

**“Designing functions
for mass transfer and preservation of records
in ERM systems”**

- Case of the NAK (National Archives of Korea) -

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- 1. Electronic Records Management in Korea**
- 2. Transfer Issues and Counterplan of NAK**
- 3. Preservation Planning of NAK**
- 4. On-going Issues**

1. Electronic Records Management of Korea

1.1 The Progress of e-Government (1/2)

- South Korea ranked top in the UN E-Government Survey among 192 members

<UN E-Government Rankings of Korea>

Years		Index(ranking)		
		2005	2008	2010
E-Government Index	Readiness	(5)	(6)	(1)
	Web Measurement	0.79(4)	0.82(6)	1.00(1)
	Telecom Infra	0.67(9)	0.69(10)	0.64(13)
	Human Capital	0.97(14)	0.98(10)	0.99(7)
	E-Participation	0.87(5)	0.98(2)	1.00(1)

<E-Government Readiness Index>

Years	'05		'08		'10	
	index	Ranking	index	Ranking	Index	Ranking
Korea	0.8727	5	0.8317	6	0.8785	1
US	0.9062	1	0.8644	4	0.8510	2
Canada	0.8425	8	0.8172	7	0.8448	3
UK	0.8777	4	0.7872	10	0.8147	4
NZ	0.8021	11	0.8631	5	0.8097	5

1. Electronic Records Management of Korea

1.1 The Progress of e-Government (2/2)

Designing total document lifecycle electronically

- Invested more than 25 million dollars
- Electronic document production rate in government upto almost 100%

Enacting related Acts

- Enacting e-Government Act ,electronic transaction Act, digital signature Act

Introducing systems

- Building BRM(Business reference model) system
- Introducing EDMS and BPMS
- EAMS

Exporting e-government

- Exporting to more than 20 countries
- The export target for 2011 has been set at 2 billion dollars

1. Electronic Records Management of Korea

1.2 The Progress of Records Management (1/2)

1999

- Enacting Records and archives management of public agencies Act

2004

- Introducing RMS V1 for EDMS
- Redesign the electronic records management process

2005

- Performing ISP for RMS project by the Presidential secretariat
- Performing ISP for RMS project by the NAK

2006

- Developing RMS V2
- Upgrading CAMS(Central Archives Management System)

2007

- Deploying RMS V2
- Revising Public Records and Archives Management Act
- Enacting Presidential Records Act

