



NUI Galway
OÉ Gaillimh



Integrating Metadata Repositories into the Web of Data

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SUPERVISOR:

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ISWC 2012 - Boston, MA, USA

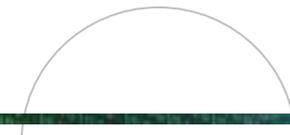
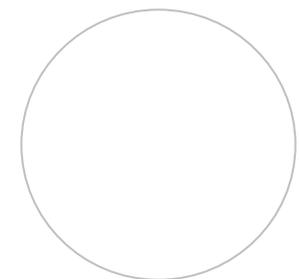
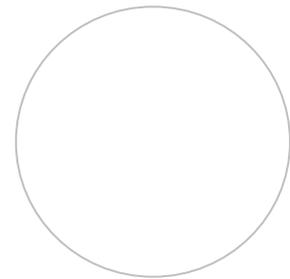
12th November 2012

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Enabling **Networked Knowledge**

- **Definitions and Motivation :**
 - Semantic Interoperability
 - Semantic Interoperability Asset
 - Asset Repository
- **Challenges**
 - Asset Repository Integration
- **Methodology**
 - Repository Study
 - ADMS
 - Repository Federation



- Lack of commonly agreed and widely used data models.
- Absence of common reference data.

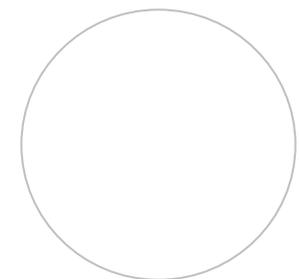
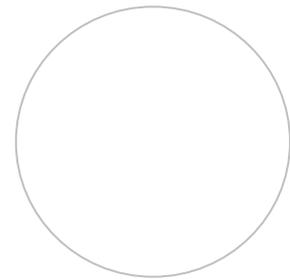


" **Semantic interoperability** enables organisations to process information from external sources in a meaningful manner. It ensures that the precise meaning of exchanged information is understood and preserved throughout exchanges between parties"

*European Interoperability Framework (EIF)
for European public services.*



Assets are any technical, legal or organisational resource that can be reused within and outside public administration and governments body to facilitate interoperability





- List of the Irish counties
- Electoral Divisions
- W3C Standards, e.g, SKOS ,OWL , RDF..etc
- Core Vocabularies, i.e, Core Person, Core Location and Core Business.
- Geo-spatial References
- Ontologies
- Codelists



A **Semantic Asset Repository** is a system or service that provides facilities for storage and maintenance of descriptions of Semantic Assets and Semantic Asset Distributions, and functionality that allows users to search and access these descriptions



Kategoriensystem

Suche

XRepository

 Suchen

Kennung

Passwort

Anmelden

[» Zur Registrierung](#)

[» Passwort vergessen](#)

Das XRepository bietet Informationen und Zugriffsmöglichkeiten auf frei verfügbare fachspezifische und fachübergreifende Datenmodelle und XML-Standards der öffentlichen Verwaltung. Es wird von der Bundesstelle für Informationstechnik (BIT) betrieben und soll unter der Zuständigkeit des Deutschland-Online Vorhabens "Standardisierung" der weiteren Entwicklung von XML basierten Standards zum Nachrichtenaustausch (XÖV-Standards) dienen.

- XÖV-Vorhaben (21)

11.09.2012 [» XAusländer](#)

29.08.2012 [» XKfz](#)

06.08.2012 [» XWaffe](#)

[» alle XÖV-Vorhaben anzeigen](#)

+ Spezifikation (50)

+ Codeliste (98)

+ Kernkomponente ()



Neuen Inhalt ins XRepository einstellen

Neue Inhalte

26.09.2012 [» Destatis.Staat \(v2012-09-01\)](#)

26.09.2012 [» Destatis.Staat \(v2011-09-01\)](#)

