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APA RSEN

Alliance Permanent Access to the Records of Science in Europe Network

Exemplar Introduction to APARSEN Meta-Data Packing Tools an Services

Matthias Hemmje – FTK

APARSEN-EGI-Community-Forum Training on Data Preservation, May , 22.05.2014

Co-funded by the European Union under FP7-ICT-2009-6

Successful Reference Innovation:
DP Infrastructure for Earth Observation Data

Co-funded by the European Union under FP7-ICT-2009-6

Proof-of Concept Outreach and successful Pilot Take-Up by SCIDIP-ES Innovation Partners

Science & Technology Facilities Council

ACS ADVANCED COMPUTER SYSTEMS

APA ALLIANCE FOR PERMANENT ACCESS

esa

Capgemini CONSULTING.TECHNOLOGY.OUTSOURCING

InConTec

ISPRA Istituto Superiore per la Protezione e la Ricerca Ambientale

DLR

gim

FTK navigating the networked economy

Istituto Nazionale di Geofisica e Vulcanologia

ENGINEERING

JACOBS UNIVERSITY

cnes

British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL

FORTH Foundation for Research & Technology, Hellas

UNIVERSITA' degli STUDI di ROMA TOR VERGATA UFFICIO PARCO SCIENTIFICO

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FTK Forschungsinstitut für Telekommunikation und Kooperation

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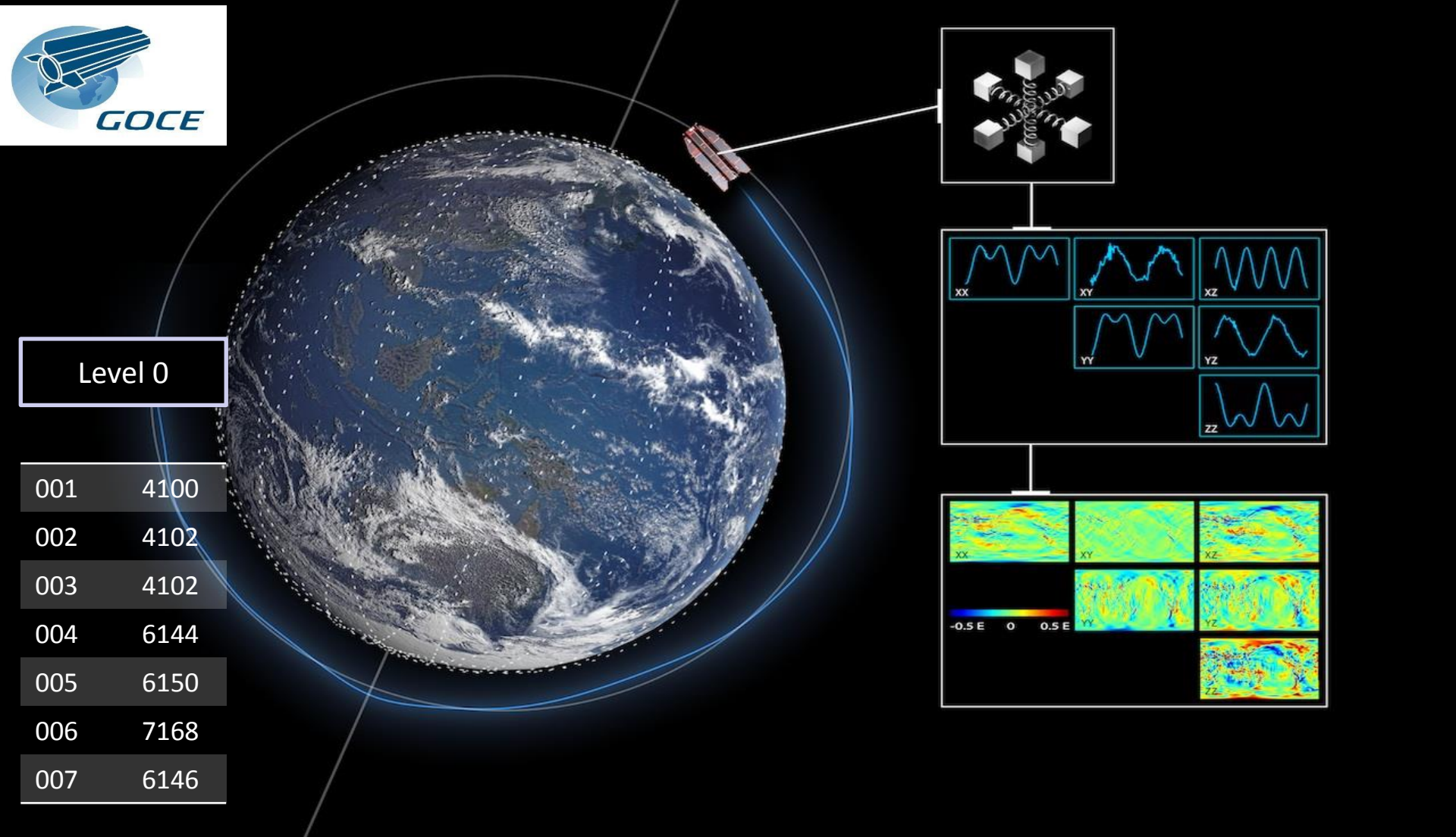
Pilot Scientific Data Domain: SCIP-ES Stakeholders, i.e., Prospective Users

Pilot Scientific Data Domain: Satelite Data Lifecycle - Acquisition of Data

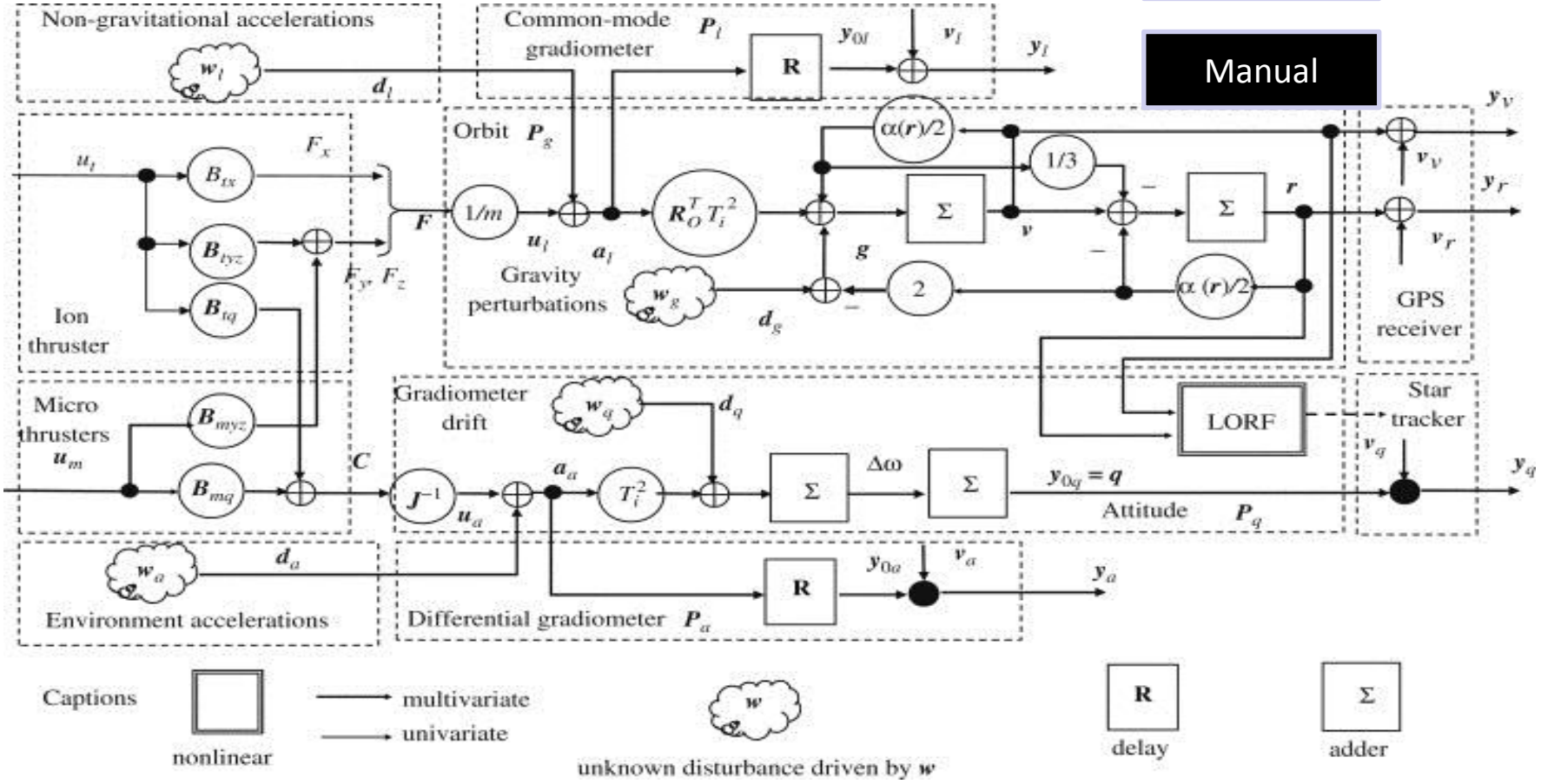
Co-funded by the European Union under the 7th Framework Programme



