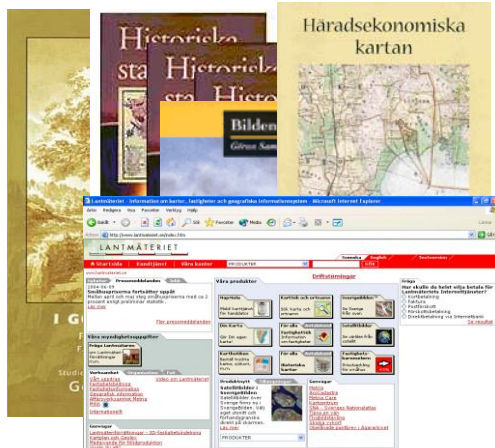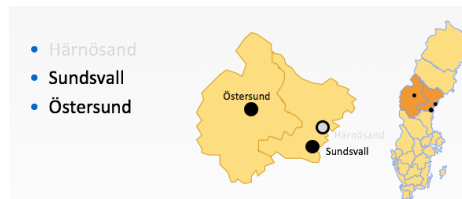# ISO-Standard for the Preservation of Geospatial Data and Metadata: ISO 19165.

En lägesbeskrivning av internationella initiativ kring bevarande av geodata

Göran Samuelsson, Ph.D History, Ass Prof. in Archives and Information Science at Mid Sweden University since October 2004

- Härnösand
- Sundsvall
- Östersund

Östersund
Härnösand
Sundsvall

Previously worked 10 years at National Land Survey of Sweden as an archive-strategist, archive-coordinator and also as a product manager for historical maps and archives

3 years at the Military Archive of Sweden - Map department

- Member of Swedish ISO/SIS
- Member of Euro SDR /Archive
- Certified business architect
- Board Member History section Cartographic Society
- Board Member FAI Association for records and information management
- Board Member Föreningsarkiv Västernorrland

Avslutade projekt och aktiviteter

Genom att följa länkarna nedan hittar du information om CEDIF:s avslutade projekt och aktiviteter. Årtalen syftar till det år projektet eller aktiviteten avslutades.

2008 Framtidens arkiv
2008 Lagring och arkivering
2009 Bygga Villa
2009 Elektronisk dokumenthantering i projektet Ådalsbanan
2009 SMEdoc
2012 CEDIF
2015 Strategisk plattform för digital informationsförvaltning
2013-15 GOINFO God Informationsförvaltning

Pågående
2013-2018 InterPARES Trust
2015-16 En effektiv digital informationshantering. Trafikverket
2016-19 ISERV

Det förflutna är användbart

- Land registration and cadastral organisation

- Determining ownership and property boundaries

- Infrastructure projects – motorways, railroads etc

- Studying changes in the natural and cultural landscape

- Regenerating wetlands and the economic & cultural landscapeAvoid costly archaeological digs

- Determining the speed of environmental changes over time

- Restoring birdlife and wildlife
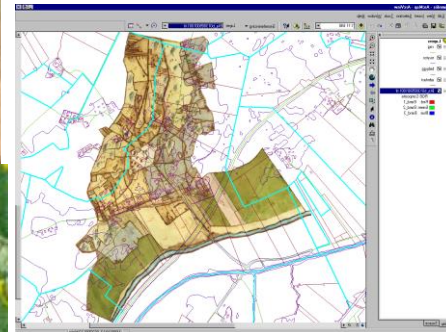
Skanning av papper

Direkt arkivering av digitala verksamhetsflöden

Paper Archive Scanning Project supplies

Digital Business flows

E-archive
System for long-term preservation
OAIS?

Fastighetsbildning

I dagens verksamhetssystem Trossen som hanterar fastighetsbildningen – genereras rasterbilder från textdokument, kartdata och digitala signaturer

Kartdata/geodata

- Så om lantmäteriets fastighetsbildningens förrättningar har en form av e-arkivlösning - så är kartdatabaserna - kvar i verksamhetssystem

- Inga rutiner för avställning/arkivering varken i raster eller vektorform

---

Riksarkivets författningssamling

ISSN 0283-2941

Riksarkivets föreskrifter och allmänna råd om tekniska krav för elektroniska handlingar (upptagningar för automatiserad behandling);

RA-FS 2009:2

Utkom från trycket den 1 juli 2009

beslutade den 30 april 2009.