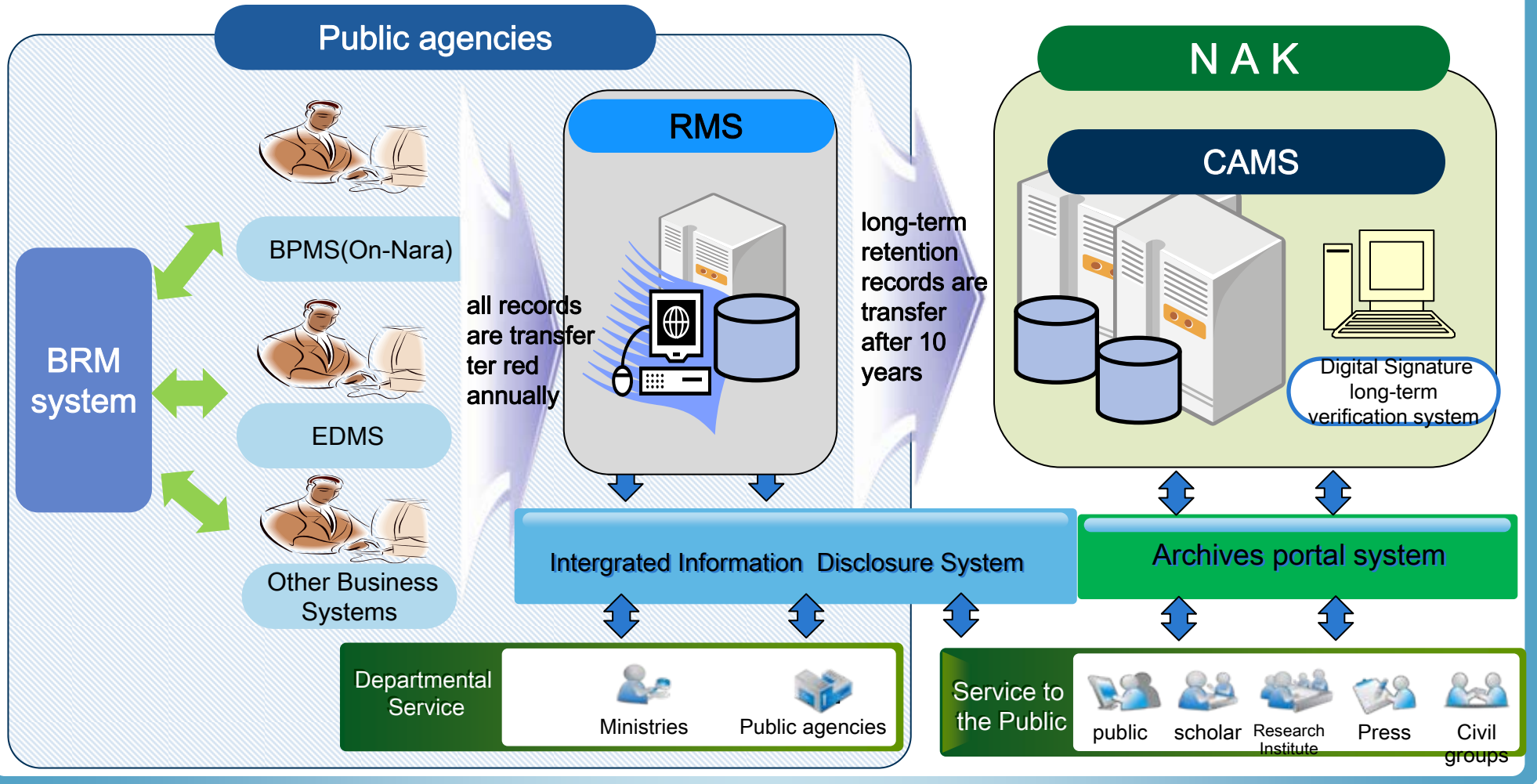
2015

- Ingesting public electronic records produced in 2004 to NAK

1. Electronic Records Management of Korea

1.2 The Progress of Records Management (2/2)

Electronic records management scheme



2. Transfer Issues and Counterplan of NAK

2.1 Year of 2015

Year of 2015

- EDMS introduced in 2004 produced electronic records full-scale
- Mass ER Scheduled to ingest to NAK from 2015

Transfer issues

- Elaborating transfer process
- Developing automatic capturing tools
- Developing quality verification tools
- Considering ingest systems performance