Pilot Scientific Data Domain: Data Lifecycle - Processing of Data

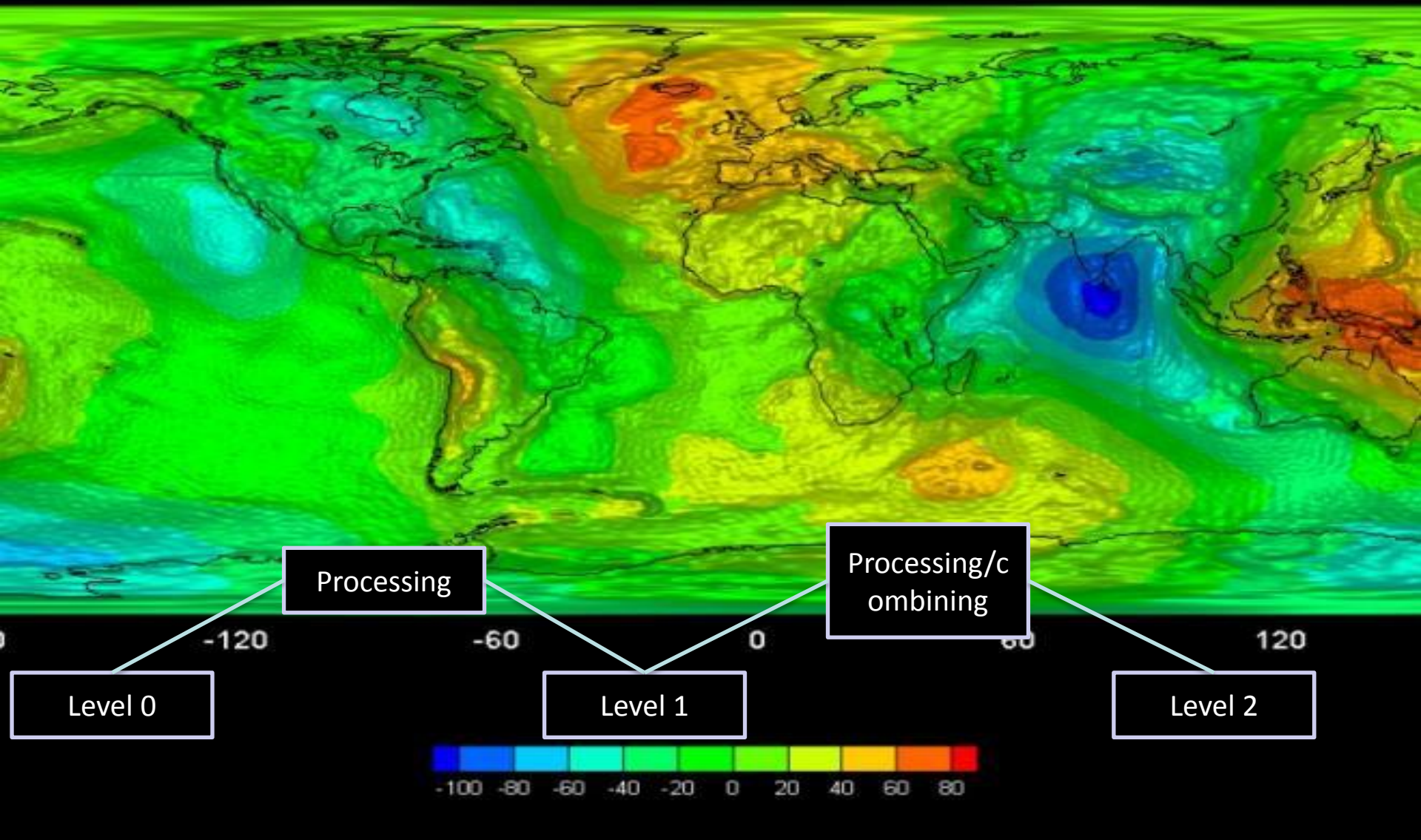
Algorithm

Manual



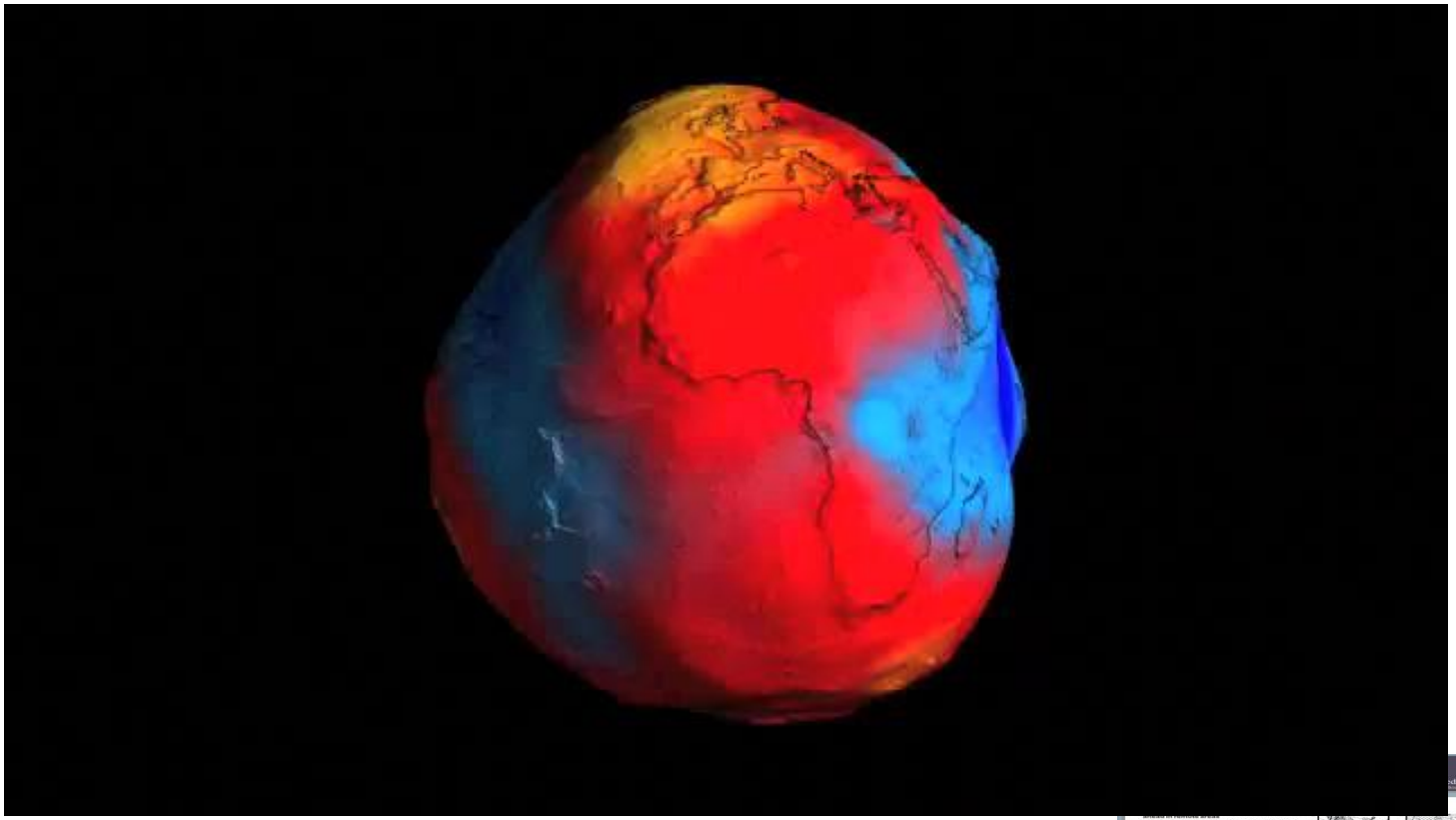
Pilot Scientific Data Domain: Data Lifecycle - Combination of Data

Co-funded by the European Union under the FP7 Programme



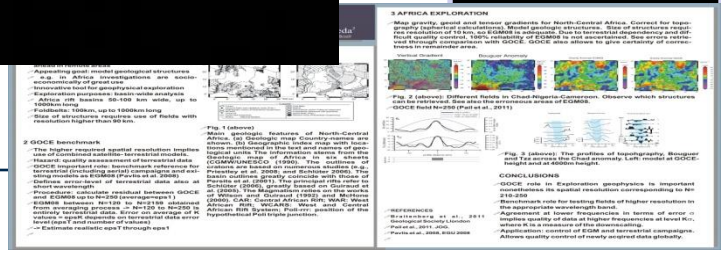
Co-funded by the European Union under the 7th Framework Programme

Pilot Scientific Data Domain: Data Lifecycle - Reuse of Data



GOCE

Publications



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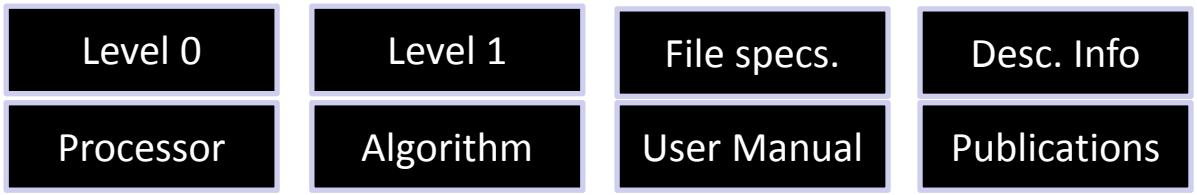
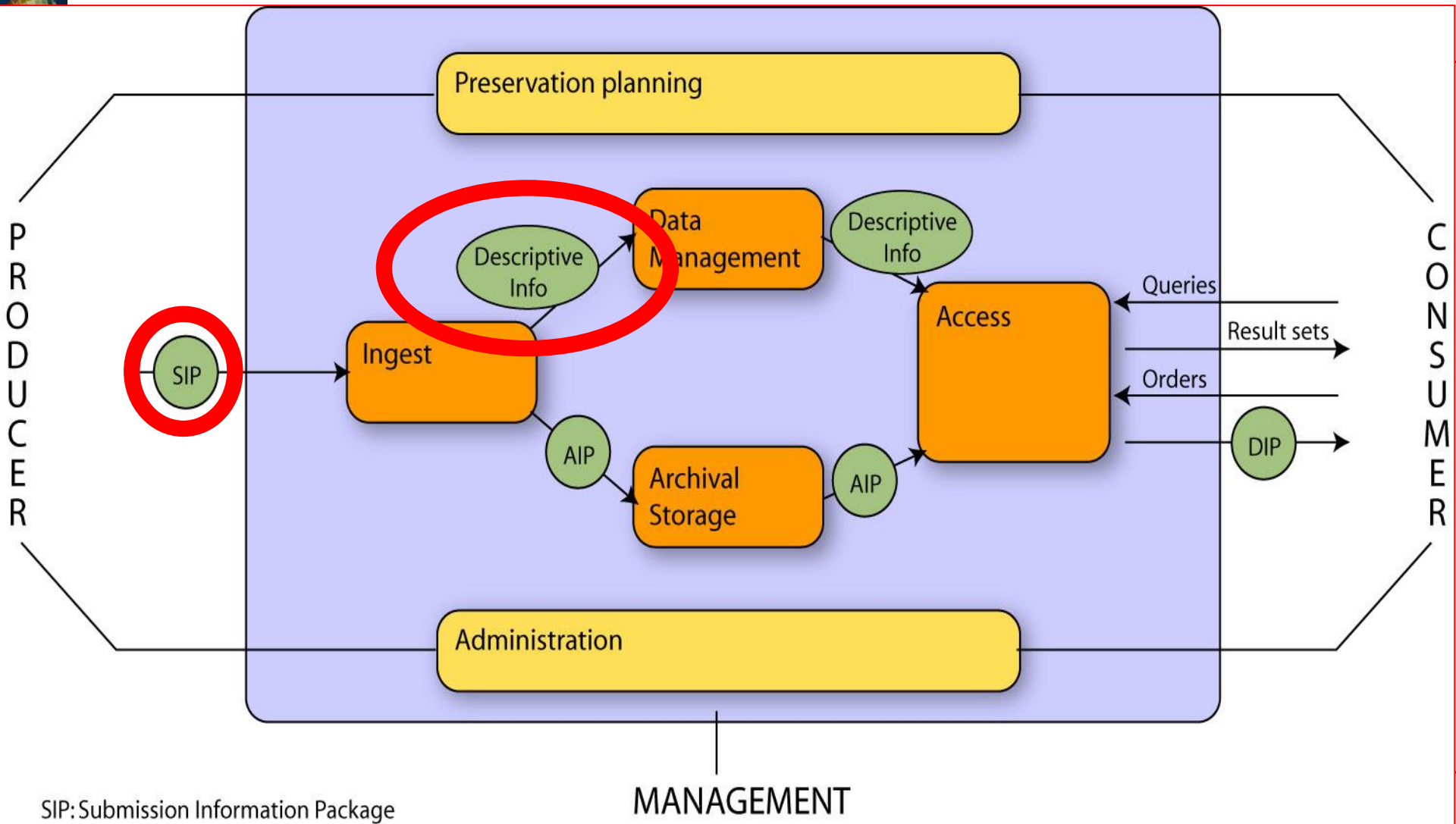
Piloting Specific Use Case Demand: Knowledge Preservation for Satelite Data