Riksarkivet föreskriver med stöd av 2 och 11 §§ arkivförordningen (1991:446) följande föreskrifter och allmänna råd om tekniska krav för elektroniska handlingar.

Digitala kartor och ritningar

RA-FS 2009:2

8 § Digitala kartor och ritningar ska ges något av följande format:

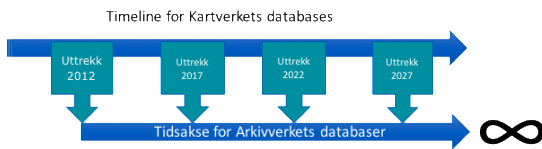|	
SS-ISO 19136:2007	Geografisk information (GML) (ISO 19136:2007, IDT), eller
ISO 24517-1:2008	Document management – Engineering document format using PDF – Part 1: Use of PDF 1.6 (PDF/E-1).

Digitala kartor och ritningar i rasterformat kan även ges följande format:

CALS Raster File Format (CCITT Group 4).

Norge

Kartdatabaserna

**Norwegian Model
for Preservation of Geographic Information**

Timeline for Kartverkets databases

Uttrekk 2012   Uttrekk 2017   Uttrekk 2022   Uttrekk 2027

Tidsakse for Arkivverkets databaser ∞

A withdrawal every fifth years. Best form of protection and preservation of both vector and raster data

Fastighetsregistret:

Arkivverket kommer til den slutningen at Kartverket selv skal drifte matrikkeldatabasen med historikk.
Kartverket vil med det ivareta Matrikkelen med historiske vektordata i overskuelig framtid.

A A A   🇬🇧 English   Sidetre

Kartverket

≡ Meny   Om Kartverket   Søk her

Forsiden   Geodataarbeid   Standarder   SOSI ▶   SOSI-standard del 2 Generell objektkatalog

SOSI-standard del 2 Generell objektkatalog

Oppdatert: 19.04.16

SOSI-standardene realisert i SOSI-formatet med tilhørende UML-modeller.

Hensikten med en generell objektkatalog er å spesifisere objekttyper med tilhørende egenskaper og assosiasjoner som er generelle innenfor et fagområde eller på tvers av flere fagområder.

SOSI modellregister er det sentrale norske modellregisteret, og forvaltes i SOSI-standarden. Geonorge-objektkatalogen gjør modellregisteret tilgjengelig for søk, navigasjon og innsyn.

Feilsøking

Dersom det er problemer med nedlastingen, prøv en annen nettleser, som Chrome, Mozilla Firefox, Opera eller Internet Explorer. For EA-modeller går ikke IE, men det går bra for RR-modeller.

Andre årsaker til at nedlastingen ikke går bra, er gammel versjon av Java eller at cachen bør ryddes.

SOSI DEL 2 - Generell objektkatalog (PDF)	UML Innsyn (EA-modell)
Innledning til objektkatalogen	Ingen
Administrative og statistiske inndelinger (ABAS) Administrative og statistiske inndelinger 4.5	UML 4.0 UML 4.5
Adresser (ADR) Adresser 4.5	UML 4.0 UML 4.5
Annen naturinformasjon (NATR)	UML 4.0
Arealbruk (AREAL)	UML 4.0
Arealressurs (AREALRESSURS)	UML 4.0

SOSI (Samordnet Opplegg for Stedfestet Informasjon) er den største nasjonale standarden for geografisk informasjon. SOSI er også et mye brukt filformat for norske kartdata

Grunneiendommer, Adresser og Bygninger.
Filene er for øvrig avlevert i SIARD-format, og med tilhørende informasjonsfil med bl.a. sjekk-sum som txt-fil. Brukerveiledninger følger også avleveringen i pdf-format. Det skal også lages sjekk-sum av dokumentasjon i pdf-format.