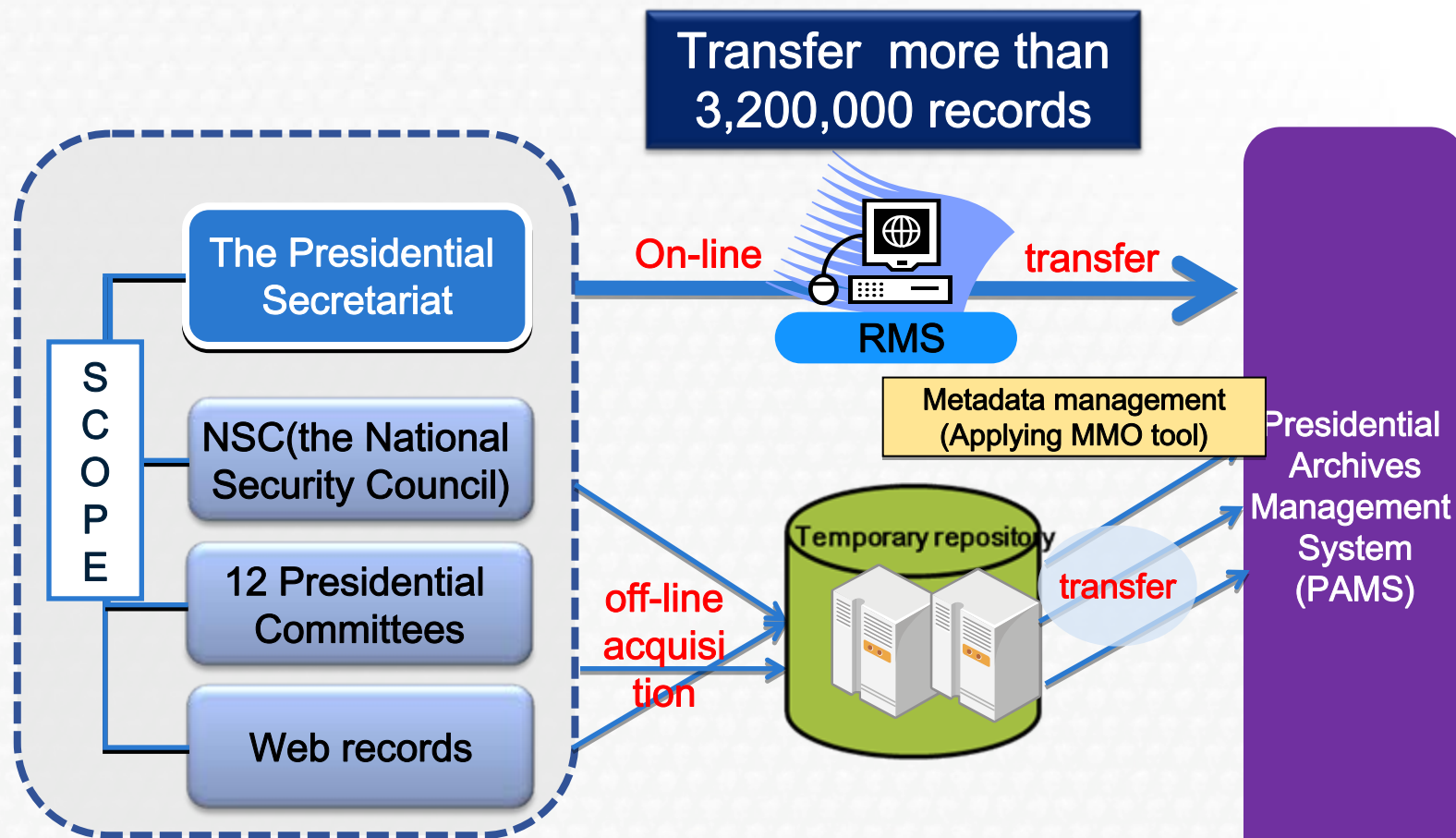
Concerns of “Mass” ER

- Measuring the Number of Public agencies
- Estimating volumes of electronic files
- Calculating the amount of metadata and system data
- Guessing the time for processing of each step of transfer

2. Transfer Issues and Counterplan of NAK

2.2 Experience of Mass Electronic Records

- Transfer Mass Presidential Records to Presidential Archives in 2008
- experiencing of various issues related to mass electronic records' transfer



2. Transfer Issues and Counterplan of NAK

2.3 Transfer Process of Electronic Records (1/2)

NAK's Design Principle for transfer process

Strategy for Maintaining the Authenticity

Referencing Ingest function of
OAIS RM

Referencing InterPARES
authenticity strategy

Referencing MoReq2010
functions

Learning from Presidential
Records experience

Learning from foreign
countries

2. Transfer Issues and Counterplan of NAK

2.3 Transfer Process of Electronic Records (2/2)

11: Planning Ingest
12: Bring ER

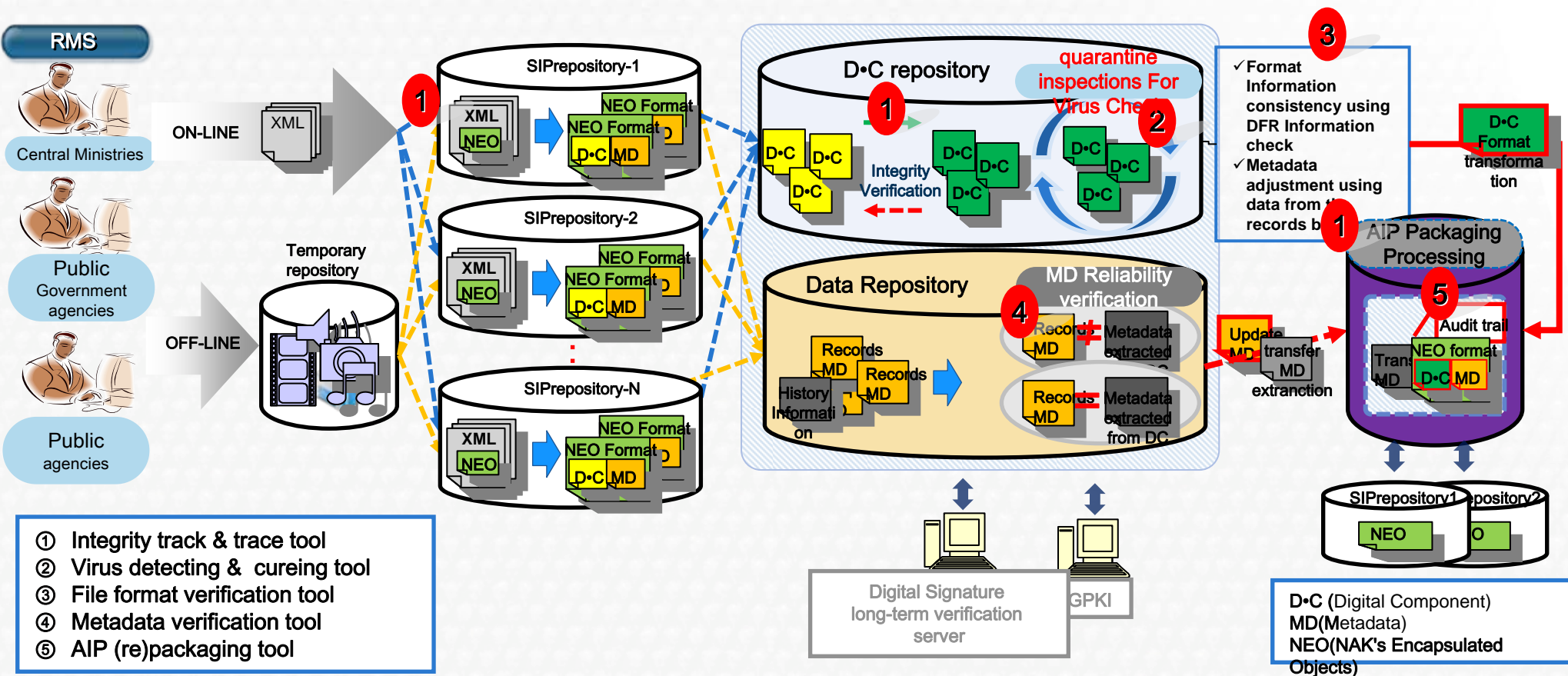
13: Capturing XML files
14: Extracting NEOs