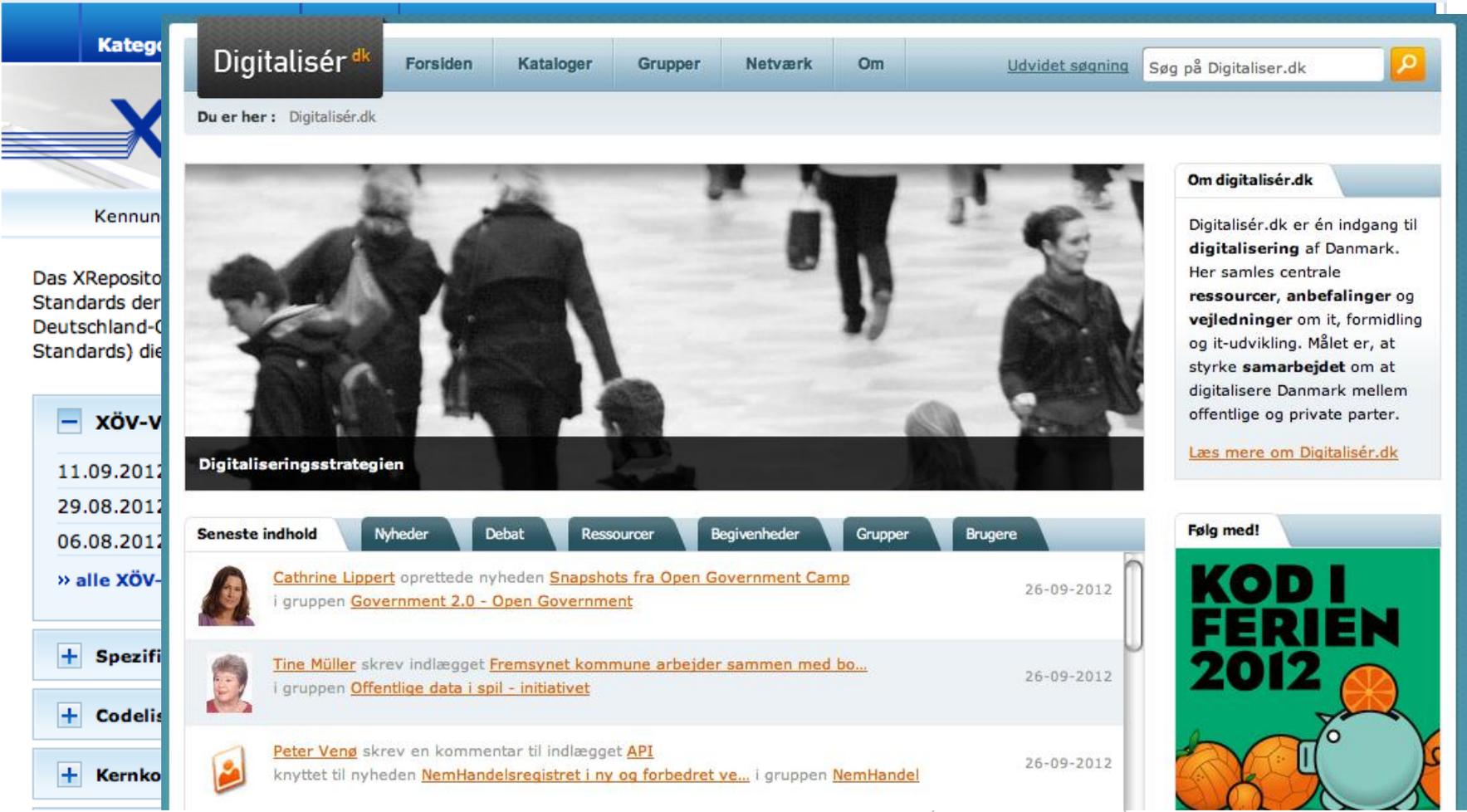
25.09.2012 [» Destatis.Staatsgebiete \(v2012-09-01\)](#)

25.09.2012 [» Destatis.Staatsangehörigkeit \(v2012-09-01\)](#)

12.09.2012 [» DSRV-Fehlerkatalog \(v2012-05-01\)](#)

[» zur Übersicht](#)