Danmark

GML 3v3.DK - ISO 19136

• International standard

• Open Source - Full system independence

• Text-based, can be read and understood independently of program

• Data exchange format for general use and dissemination

The structure of a SIP
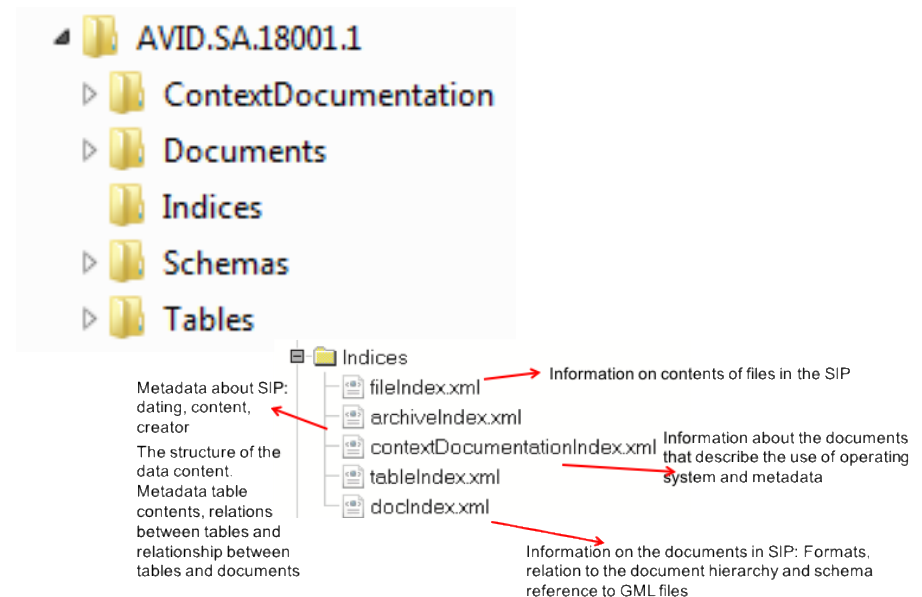
2016-04-26

Vi ligger efter våra nordiska grannar

VAD ATT GÖRA?

Mitt förslag var att ha ett intensivt samarbete kring format, urval och tillgång men lagring/arkiv fråga kan kanske ske i antal steg…

Vi skickade ut en förfrågan förra året om vilka som kunde tänkas säga vara intresserade att hjälpa till...

"arkiveringen inte görs systematiskt utan är av mer ad hoc liknande karaktär. Det gäller dataproducenter på både statlig, regional och kommunal nivå."

.... ULI geoforum – SIS – det internationella arbetet med en ny standard 19165 formering av svensk grupp

Vägar till standardisering

Nationella initiativ Riksarkiven-Kartmyndigheter

Internationell samverkans forum

- EuroSDR

- OGC

ISO/SIS

Bakgrunden till:
Preservation of Geospatial Data and Metadata: ISO 19165

Under lång tid har arkivering varit efterfrågat -

I Sverige har ingen tagit "lead" varken verksamhet eller (Riks)arkiv

NASA Earth Science Data Preservation Content Specification https://earthdata.nasa.gov/standards/preservation-content-spec 2012/2013

ESA European Space Agency Long Term **Data Preservation**. Earth Observation **Preserved Data Set** Content 2012

Open archival information system (OAIS)

- Earlier standard: Space data and information transfer systems – Open archival information system (OAIS) – Reference model (ISO 14721)

- Input: Submission Information Package (SIP)

- Storage: Archival Information Package (AIP)

- Output: Dissemination Information Package (DIP
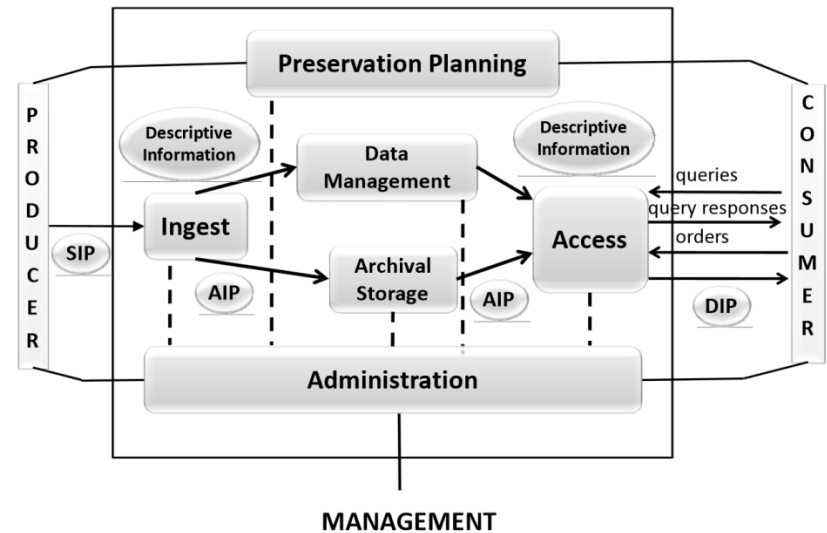
Input - förlagor