- ***The preservation of data (the "bytes") is useless without the preservation of the knowledge associated with the data (e.g. the "quality", the process to generate them)***

- We must:
  - Ensure and secure the preservation of archived data and associated knowledge for an unlimited time span.
  - Ensure, enhance and facilitate archived data accessibility.

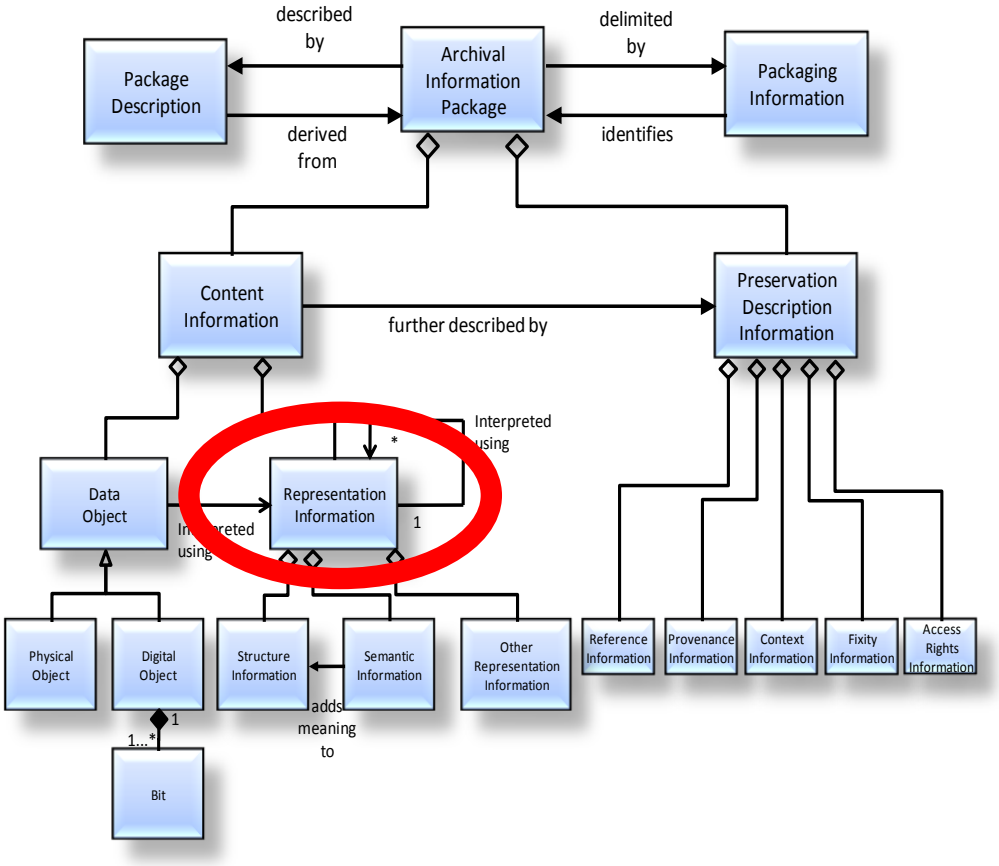
APARSEN Strength: Starting Point OAIS



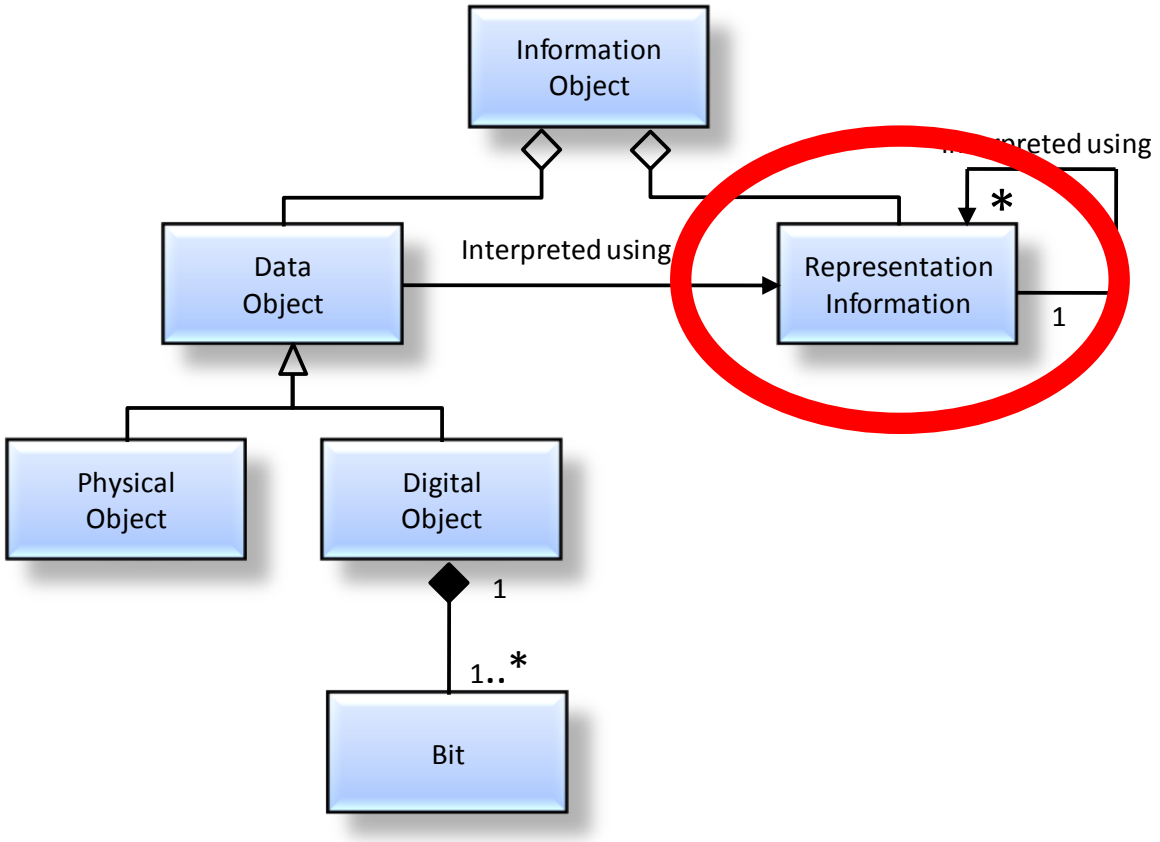
SIP: Submission Information Package
AIP: Archival Information Package
DIP: Dissemination Information Package

Co-funded by the European Union under FP7-ICT-2009-6

Unifying Open Standard – Managing DP Meta Data Challenge: Meta-Information for Preservation (I)



Unifying Open Standard – Managing DP Meta Data Challenge: Meta-Information for Preservation (II)



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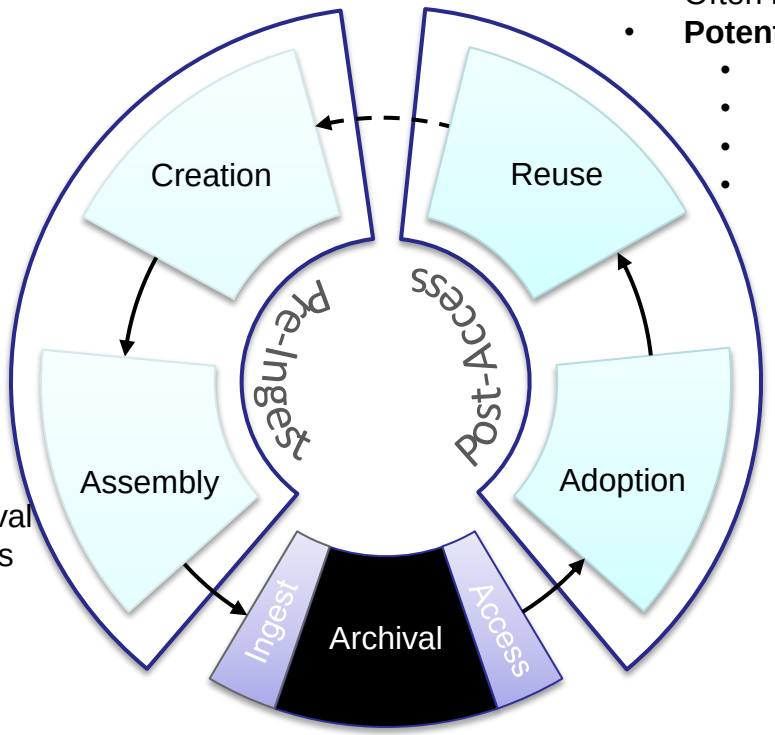
DP Meta-Data in the Archive-centric Information Life-Cycle Distribution, Processes and Integration of Archive Systems