Hilfe



The screenshot shows the homepage of Digitaliser.dk. At the top, there is a navigation bar with links for 'Forsiden', 'Kataloger', 'Grupper', 'Netværk', and 'Om'. A search bar on the right contains the text 'Søg på Digitaliser.dk'. Below the navigation bar, a breadcrumb trail reads 'Du er her : Digitaliser.dk'. The main content area features a large image of people walking, with the title 'Digitaliseringsstrategien' overlaid. To the right of this image is a text box titled 'Om digitaliser.dk' which describes the website as a central hub for digitalization in Denmark, listing resources, recommendations, and guidance. Below the main image is a section for 'Seneste indhold' (Latest content) with a sub-navigation bar for 'Nyheder', 'Debat', 'Ressourcer', 'Begivenheder', 'Grupper', and 'Brugere'. Three news items are listed, each with a profile picture, a title, a description, and a date. On the far right, there is a 'Følg med!' (Follow!) section with a graphic for 'KOD I FERIEEN 2012'.

Kategori

Digitalisér^{dk}

Forst

Du er her : Digitalisér.dk



Digitaliseringsstrategien

Seneste indhold Nyheder

 **Cathrine Lippert** oprettet i gruppen **Government**

 **Tine Müller** skrev indlæg i gruppen **Offentlige de**

 **Peter Veng** skrev en kommentar knyttet til nyheden **Ner**

DERI Vocabularies

DERI Vocabularies is a URI space for RDF Schema vocabularies and OWL ontologies maintained at DERI, the Digital Enterprise Research Institute at NUI Galway, Ireland. The site is operated by DERI's Linked Data Research Centre. [Read more...](#)

Schema.org CSV

Author: Michael Hausenblas

Mapping vocabulary for CSV files that use Schema.org terms in the header.

Namespace URI: <http://purl.org/NET/schema-org-csv#>

Terms: 3 Classes, 2 Properties

kaon, the Knowledge Attribution Ontology

Authors: Aidan Hogan, Jodi Schneider

kaon, the Knowledge Attribution Ontology, is an ontology for characterizing the certainty of information, how it is known, and its source

Namespace URI: <http://vocab.deri.ie/kaon#>

Terms: 3 Classes, 7 Properties

ODApp documentation

Fri, 07/13/2012 - 13:48 — fadmaa

Model overview at: <http://vmsgov03.deri.ie/ODApp-overview-3.png>

Example:

Search th

gofshu

- Export
- index
- My acc
- Create
- Import
- Extern
- Log ou

- **Challenge 1:** facilitating the reusability of semantic assets stored in government metadata repositories across the Web.
- **Challenge 2:** Integration of these heterogeneous and distributed repositories .

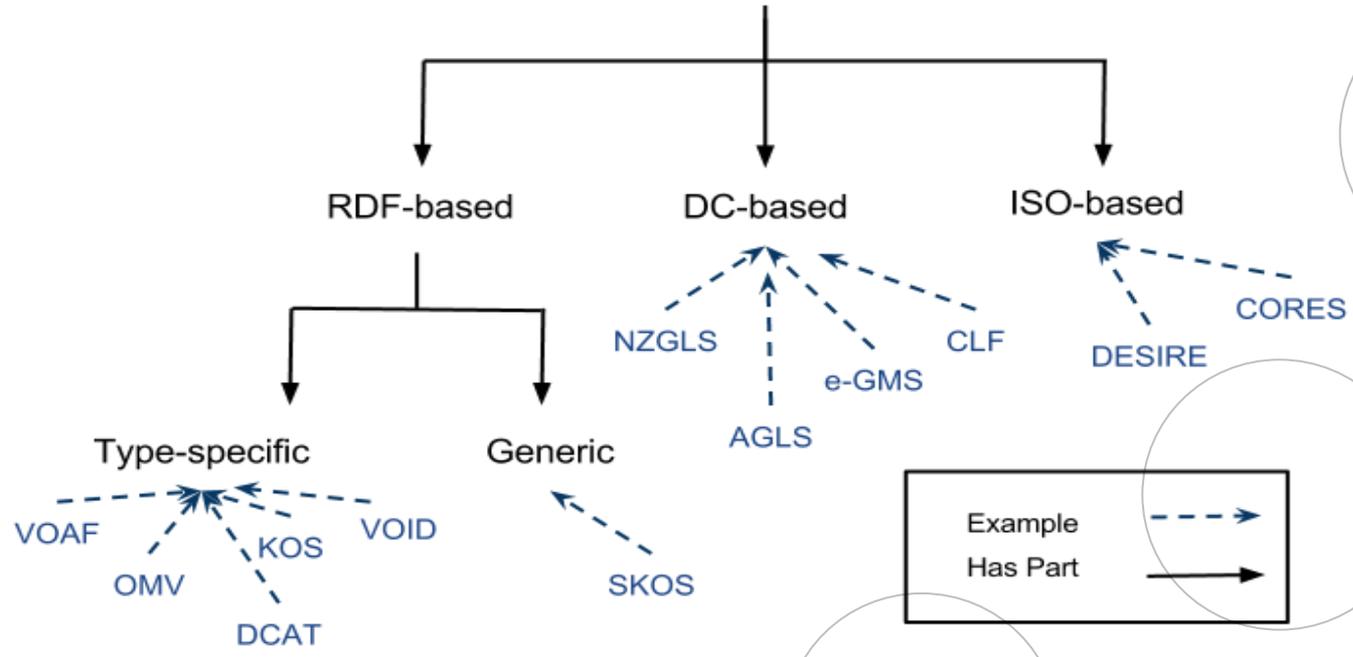
“It is the unexpected re-use of information which is the value added by the web”

