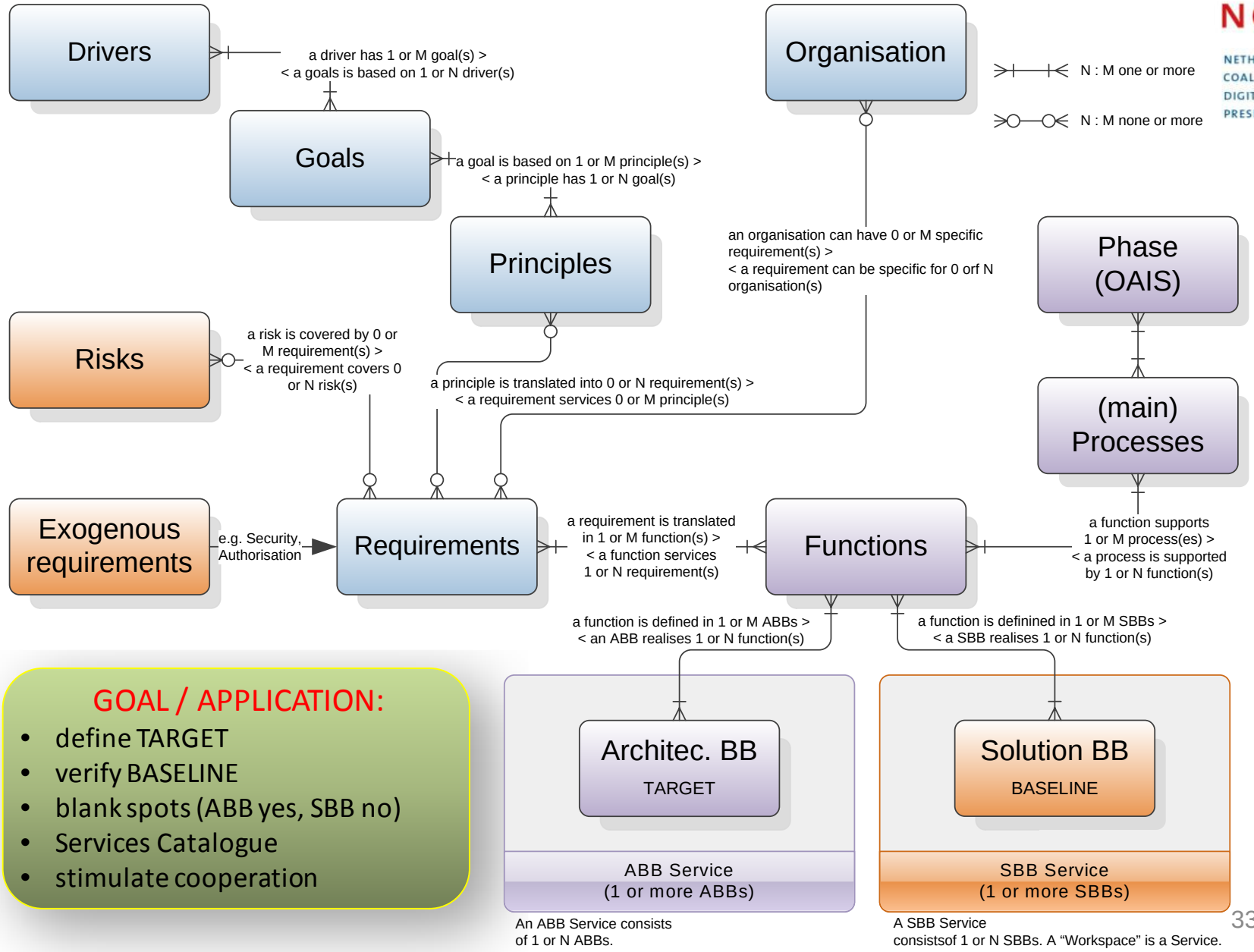
Other (national) projects:

- ✓ National Archives is deploying its *e*-Depot (for all Governmental Archives)
- ✓ 4 Governmental data centres
- ✓ Science: coordination of Research Data Management
- ✓ many more examples…

Next steps on our list:

- ➢ **Verification and validation** of "Building block" model
- ➢ Obtain **support** from politics and policy makers
- ➢ Conduct a proper **Cost *and Benefit* analysis** of the model
- ➢ and much more…

Sneak preview of model for LTDP services



GOAL / APPLICATION:

- define TARGET
- verify BASELINE
- blank spots (ABB yes, SBB no)
- Services Catalogue
- stimulate cooperation

An ABB Service consists of 1 or N ABBs.

A SBB Service consistsof 1 or N SBBs. A “Workspace” is a Service.