GI+100: Long term preservation of digital Geographic Information — 16 fundamental principles agreed by National Mapping Agencies and State Archives

by Carsten Rönsdorf, Paul Mason and Jonathan Holmes, Ordnance Survey; Urs Gerber and André Streilein, swisstopo; Marguérite Bos, Schweizerisches Bundesarchiv; Arif Shaon, Rutherford Appleton Laboratory; Kai Naumann, Landesarchiv Baden-Württemberg; Michael Kirstein, Generaldirektion der Staatlichen Archive Bayerns; Göran Samuelsson, Mid Sweden University; Marja Rantala, Maanmittauslaitos; Sidsel Kvarteig, Statens kartverk; Lynne Ralsberg and Jenny Svennewall, Lantmäteriet and Wolfgang Stößel, Landesamt für Vermessung und Geoinformation Bayern.

Executive Summary

This paper states 16 principles for the long term retention and preservation of digital geographic information. The paper is mainly aimed at public sector geographic information providers in Europe (particularly those involved in mapping and cadastre) with the intention of highlighting the significance of fundamental concepts for digital geographic data archiving. Geographic information providers are mainly mapping agencies, but also archives preserving geographic data among a wider range of digital information. A supplementary objective is that the paper may provide useful information for providers of all types of geographic information right around the world.

There are many reasons why people wish to retain access to information, though the main drivers for archiving digital geographic information are meeting legislative requirements, the short and long term exploitation (re-use not only access) of archived data for analyzing social, environmental (e.g. global climate changes) and economic changes over time as well as efficiency savings in managing superseded datasets. This paper sets out the path and describes what needs to be done now to future-proof the investment government agencies around the world have made in creating digital Geographic Data. It was approved by the EuroSDR Board of Delegates on 30th May 2013 and also approved by EuroGeographics at their General Assembly on 1st October 2013 and the European Board of National Archives at their General Assembly on 15th November 2013.

The principles are:
1. Archiving of digital Geographic Information begins at the point of data creation, rather than at the point of withdrawal from active systems
2. All organisations must have a maintained Archiving Policy
3. Be selective and decide what to archive and what to dispose of
4. Consider preservation timeframes of 1, 10, 100 years
5. Migration or emulation is inevitable in the medium and long term. Be prepared and choose which properties to preserve in advance
6. The output of the archival planning process should also be preserved over the long-term to accommodate future preservation requirements
7. Archiving is not back-up. You must also back-up your archive
8. Geographical data should be preserved in a way that non geo-specialists can handle
9. Information objects should be self-contained and independently understandable
10. Keep the gold copy version of the 100 year data archive in open, file based repositories, not in databases, nor other complex environments
11. Consider keeping a graphical representation alongside the logical representation of the data
12. Restrict the number of formats and encodings to a widely agreed set of open, simple and well-documented file formats
13. Prefer simple data models and schemas over complex ones
14. Keep the access mechanism for archived data simple. Focus on basic current user requirements – an archival viewing system does not need to be a fully functioning GIS
15. Ensure effective management and quality assurance of the metadata associated with your data
16. Make some assumptions about future use, but don't be too restrictive

GeoMAPP was a partnership between the Library of Congress and state geospatial and archives staff from North Carolina, Kentucky, Montana, and Utah. In December, 2011 the GeoMAPP grant and project concluded, and the GeoMAPP team released its final report summarizing the project's accomplishments from 2007-2011, specifically focusing on the second phase of the project from 2010-2011. Access the report here: *GeoMAPP Final Report: 2007-2011*.

ISO/TC 211/WG 07 "Information communities"

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Store > Standards catalogue > Browse by ICS > 35 > 35.240 > 35.240.70 > ISO/DIS 19165

ISO/DIS 19165
Geographic information -- Preservation of digital data and metadata

Draft International Standard (DIS)

General information

Current status : Under development   **Publication date :**

Edition : 2   **Number of pages :** 46

Technical Committee : ISO/TC 211 Geographic information/Geomatics

ICS : 35.240.70 IT applications in science

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Life cycle
A standard is reviewed every 5 years

00 > 10 > 20 > 30 > 40.00 Enquiry > 50 > 60 > 90 > 95

40.00 DIS registered 2017-02-24
40.20 DIS ballot initiated: 12 weeks
40.60 Close of voting

Revisions / Corrigenda

This standard

Developing ISO standards

The development process for ISO standards has been divided into stages and the main resources required at each stage are shown in the blue box.