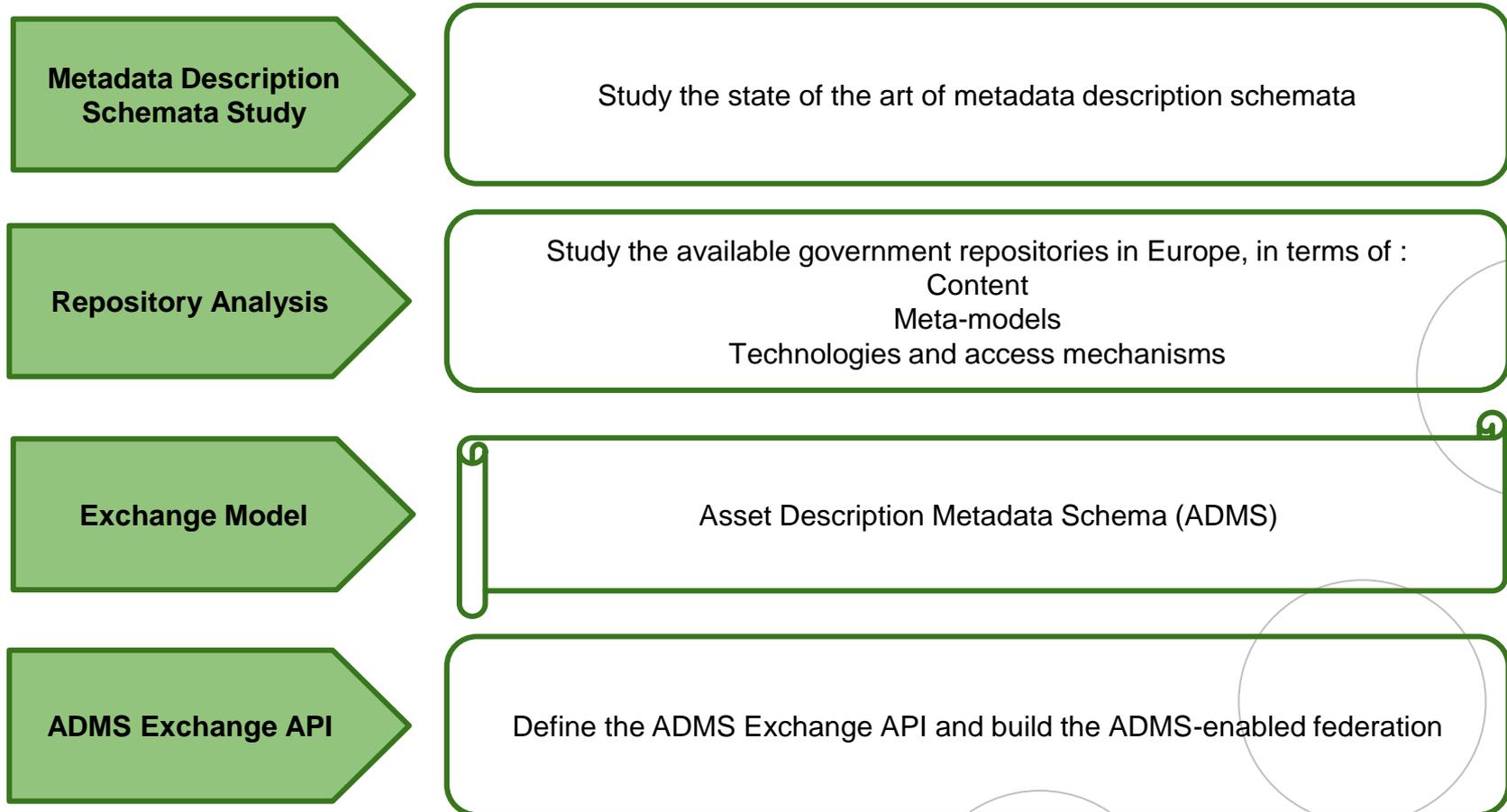
Tim Berners-Lee

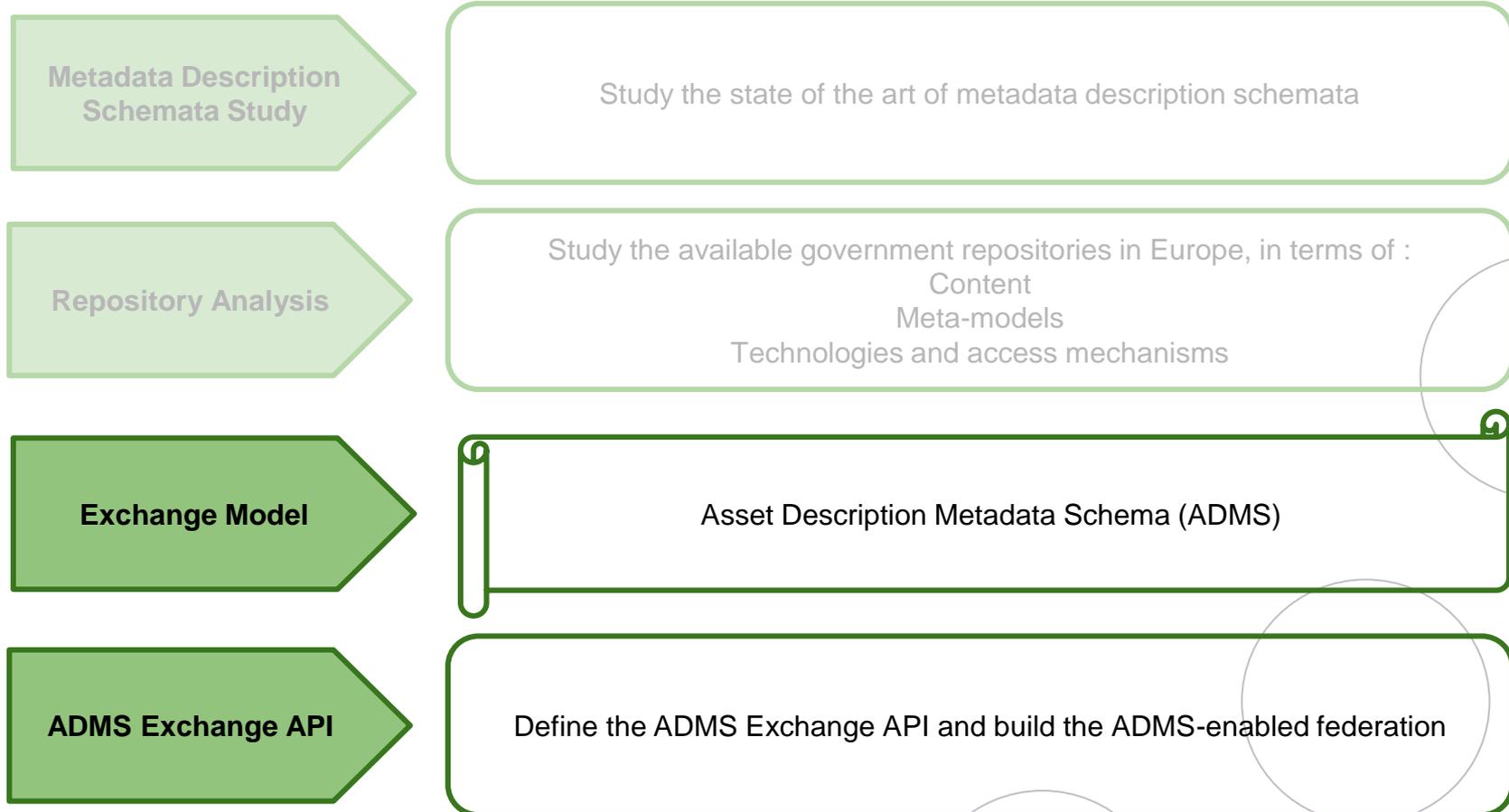
Metadata Description Schemata Study