15: Extracting D·C
and MD

16: Quarantine
inspection

17: Quality
Check

18: AIP
(Re)Packaging



2. Transfer Issues and Counterplan of NAK

2.4 Design Issues of ERM

Issues of Transfer System Design

1. Calculating accurate amount of data existing all the process steps

2. Differentiating storage usages

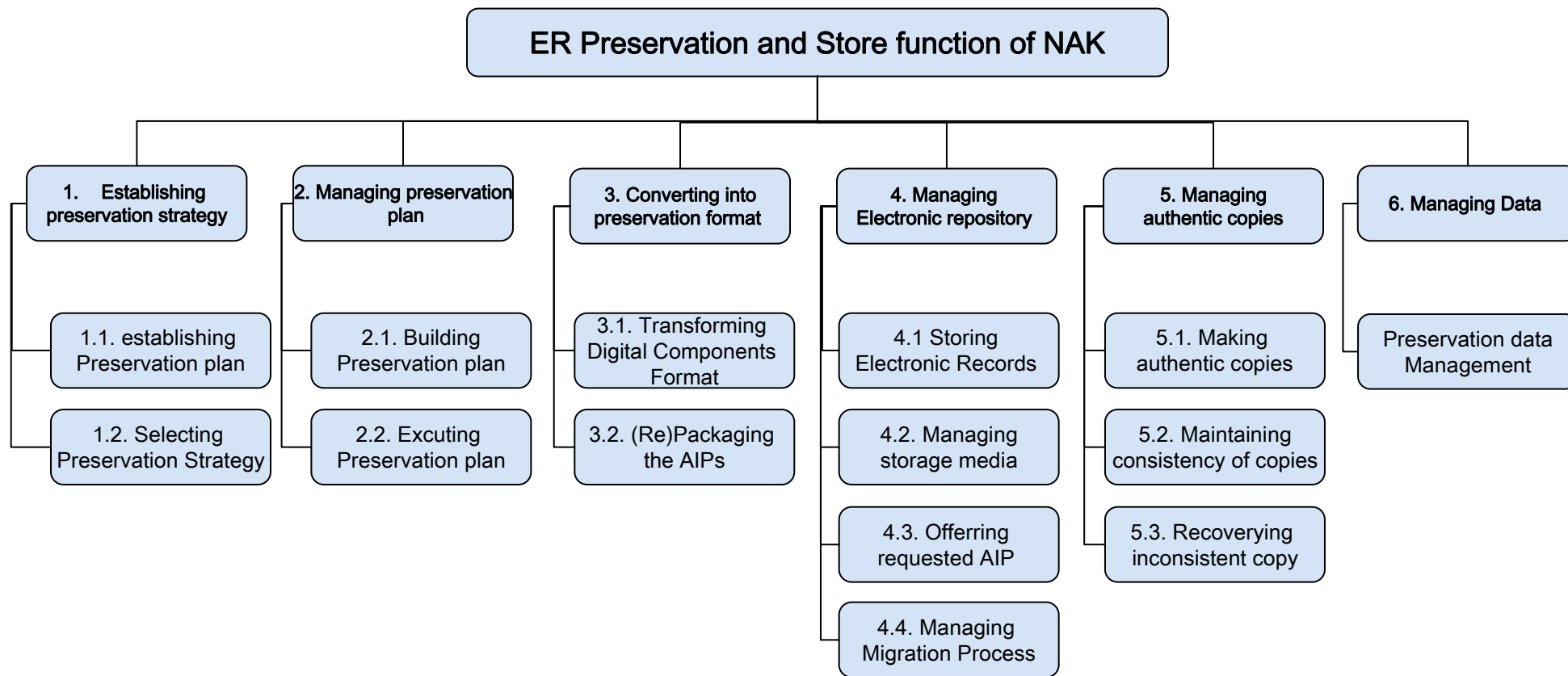
3. Deploying parallel processing server

3. Preservation Planning of NAK

3.1 Preservation & Storage Business Functions (1/2)

•Preservation·Store Function of NAK has 6 2nd-level functions and 13 3rd-level functions.