To see the stages in full detail with harmonized stage codes, see our Project stages page.

For more information contact your technical programme manager or send an e mail to tcsupport@iso.org.

Stages and resources for standards development

* = obligatory stage

| Proposal Stage* | › | Preparatory stage | › | Committee stage | › | **Enquiry stage*** | › | Approval stage | › | Publication stage* |

Enquiry stage (40)

The Draft International Standard (DIS) is submitted to ISO Central Secretariat by the committee secretary. It is then circulated to all ISO members who get 3 months to vote and comment on it. (The submission interface should be used to submit the draft).

The DIS is approved if a two-thirds of the P-members of the TC/SC are in favor and not more than one-quarter of the total number of votes cast are negative

If the DIS is approved the project goes straight to publication. However, the committee leadership can decide to include the FDIS stage if needed.

See the ISO/IEC Directives Part 1, 2.6.3 and 4 for more information.

Resources for Stage 40

- Submission Interface
- Electronic balloting portal
- Comment collation tool
- Form - Limit date extension
- ISO/IEC Directives Part 1 and Consolidated ISO Supplement, section 2.6
- Submitting drafts - requirements (PDF)

Standardisation procedure in ISO

- 1. Proposal stage New Work Item Proposal (NWIP)

- 2. Preparatory stage Working Draft (WD)

- 3. Committee stage Committee Draft (CD)

- 4. Enquiry stage Draft International Standard (DIS)

- 5. Approval stage Final Draft International Standard (FDIS)

- 6. Publication stage International Standard (IS)

Runt 19/20 maj omröstning klar…sedan

5. Approval stage Final Draft International Standard (FDIS)

6. Publication stage International Standard (IS) planerad till november 2017

Vi har ingen svensk representant i grupperingen så vi har ingen egentlig insyn.

Jag har "tjuvkikat" på en utkastversion nr 14 från förra året.

Working draft v14

Introduction

- 1. Scope
- 2. Conformance
- 3. Normative references
- 4. Terms and definitions
- 5. Symbols and abbreviated terms
- 6. Preservation
- 6.1 Prioritization
- 6.2 Structure
- 6.3 Rights
- 6.4 Time
- 7. Geospatial information package
- 7.1 Overview
- 7.2 Designated community
- 7.3 Metadata
- 7.4 Open Packaging Convention (OPC)

- Annex A: Abstract test suite (normative)
- Annex B: Data dictionary
- Annex C: Summary of ISO 14721 (informative)
- C.1 Scope
- C.2 OAIS model
- C.3 OAIS information
- C.4 OAIS responsibilities
- C.5 OAIS preservation perspectives
- C.6 Digital migration
- Annex D: Requirements for data management regarding preservation (normative)
- Annex E: Case-specific archival concept (informative)
- Annex F: Functional requirements for a preservation archive (normative)
- Bibliography

Grundingredienserna

ISO 19115-1:2014
Geographic information -- Metadata -- Part 1: Fundamentals

SO/TS 19157-2:2016
Geographic information -- Data quality -- Part 2: XML schema implementation

ISO 14721:2012
Space data and information transfer systems -- Open archival information system (OAIS) -- Reference model

GI+100: Long term preservation of digital Geographic Information — 16 fundamental principles agreed by National Mapping Agencies and State Archives

geoMapp

Scope

This standard sets the rules for the long-term preservation of digital geospatial data. These data include metadata and other ancillary data that are necessary to fully understand and rebuild the archived digital environment.

Geospatial data are preserved as a geospatial archival information package. This standard defines its details. A geospatial archival information package shall be fully self-explanatory and shall allow a future reconstruction of the dataset without external documentation.

This standard refers to characteristics of data formats that are useful for the purpose of archiving

6   Preservation

6.1 Prioritization - Prioritering/urval

The extremely rapid growth of the data volumes makes the full preservation of all data problematic. Consequently, only a selected subset can go for a long term archive. The selection strategy shall primarily evaluate the relevance of the data to be archived. Preservation shall be included in the product life cycle and demands a decision on the archival procedure at the moment the data are created.

The temporal classification shall define an archival category of 1 year, 10 years, 100 years, or more than 100 years. Each geospatial dataset shall be classified to one of those categories and then archived accordingly. The classifications may be reassessed before the end of the term defined for the category in which a given dataset has been placed.