Study the state of the art of metadata description schemata

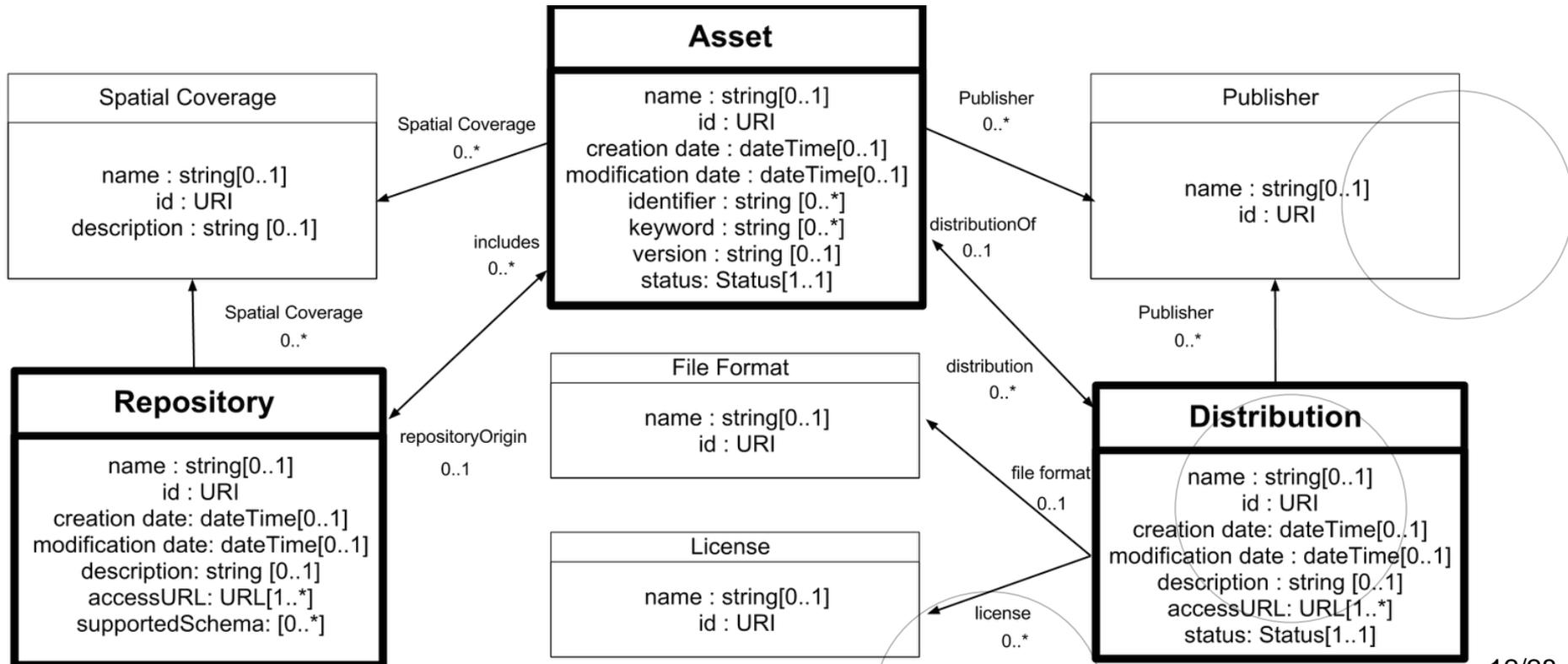
Metadata Description Models







The Asset Description Metadata Schema (ADMS) is developed to deliver a common meta-model for semantic assets.