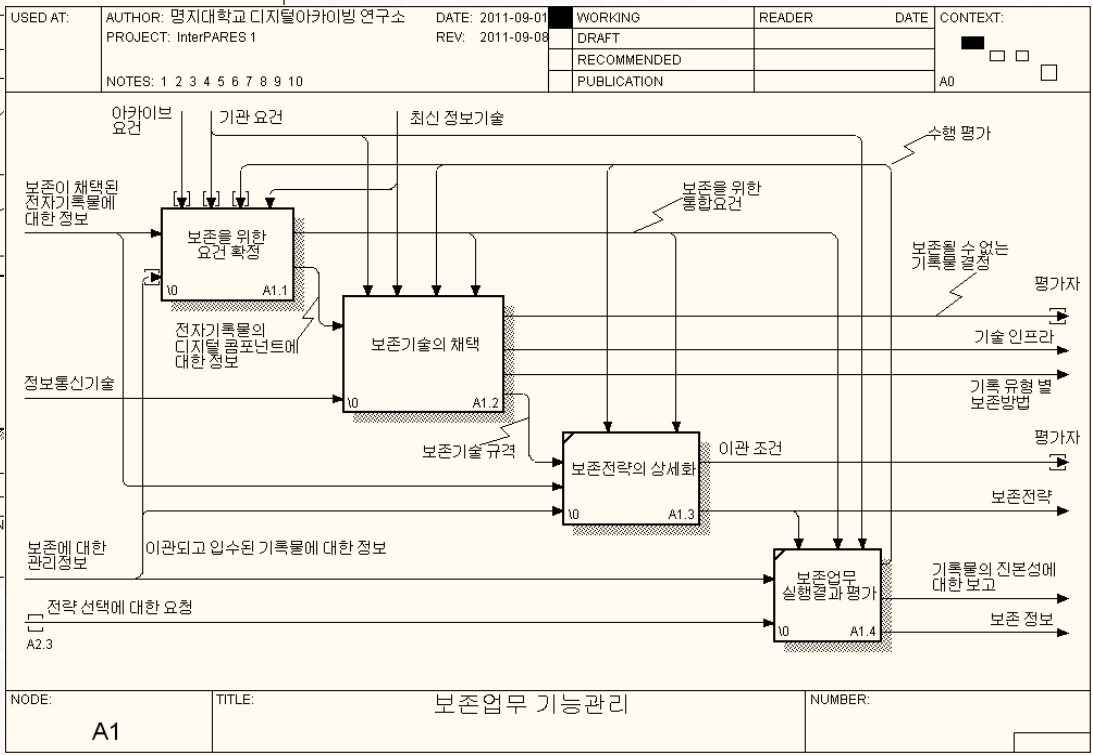
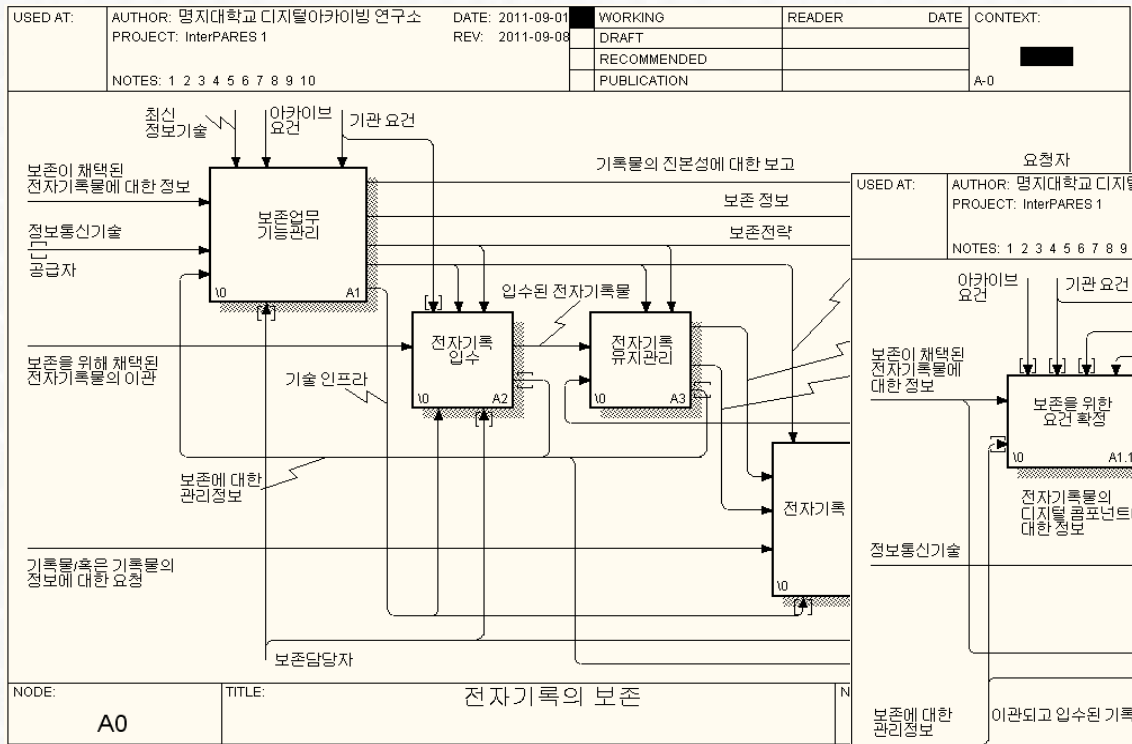
Function Decomposition diagram