An appraisal of every layer of a geographic information system is required, because not all layers are equally relevant. However, often layers are interdependent. The archival process shall guarantee consistency among independent layers.

Förslag på gallringsprinciper

The layer's relevance may be distinguished by the time, the function and the relation. Examples:

Time: The following data layers have a temporal meaning only, and thus may not be relevant for archival: network of meters for fine particulates.

Function: A typical example is a future analysis of a land consolidation project. Though the administrative procedure will be fully completed after some years, the documents keep their values as a documentation of the change of landscape.

Relation: Often geospatial information is related to several topics and data sources at the same time. An example is drinking water which may have a network given as vectors, a map layer in raster, and written documentation.

6.2 Structure

6.2.1 Data format

- geospatial dataset shall be archived together with a full documentation of its data format.

- documentation of the data format shall include the format structure, its properties, the metadata, and eventually a means of accessing the data and a means of interpreting the data.

- primary file format is recorded in a consistent and comprehensive way, ideally linking via unique identifiers to well established file format registries. In consideration of experience, cost, and resources, an implementation of this standard shall link to existing and acknowledged format-registries of which an example is PRONOM

- use of a specified profile for any given file format is highly desirable with pointers towards any conformance and/or validation tools and methods used to assert the quality of the profiled file. An analogue graphic representation of file content shall be archived where feasible.

6.2.2 Data base

Geospatial data are object-structured and stored in data bases. In order to preserve this structure a simple storage of the data is not sufficient. In many of the cases, the database storage requires the software to access and interpret the data. Software is a form of representation information in the OAIS model. Consequently, the full data base content shall be transferred to the archive, which demands an archiving strategy that allows a persistent understanding of the technology for accessing this dataset.

If the previously exposed option is not feasible, the content of the objects needs to be modified and moved to another format risking data loss. Thus, a decision about the future use of the archived data is required before archiving.

6.2.3 Properties of geospatial data

Complex geospatial and topological relationships between elements.

- dependencies and topological relationships that can exist between the layer units.

 - full resolution or in reduced resolution in the form of an image pyramid, it shall be decided before preservation, which of the resolution levels of the data shall be preserved.

- If the data exist in redundant forms, for instance in a raster and in a vector format it shall be decided before preservation, which of the storage types shall be preserved.

6.2.4 Level of aggregation

from raw data to an aggregated data product

6.2.5 Gold copy to increase reliability, a separate copy version of the 100 year data archive shall be established in open, file based repositories, not databases, nor other complex environments

7 Geospatial information model

OAIS model defines also the information package as a conceptual container.

The ISO 19165 defines as one of its central components the elements of the archival information package (AIP). This package should be ready to be shared with other organizations, including those outside the geospatial community.

The ISO 19165 specializes versions of the IPs named Geo-SIP, Geo-AIP, and Geo-DIP (geospatial submission information package, geospatial archival information package, geospatial dissemination information package).

Their special properties include, lossless compression, cartographic series support, i.e. a manageable regional size, and a container for information regarding geometry (vector and raster), attributes, topology, metadata, quicklooks, and recommendation on how to symbolize the data.

Open Packaging Convention (OPC)

OPC är en kommunikationsstandard.

All these "parts" composing the OAIS information package can be included in an OPC package, allowing for both an easy submission of data to the archive for preservation (SIP) and clean way to disseminate the preserved information from the archive to the users (DIP).