- **Production** of new digital objects
- **Use** according to original purpose
- Archival often right after creation, in parallel to use



- **Exploitation** of digital object by consumer
- Often **re-purposing** of digital objects
- **Potential outcome**
  - Creation of new digital objects
  - Revision of digital objects
  - Extension or update of metadata
  - Annotation

- **Appraisal** of objects relevant for archival
- **Compilation** and enrichment of objects to preserve
- Creation of Submission Information Package (*SIP*)

- **Receiving and Examination** of Dissemination Information Packages (DIP)
- **Adaption and integration** of digital objects into working environment
- **Recontextualize** digital objects and accompanying information for prospective reuse

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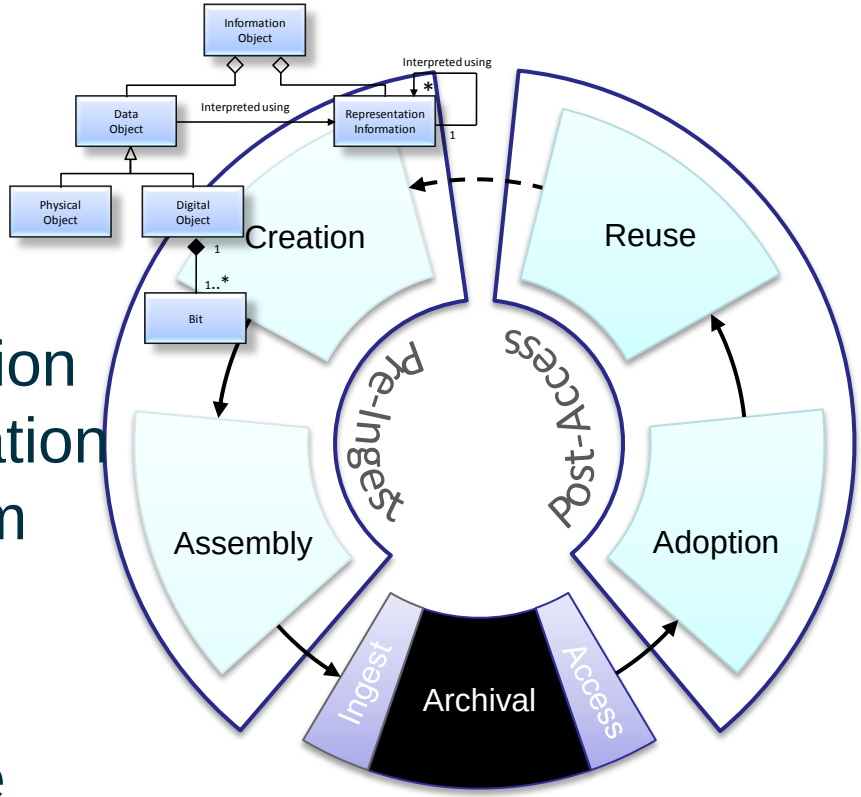
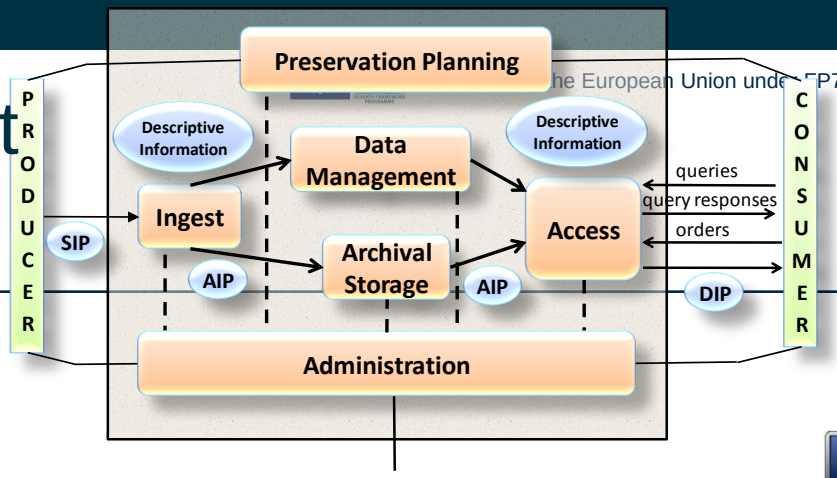
APARSEN USP: Archive-Centric Knowledge Preservation Lifecycle

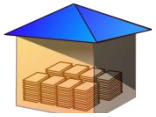
- Move through Repositories along Life Cycle
- For Meta-information Preservation and re-use: harvest Representation Information or Extract/Transform
- Alternatively move to another/next repository/lifecycle



Exemplar Innovation Pilot
AIP-Toolkit (SCIDIP-ES)

he European Union under FP7-ICT-2009-6





REGISTRY

GAP MGR

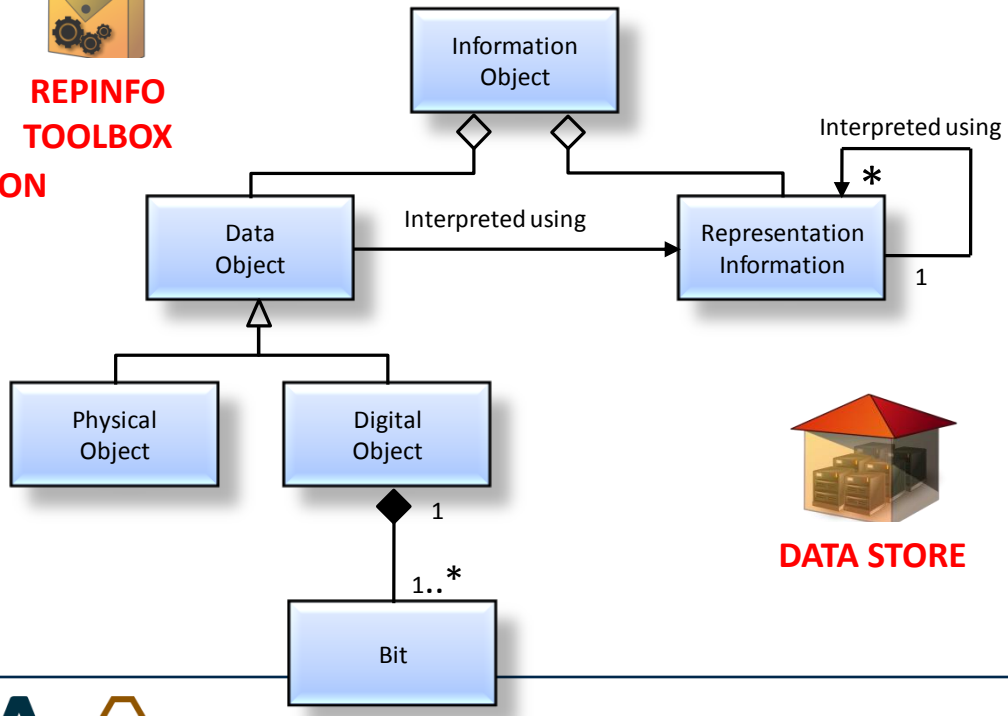
PACKAGING

AUTHENTICITY

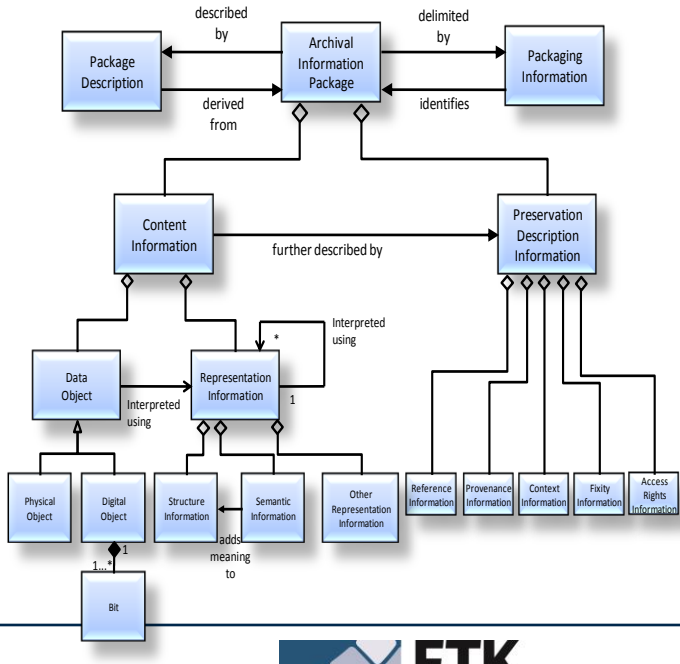
FINDING AIDS

REPINFO TOOLBOX

ORCHESTRATION



DATA STORE



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APARSEN Tools and Services: Registry of Services and Tools for DP

- Various Registries exist, among others: *COPTR, DCH-RP tool-registry, APARSEN*
- Differ in: methodology, provided data
- APARSEN Evidence-Based DP Tools Registry/Repository.
  - Provision of evidence, where the software has been found effective in preservation.
  - Besides links and description to S&T
    - Description and links to applied testbeds
    - Description of scenarios
    - User ratings
- In terms of OAIS, those evidence information is ***Representation Information*** (the information that maps a Data Object Into more meaningful concepts).