3. Preservation Planning of NAK

3.1 Preservation & Storage Business Functions (2/2)

Samples of IDEF0 Diagrams

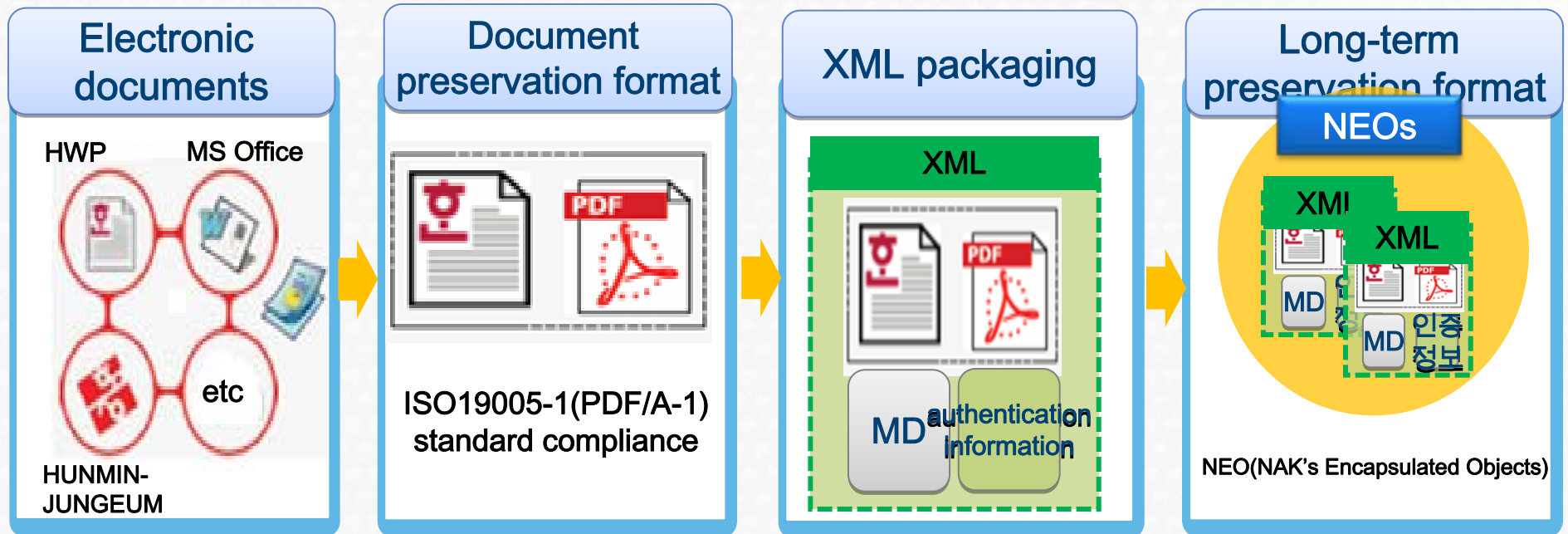


3. Preservation Planning of NAK

3.2 Transformation of Electronic Records

- PDF/A-1 : Document preservation format based on ISO19005-1
- NEO (NAK's Encapsulated Objects) : Records preservation format

Converting into preservation format



3. Preservation Planning of NAK

3.3 Risk Management Approach (1/2)

preservation and store functions and risk elements Mapping Table

2 nd _level fnction	3 rd level function	Risk ID	Risk Name
1.	1.1	NR11	Extent of what is within the archival object is unclear
	1.2		
2.	2.1	NR14	Preservation plans cannot be implemented
	2.2	NR15	Preservation strategies result in information loss
		NR16	Inability to validate effectiveness of preservation
3.	3.1	NR07	Loss of information reliability
	3.2	NR03	Loss of authenticity of information
4.	4.1	NR06	Loss of non-repudiation of commitments
		NR12	Inability to validate effectiveness of ingest process
	4.2	NR08	Loss of information provenance
	4.3	NR01	Loss of confidentiality of information
		NR02	Loss of availability of information and/or service
	4.4	NR03	Loss of authenticity of information

• Total 17 risk elements, NR01 – NR17

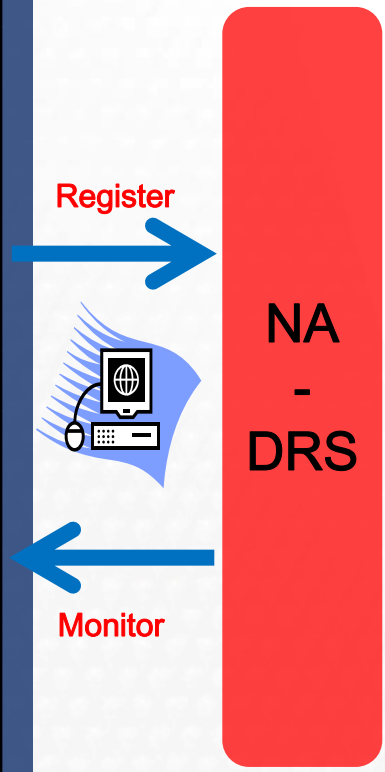
		Risk ID	Risk Name
5	5.1	NR09	Loss or non-suitability of backups
	5.2	NR10	Inconsistency between redundant copies
	5.3	NR04	Loss of integrity of information
6		NR03	Loss of authenticity of information
		NR04	Loss of integrity of information
		NR05	Unidentified information change
		NR07	Loss of information reliability
		NR13	Identifier to information referential integrity is compromised
		NR17	Non-traceability of received, archived or disseminated package