More information

NCDD website (English): http://www.ncdd.nl/en/

About the study (in English):	http://www.ncdd.nl/en/knowledge-and-advice/ncdd-publications/
English summary of report:	http://www.ncdd.nl/site/wp-content/uploads/2014/06/summary_NCDD_research_DEFWEB.pdf
The full report (in Dutch):	http://ncdd.nl/site/wp-content/uploads/2015/09/NCDD-onderzoek_2015_DEFWEB.pdf
Network Digital Heritage	https://www.youtube.com/watch?v=8XrsVqr2e6w

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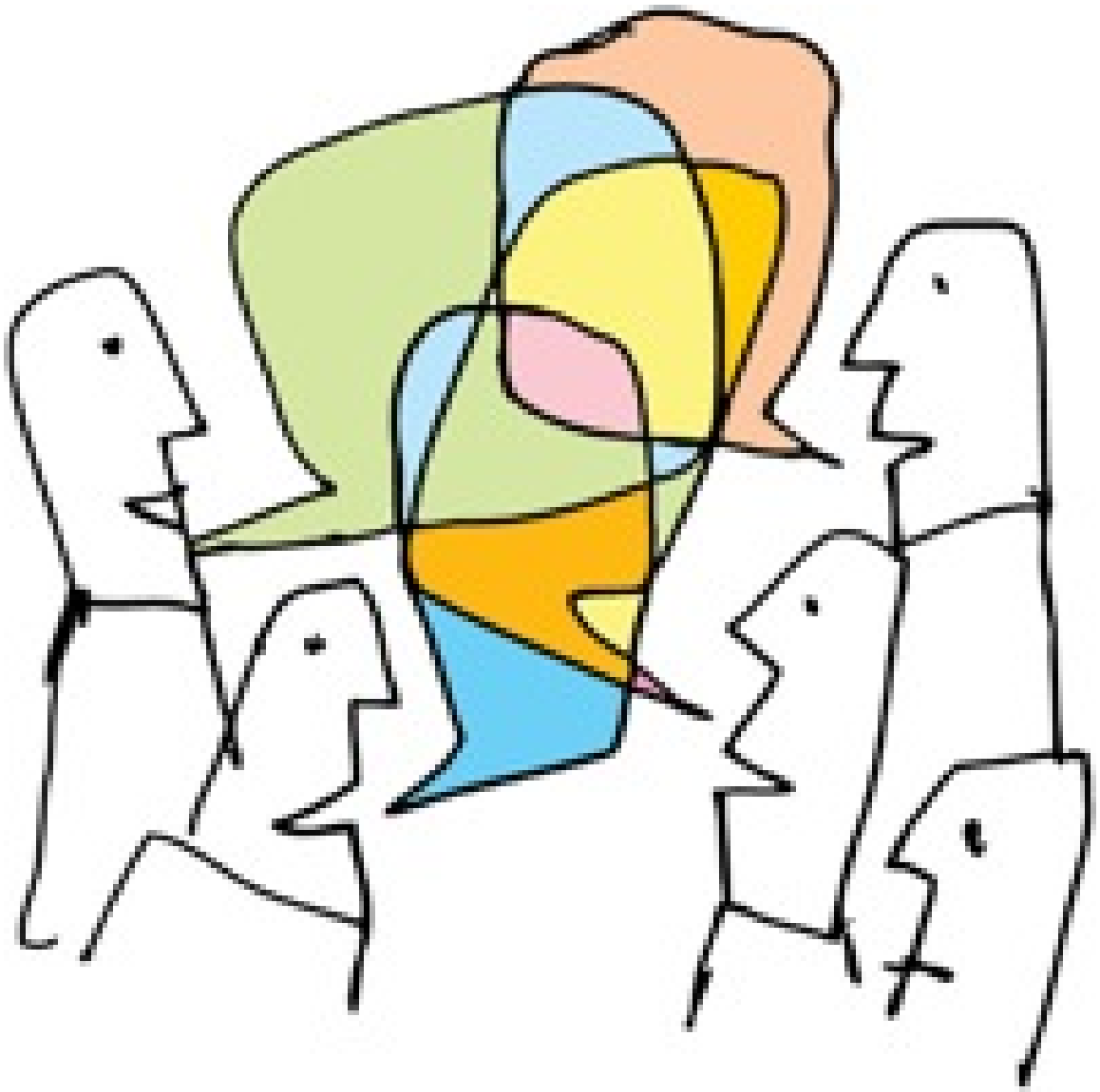
Agenda

NCDD
NETHERLANDS COALITION FOR DIGITAL PRESERVATION

1. Introduction and context
2. Analytical framework of the research
3. Results
4. Preferred scenario
5. Ongoing / Next steps
6. Q&A session

Questions ?

NCDD

NETHERLANDS COALITION FOR DIGITAL PRESERVATION