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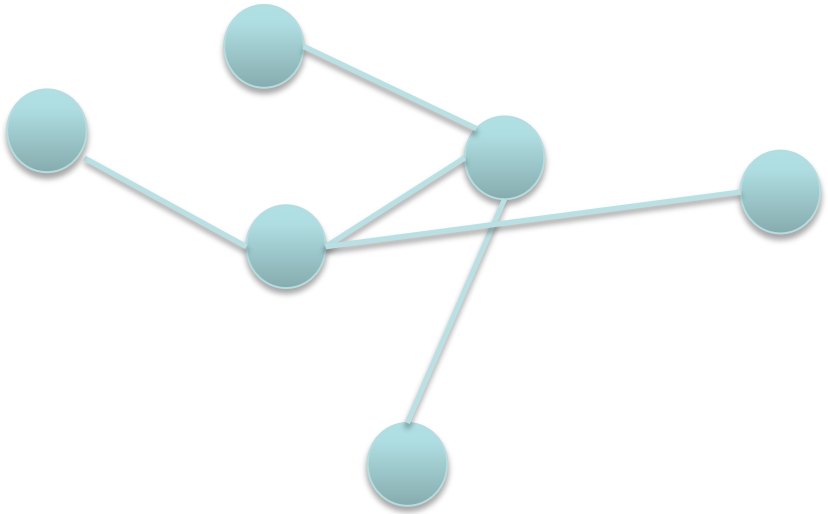
APARSEN Tools and Services: DP in SCIDIP-ES

- In terms of OAIS, this evidence information is ***Representation Information*** (*the information that maps a Data Object Into more meaningful concepts* [CCSDS]).

- ***Representation Information Network***: The set of Representation Information, that fully describes the meaning of a Data Object.



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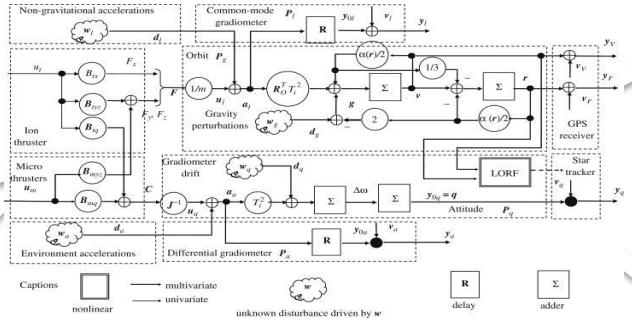
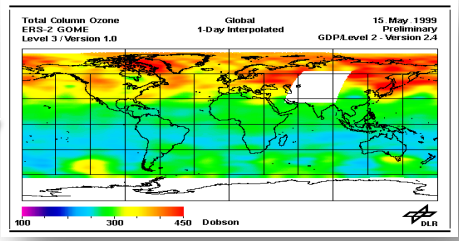
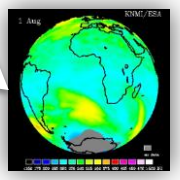
APARSEN Tools and Services: DP in SCIDIP-ES

- SCIDIP-ES project: building an e-infrastructure for Earth Observation Data. Several joint activities between APARSEN and SCIDIP-ES.
- ESA Preserved Data Set Content
  - Data Records (from raw data to high level products)
  - Processing software (e.g. processors for visualization)
  - Mission Documentation







latitude	longitude	Ozone	Time
132	50	34.9	12/03/1999
178	50	45	12/03/1999
190	50	78	12/03/1999

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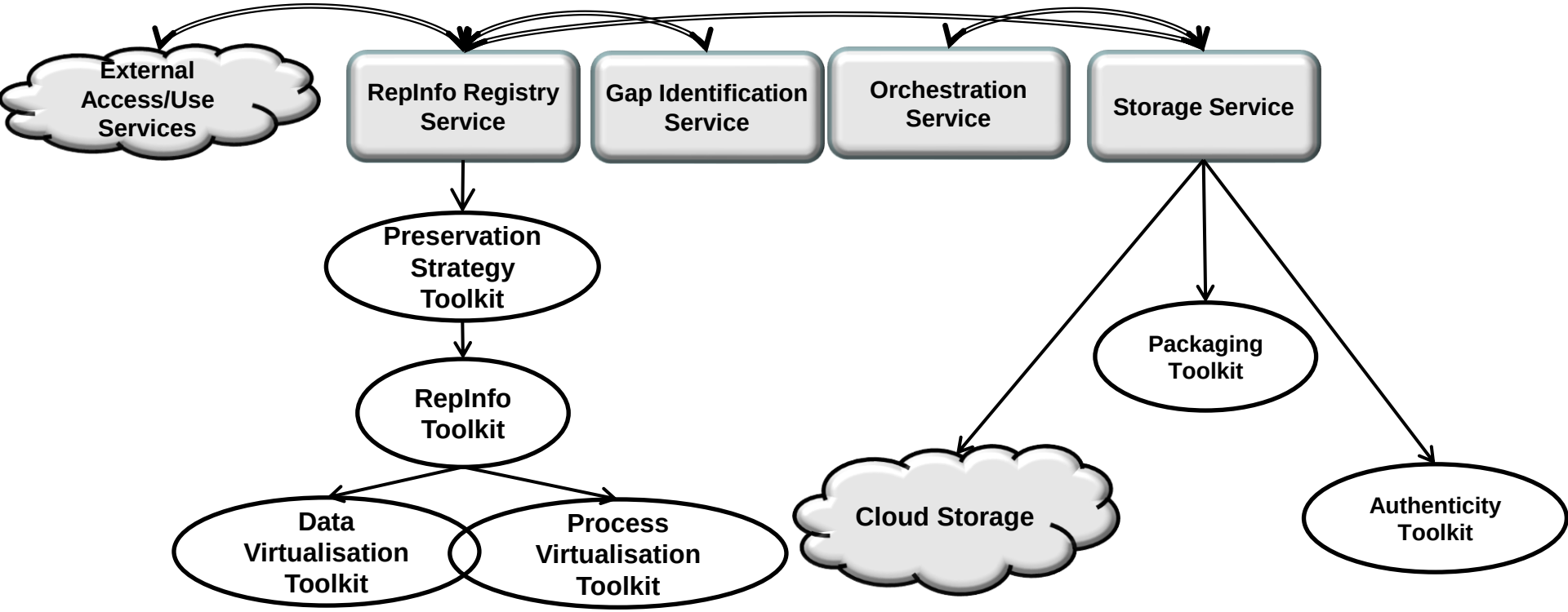
APARSEN Tools and Services: From Registration to Packaging&Storage

- The preservation of EO data (the “bytes”) is useless without the preservation of the knowledge associated with the data



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APARSEN Tools and Services: RepInfo Registry Service

- **Repinfo Registry Service:** A Container of Knowledge
  - Structure: headers, footers, instrument measures, annotations, fixed parts, variable parts
  - Meaning:
    - Basic information (The so-called “metadata”: acquisition time, lat/lon, etc.)
    - Auxiliary Information, such as Sensor Description, physical parameters measured by the sensor, etc.
    - Usage Information: how this digital object can be exploited by different user communities
  - Rendering Information: describing what additional software can be used to display/process/edit the digital object.

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APARSEN Tools and Services: Gap Identification Service

- Know that a change has happened
  - Hardware, software, environment, tacit knowledge
- Understand the implications – is there a "gap in understandability"
- Decide on the "best" course of action for preservation
- If Transformed – how to maintain authenticity
- Alternatively hand it on to another repository
  - As "Archival Information Packages"

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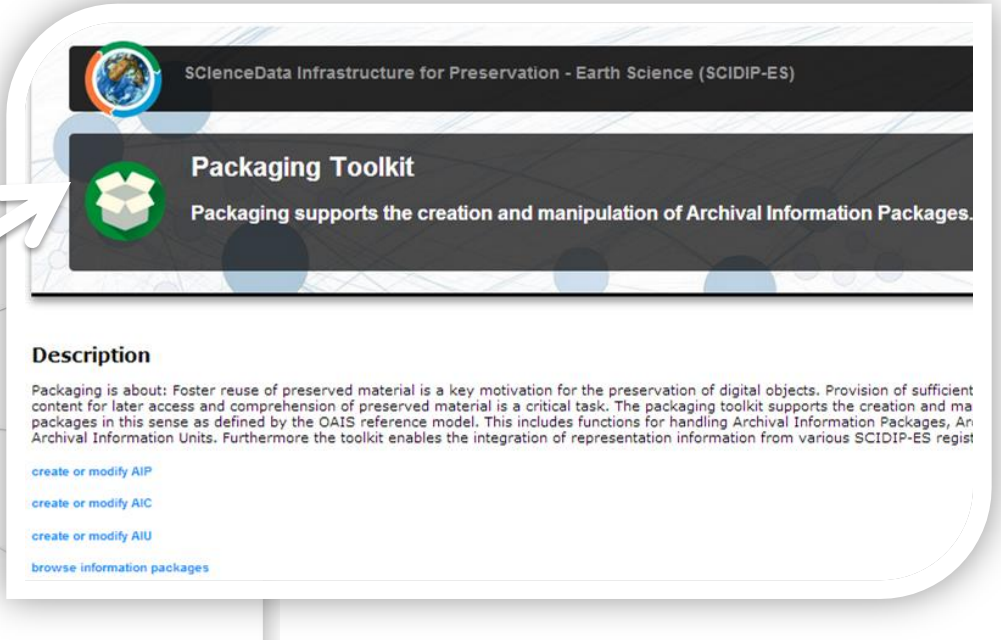
APARSEN Tools and Services: Archive Information Packaging Tool (I)

- Select S&T through Dashboard:



- Select RTD by Use Cases:

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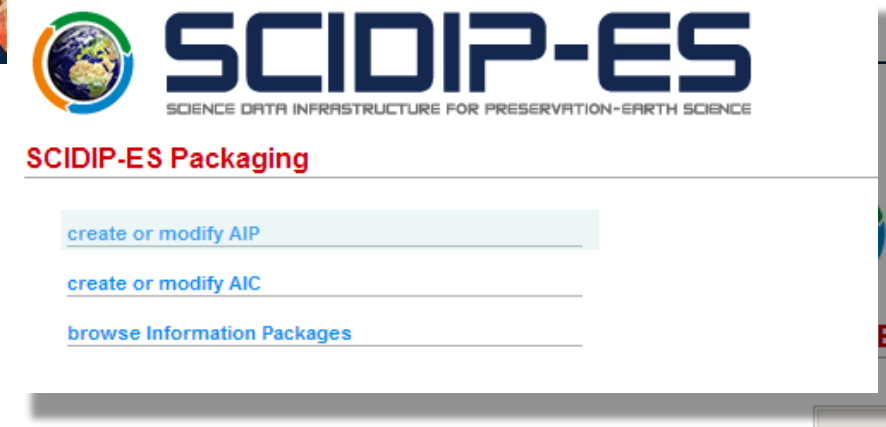
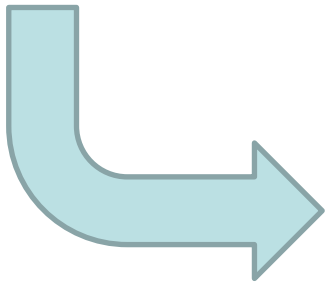
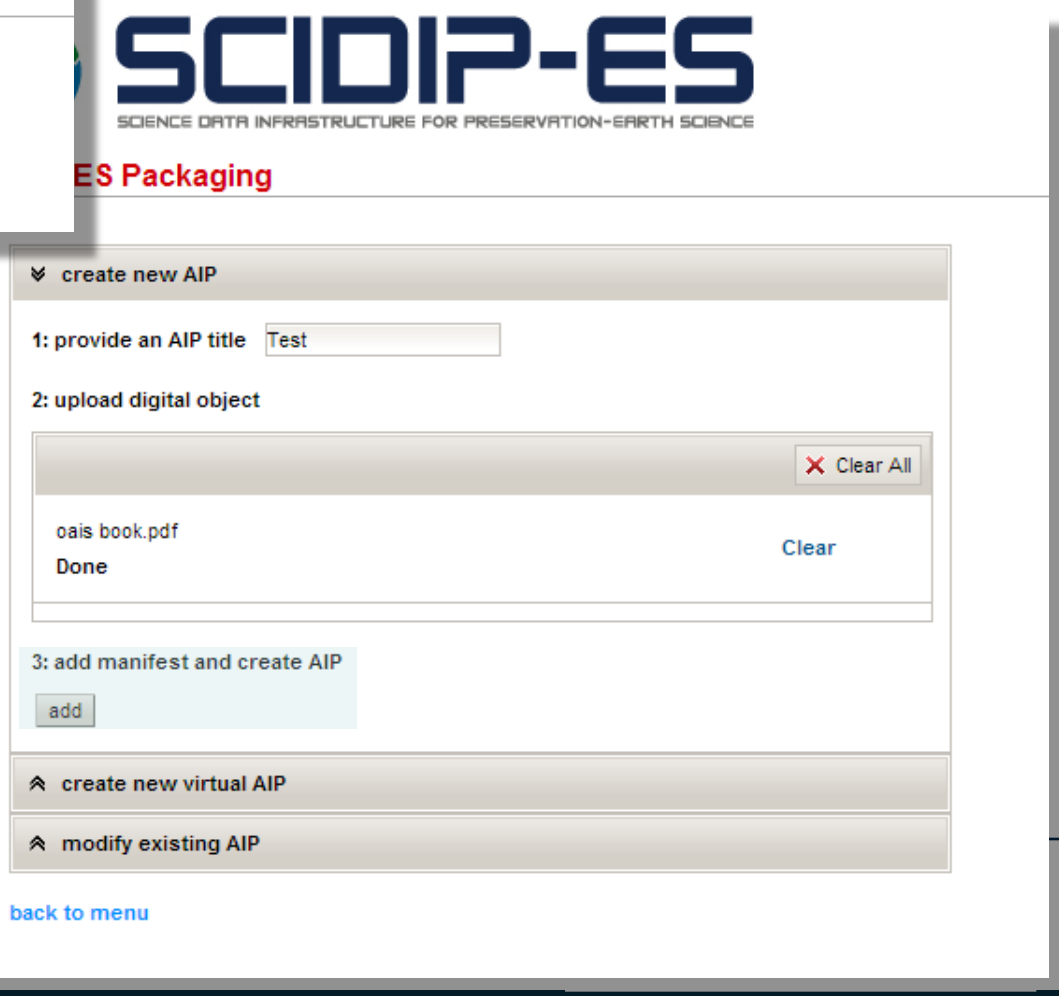
Archive Information Packaging Tool (II)







Create new AIP

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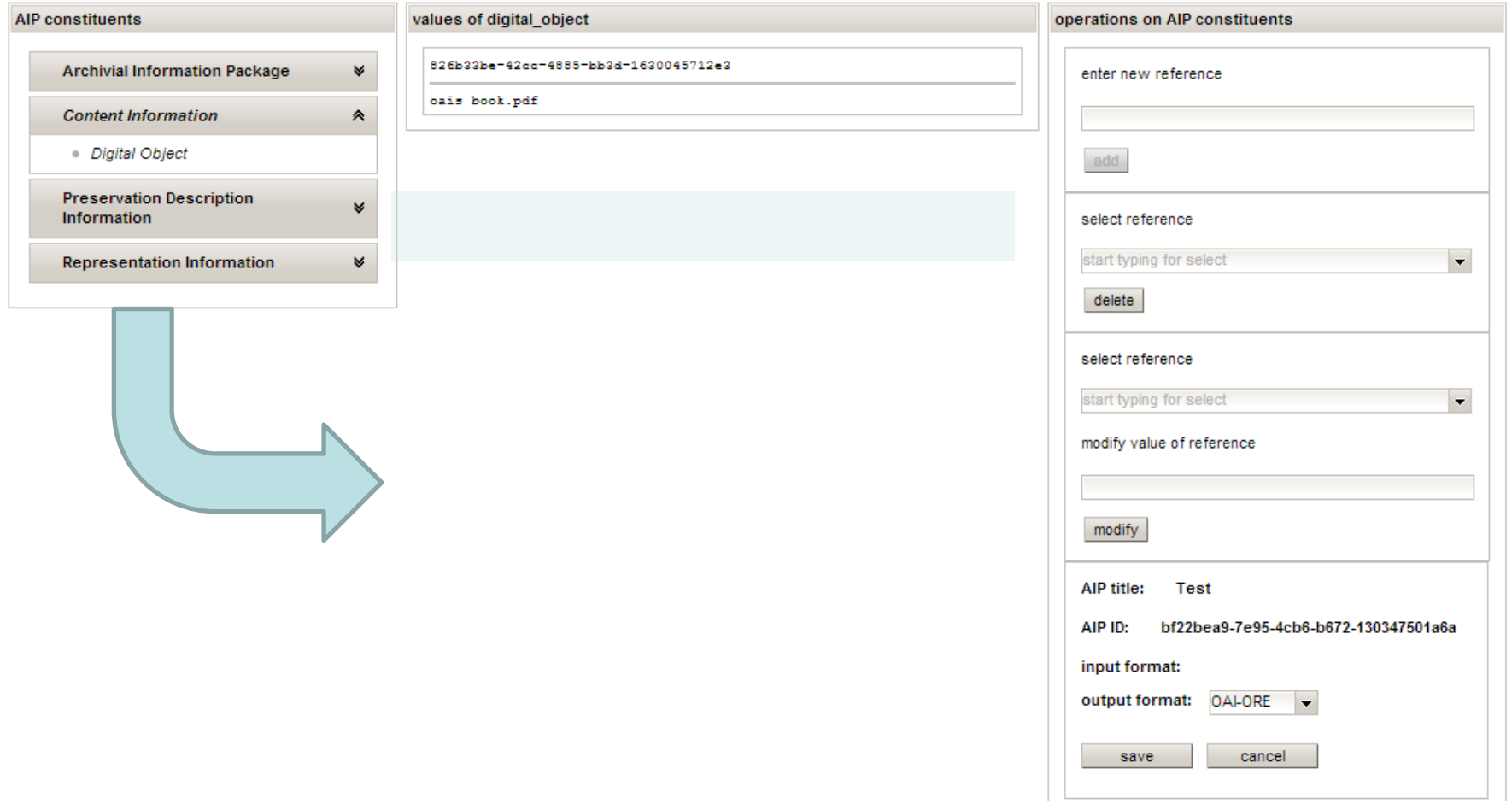
APARSEN Tools and Services:

Archive Information Packaging Tool (III)



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APARSEN Tools and Services: Archive Information Packaging Tool (III)

SCIDIP-ES
SCIENCE DATA INFRASTRUCTURE FOR PRESERVATION-EARTH SCIENCE

SCIDIP-ES Packaging

list of information packages

packagename	packagetype	action
AIP_OAI-ORE_abc_33c6a4bc-4c2b-4505-abb5-0a374aca347c.zip	OAI-ORE	
AIP_OAI-ORE_abc_41a9b6c7-e5d4-4e36-ab21-b83826506f8e.zip	OAI-ORE	
AIP_OAI-ORE_Test__bf22bea9-7e95-4cb6-b672-130347501a6a.zip	OAI-ORE	

back to menu

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APARSEN Tools and Services: Registry of Services and Tools for DP

- APARSEN vision
  - create and populate a knowledge base with preservation related software.
  - consolidation of distributed located preservation related software in one access point.

- Need for **Registry Alignement** to share community specific knowledge about existing DP Services and Tools
  - to share efforts and knowledge.