3. Preservation Planning of NAK

3.3 Risk Management Approach (2/2)

- Designing strategy for maintaining risks
- Resigtering into NA-DRS(National Archives Disaster Recovery System)

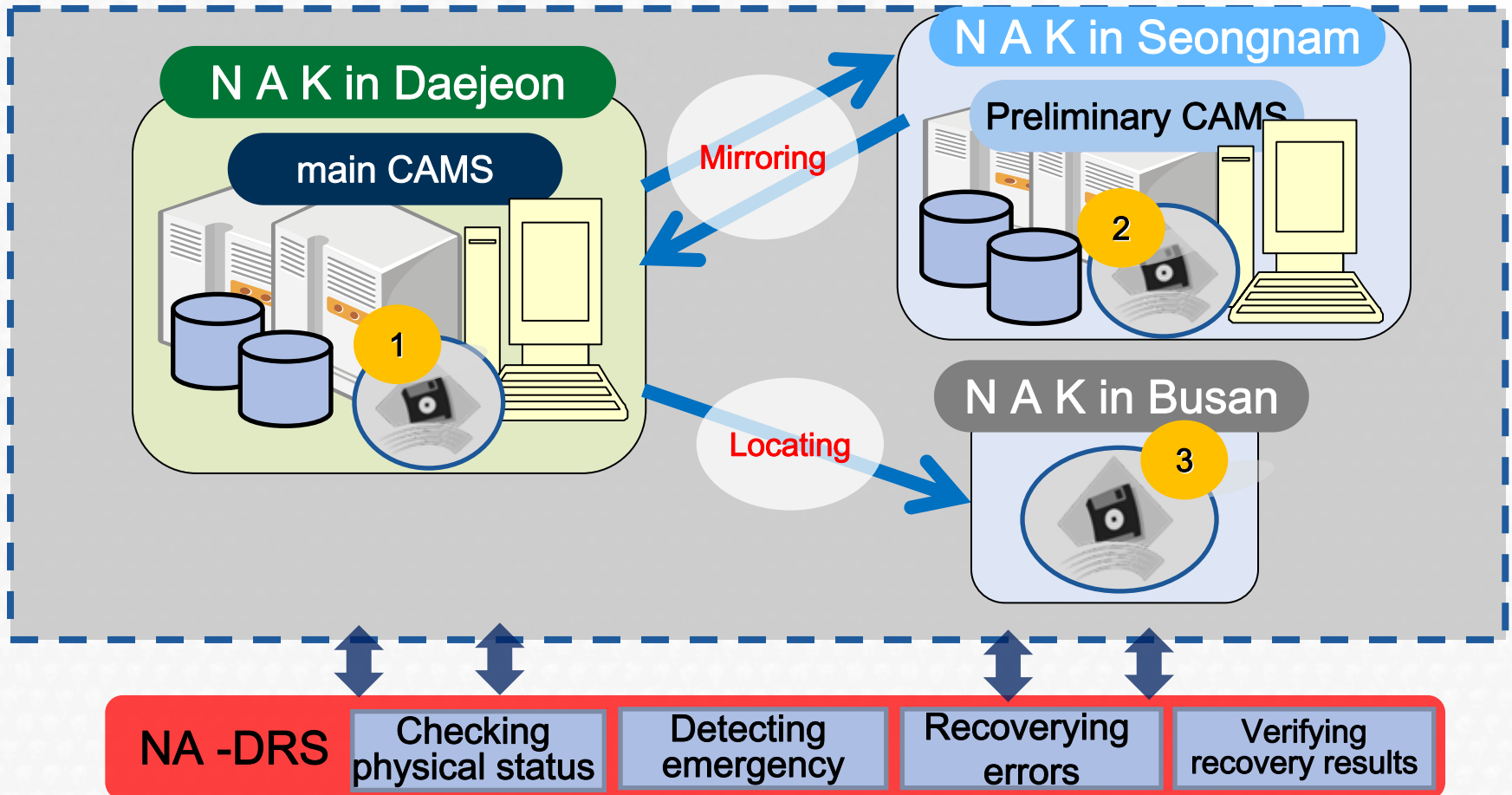
Risk Elements ID	NR04	Rik elements Name	Loss of integrity of information
discription	It is not possible to prove records not to be changed and to be kept complete status againt loss, deteriorated, damage and falsification.		
example	<ul style="list-style-type: none"> • There is administrative change, but because it is not consistent to audit trail, it is impossible to prove • in case that it is impossible to monitor integrity loss because of no performing electronic records status check based on Article 50 of Public Records Management Act's Implementing ordinances 		
Probability	4.2	Severity	13.4
Impact	3.2	Grade	3
Prevention Plan	<ul style="list-style-type: none"> • Based on Public Records management act, defining concept of electronic records integrity specifically • Establishing policy and target to guarantee electronic records integrity's level which is preserved in NAK • Identifying Integrity's weakness through analyzing electronic records management process, and performing business process as solution • Keeping status of system elements(Software, hardware, network, etc) used for preservation management to guarantee expected integrity level • Documentation framework including rule, target, policy, business process for guaranteeing integrity 		
Management Plan	<ul style="list-style-type: none"> • Recover damaged information(records and metadata) from Former backup 		