SS-ISO 23081 Dokumentation - Dokumenthantering - Metadata för dokumentation, del 1-2.
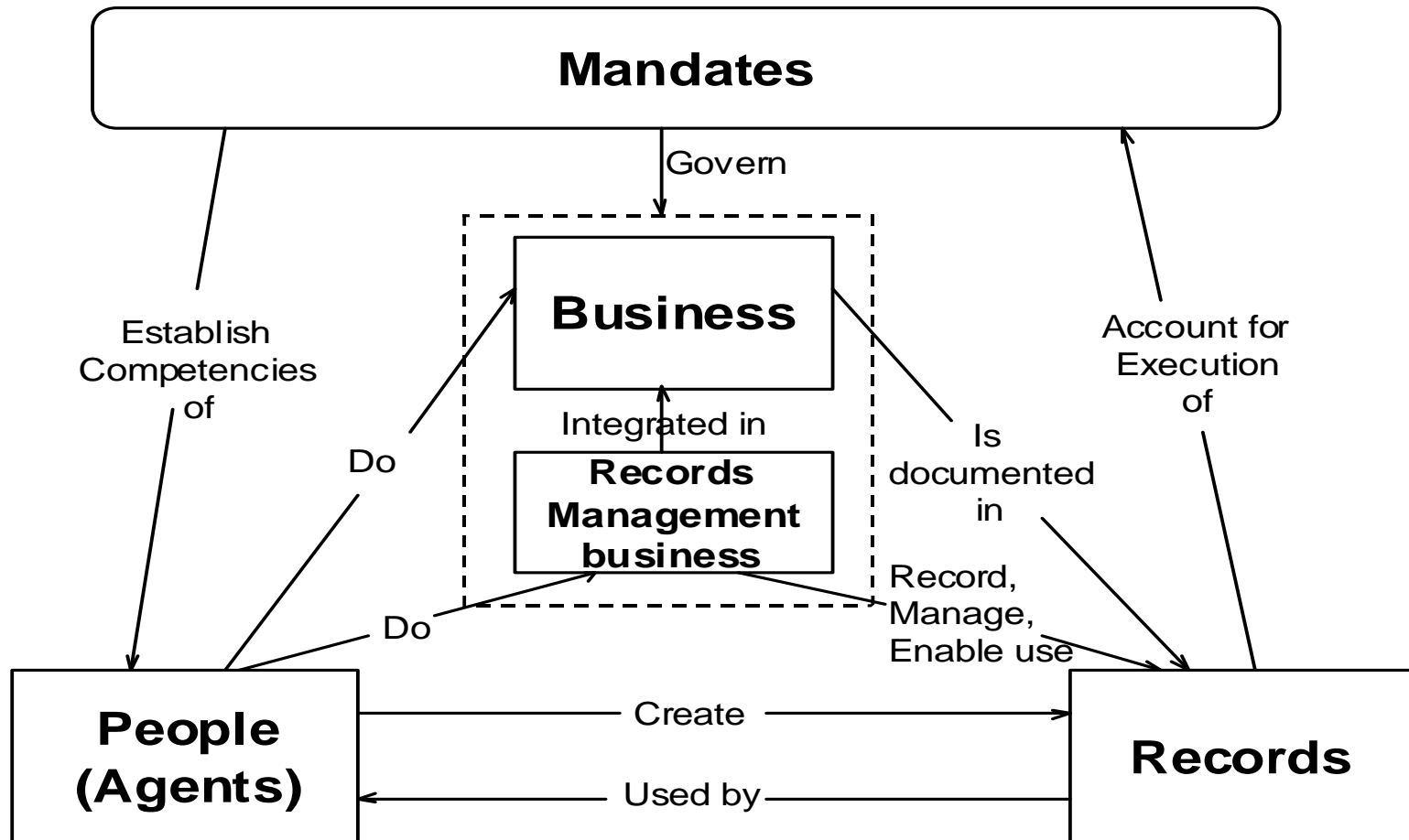
VAD ATT GÖRA? Steg II

- **Standarden gör inte jobbet…**

- **ISO/SIS gruppering – handbok/guideline**

- **Inventering - kan påbörjas och slutföras omedelbart**

- **Urval – diskutera förslag i standarden/RA mf.fl**

- **Tekniska/praktisk frågor**

Kanske;

- **ESA Preservation Workflow – Content**

- **geoMapp preservation workflow**

Vad att göra i steg II

- Standarden gör inte jobbet…

- ISO/SIS gruppering – handbok/guideline

- Inventering - kan påbörjas och slutföras omedelbart

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- ESA Preservation Workflow – Content