Further Exemplar Offerings beyond Meta-Data Packaging

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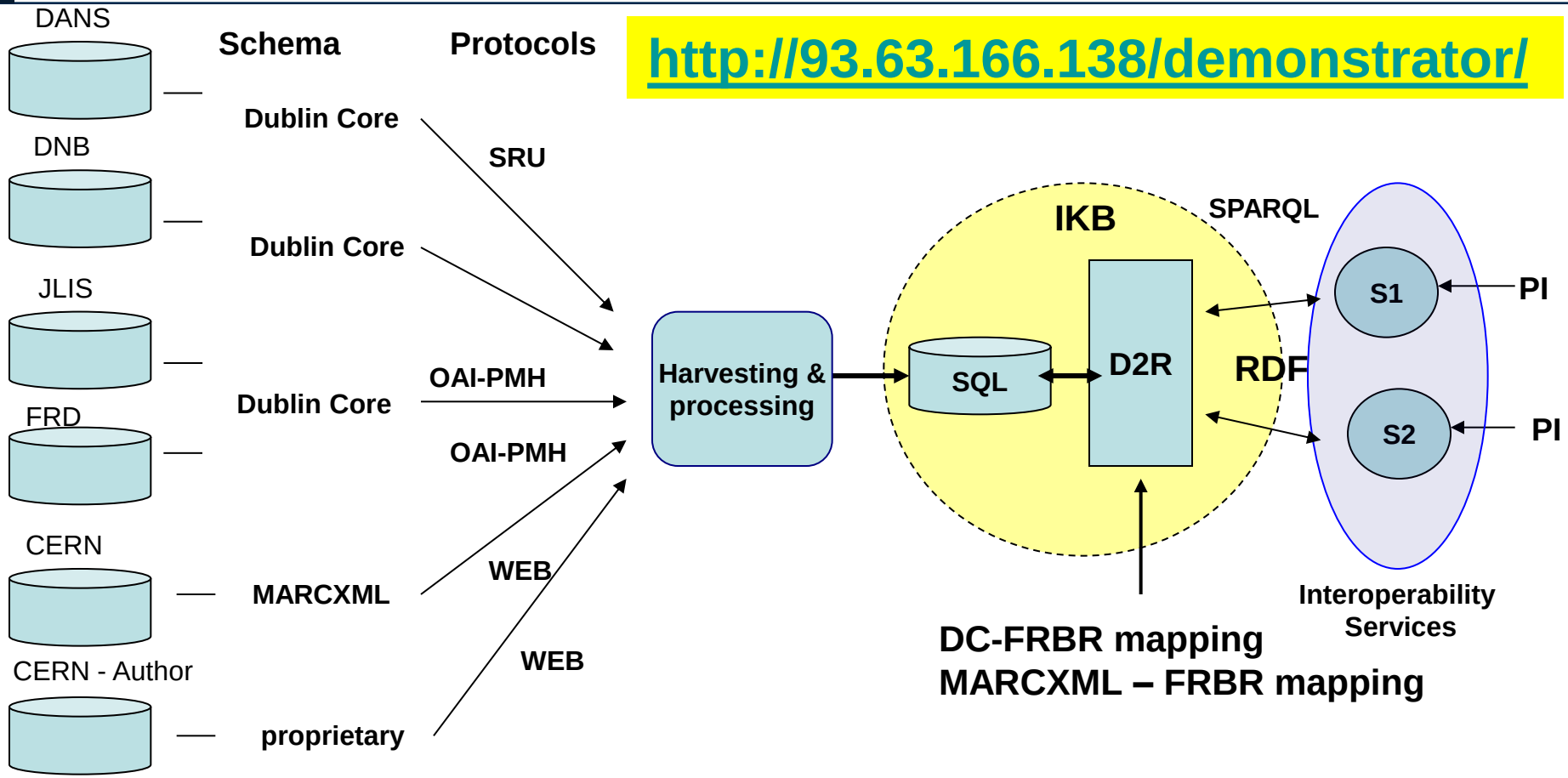
Further exemplar offerings of the APARSEN VCOE: Persistent Identifier Interoperability Framework



http://93.63.166.138/demonstrator/

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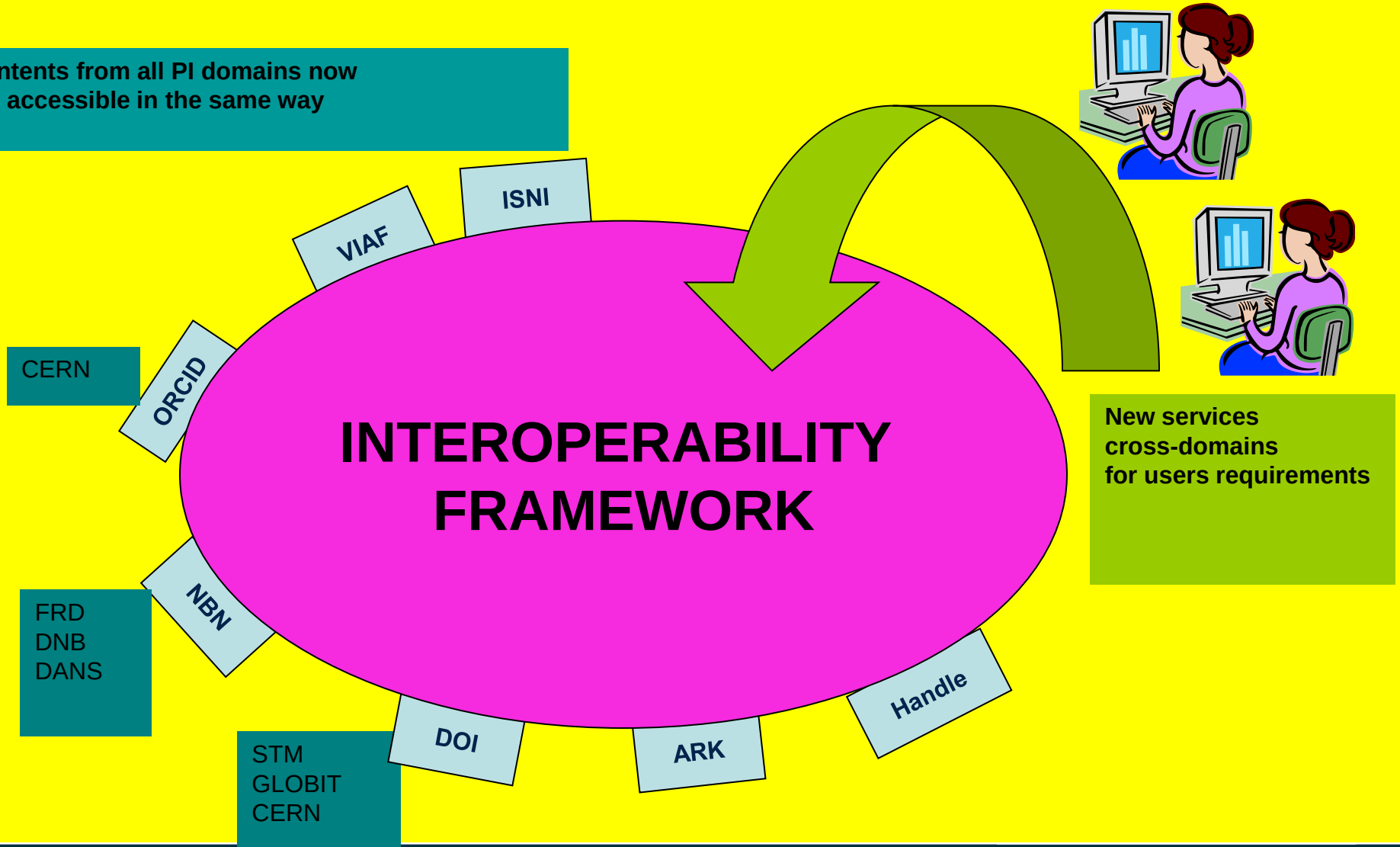
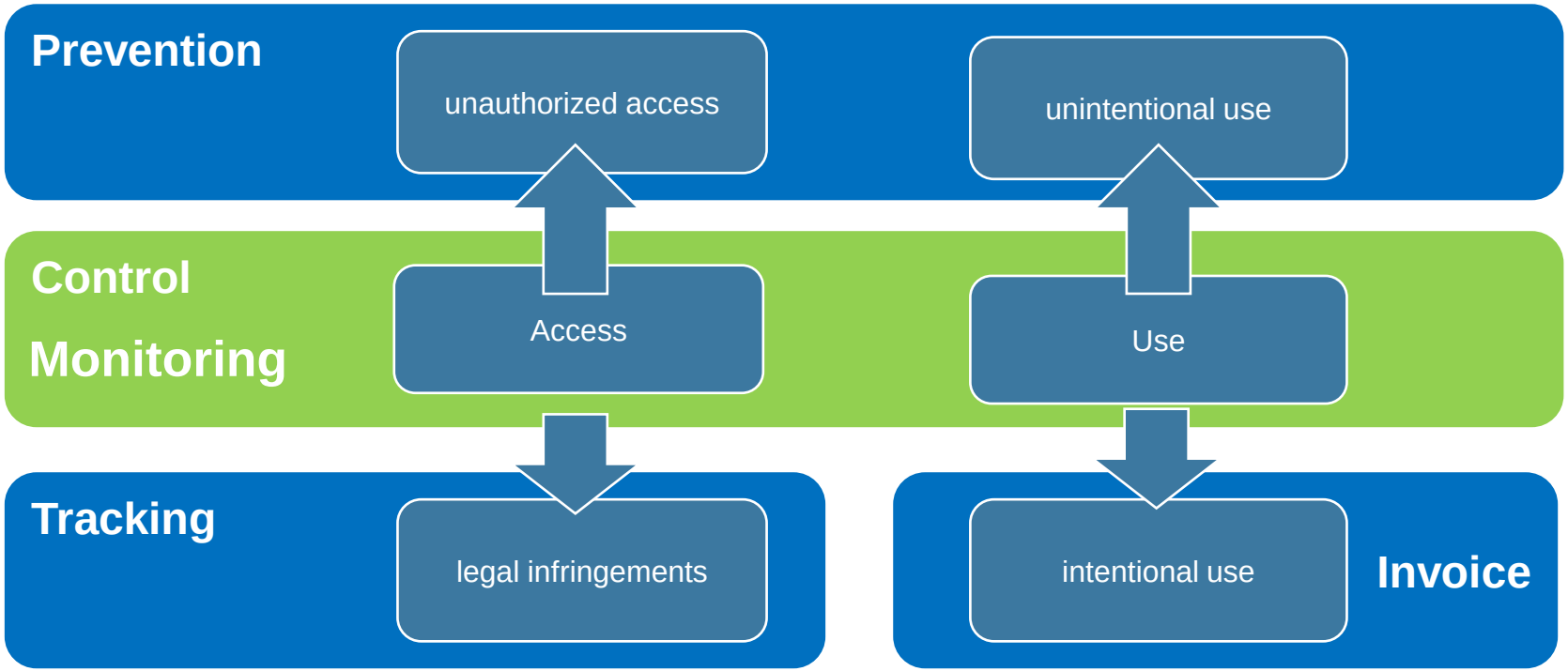
Further exemplar offerings of the APARSEN VCOE: Persistent Identifier Interoperability Framework