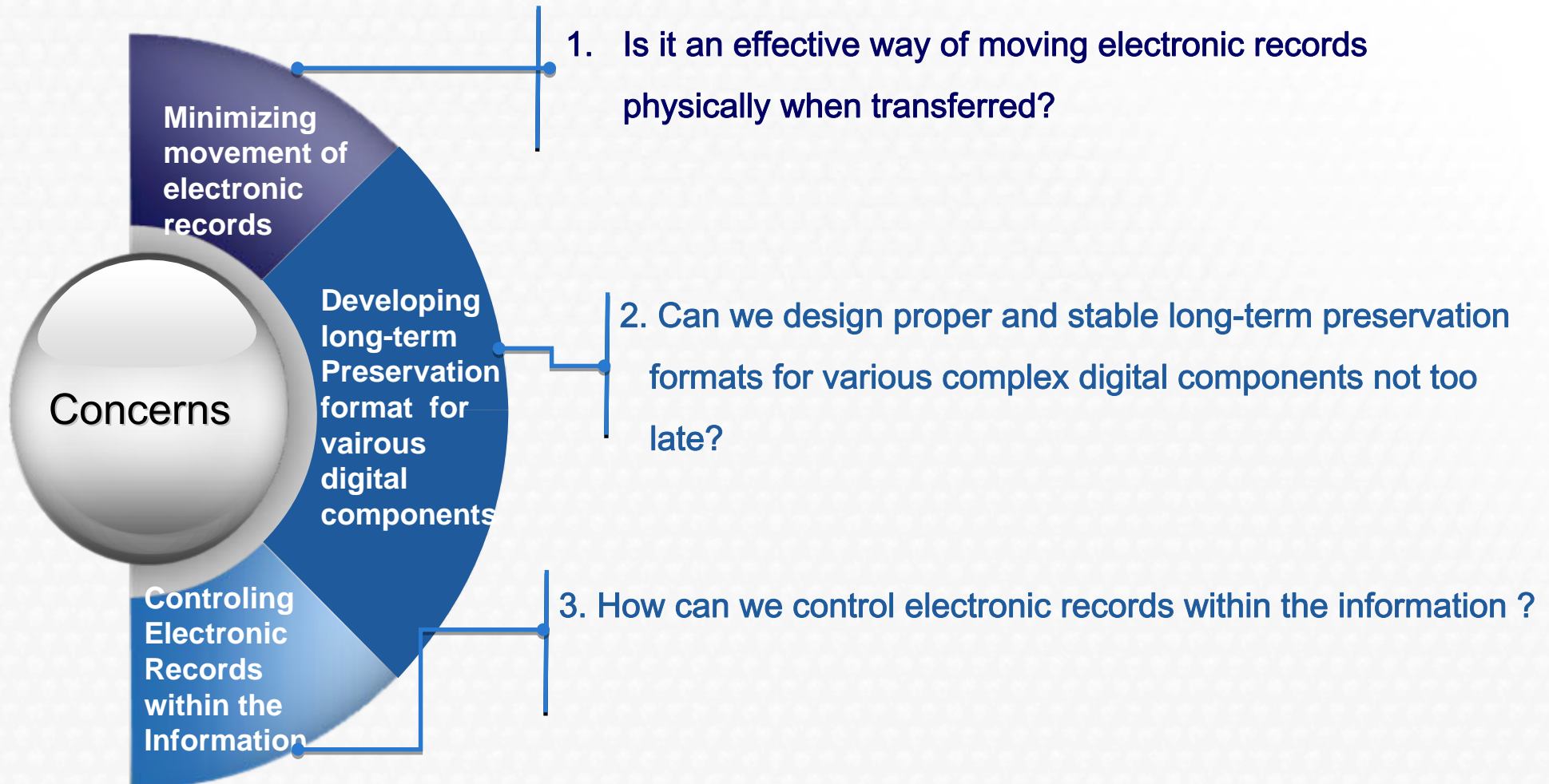
3. Preservation Planning of NAK

3.4 Disaster Recovery

- Mirroring CAMS
- Making redundant authentic copies and distributing them into different palces
- Monitoring and recovering integrity and consistency copies by NA-DRS



4. On-going Issues



**Thank
You!**