- geoMapp preservationworkflow

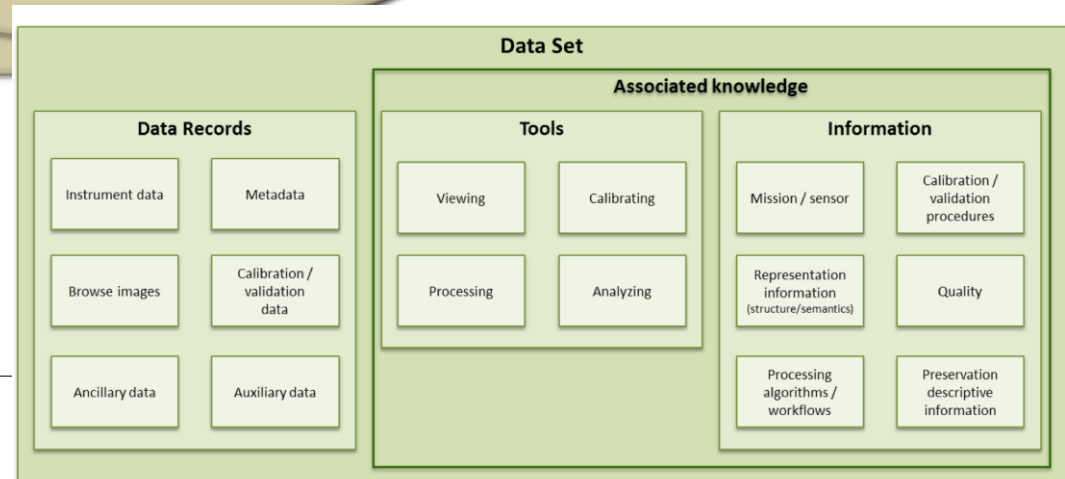# ESA Preservation Workflow – Content
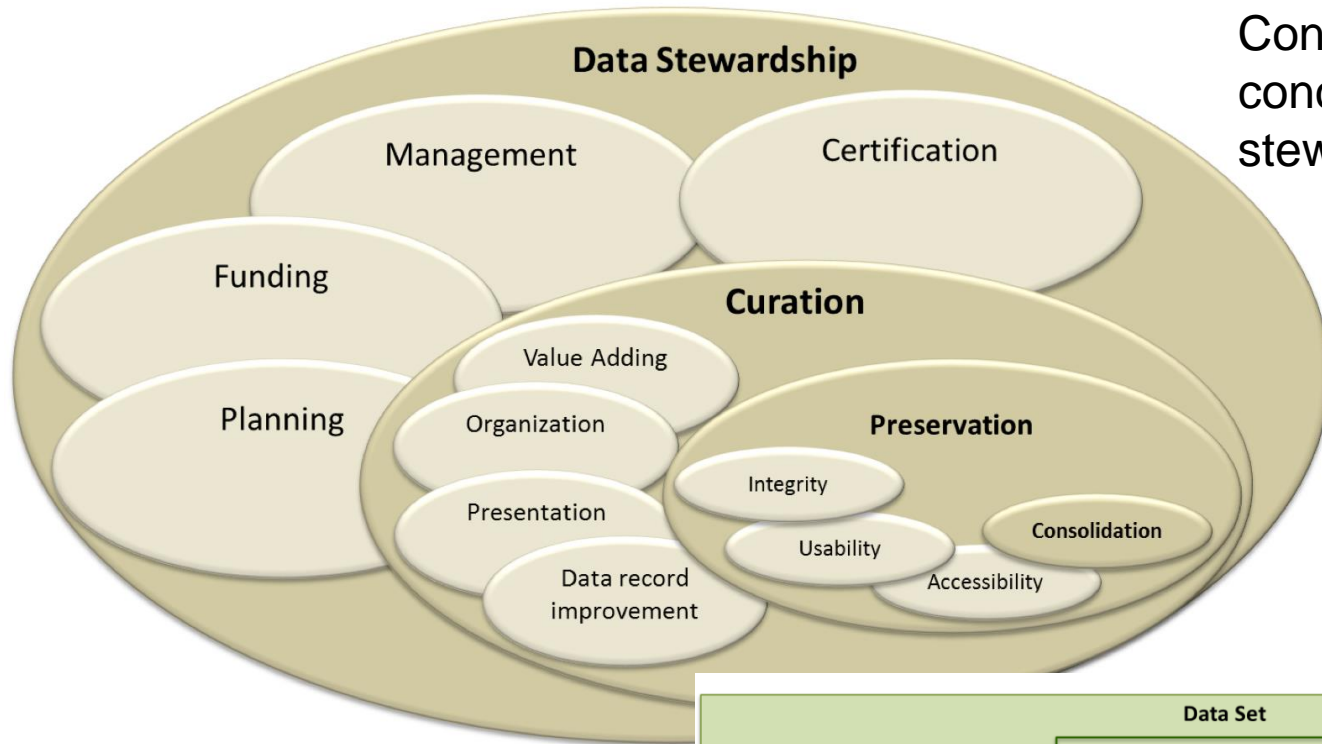
Content and relationship of concepts within data stewardship

Components of an Earth observation data set

TACK