Contents from all PI domains now are accessible in the same way



Further exemplar offerings of the APARSEN VCOE: Digital Rights Management (DRM)

- Layers and Service Categories in DRM



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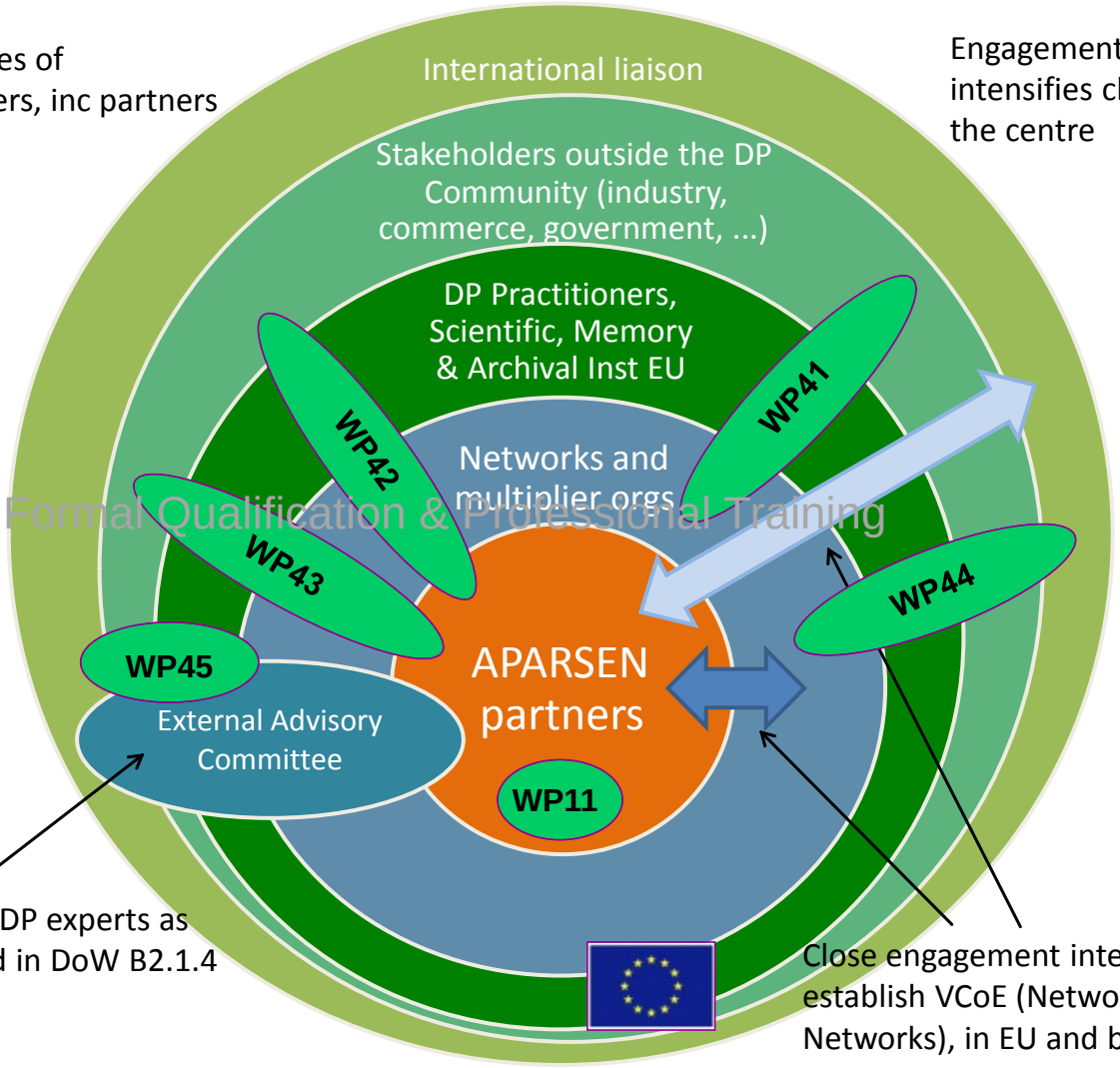
Further exemplar offerings of the APARSEN VCOE: Web-based Training (WBT) and Continuous Professional Education (CPE)

6 Categories of Stakeholders, inc partners

Engagement intensifies closer to the centre



Individual DP experts as mentioned in DoW B2.1.4

Close engagement intended to establish VCoE (Network of Networks), in EU and beyond

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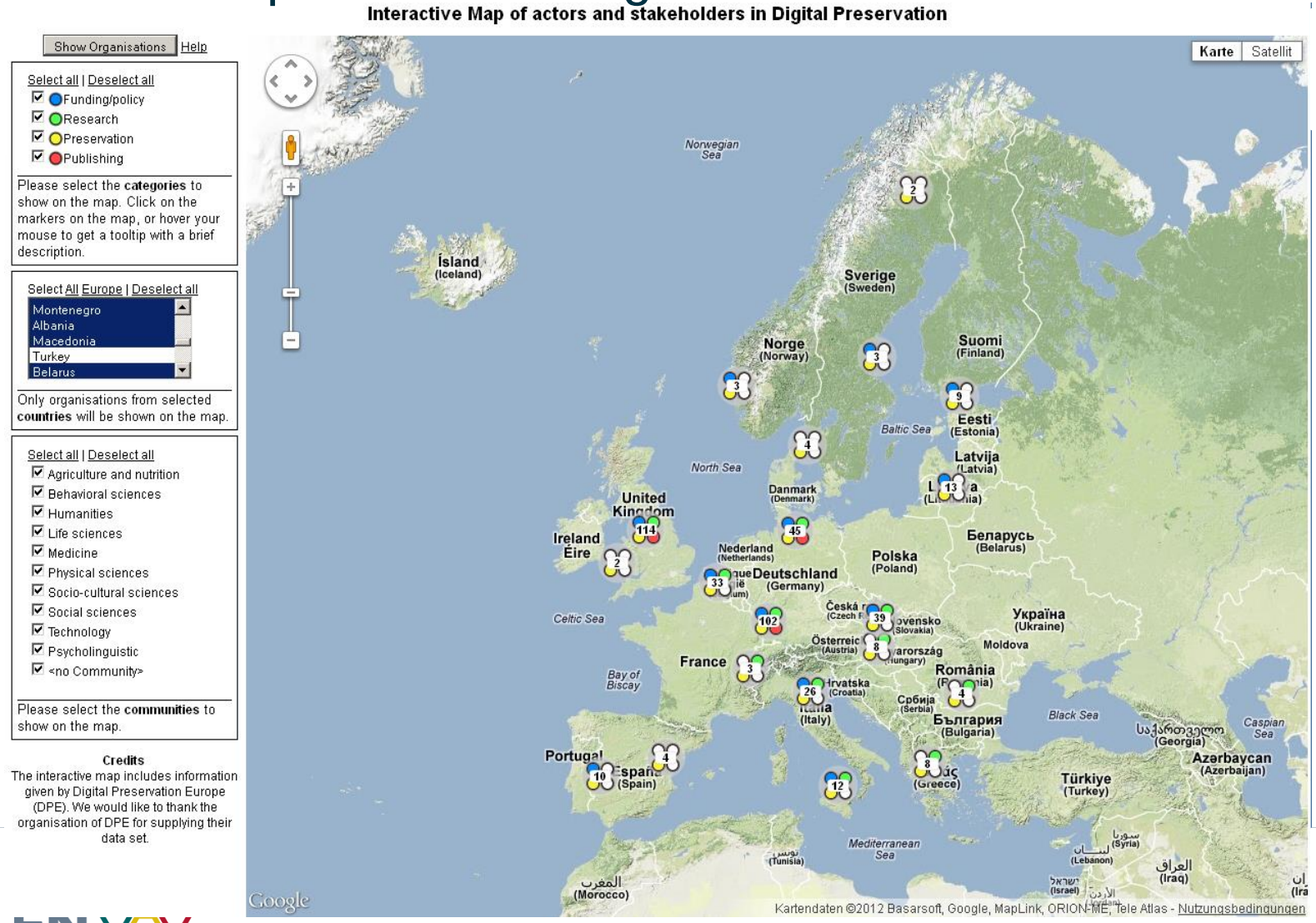
Further exemplar offerings of the APARSEN VCOE: Webinars and E-learning, Online Training Portal for CPE

Co-funded by the European Union under FP7-ICT-2009-6

Further exemplar offerings of the APARSEN VCOE: Interactive Map Resource Registration and Mediation



Operated by: APA Alliance for Permanent Access

Powered by: APARSEN Alliance Permanent Access to the Records of Science in Europe Network

Working towards the **Virtual Centre of Excellence**

Keeping digital resources accessible, understandable and easy to find

View more

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Excellence in Digital Preservation

About Digital Preservation

Digital encoding has become the dominant way in which we create, shape and exchange information, but this dependence carries many risks.

- **As digital technology advances, hardware and software may become outmoded and information may become inaccessible.**
- **Other users may be unable to understand or use data.**
- **Access and use restrictions may make it difficult for others to re-use data.**
- **The ability to identify the location of data may be lost.**
- **The current custodian of the data may cease to exist.**
- **The ones we trust to look after the digital holdings may let us down.**

Today's research community must assume responsibility for building a robust data and information infrastructure for the future. Digital preservation is too big an issue for individual institutions or even sectors to address on their own. The answer to these challenges calls for coordinated approaches on both national and international level.

Downloads

APARSEN brochure on Trust *(hi-res) (see here for more from APARSEN)*

Download

NEW

Summary of the studies, thematic publications and recommendations *(see here for more from ODE))*

Download

View full list of downloads here

Community

Training

Knowledge Base

Consultancy

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Thanks for your attention

Any Questions?

Prof. Dr.-Ing. Matthias L. Hemmje

APARSEN Stream Leader Sustainability

Member of the Executive Board

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Germany