W3C[®]

<http://www.w3.org/TR/>

SKOS

adms:Repository <http://www.w3.org/TR/skos-reference/>

adms:Asset

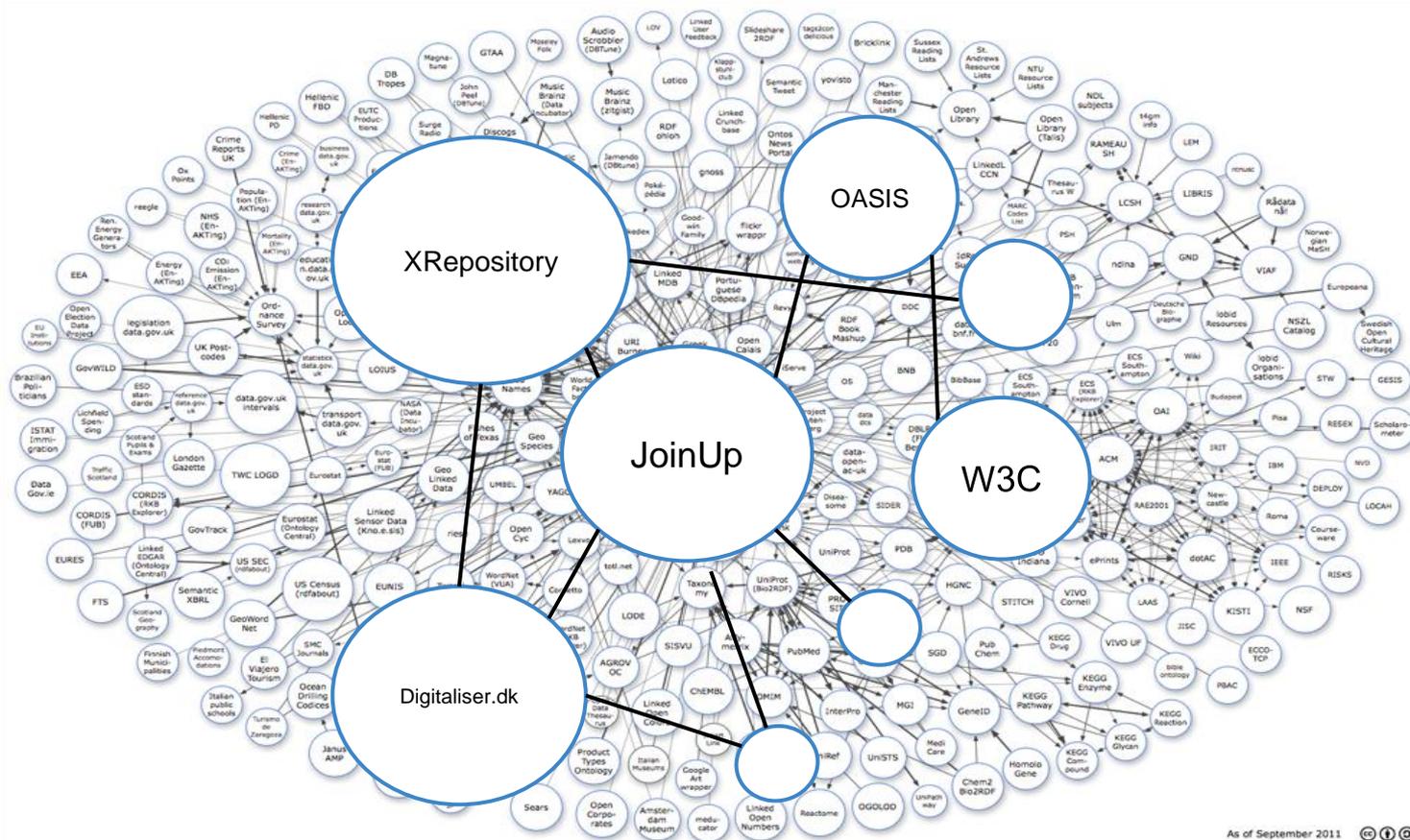
<http://www.w3.org/2004/02/skos/core.rdf>

adms:Distribution



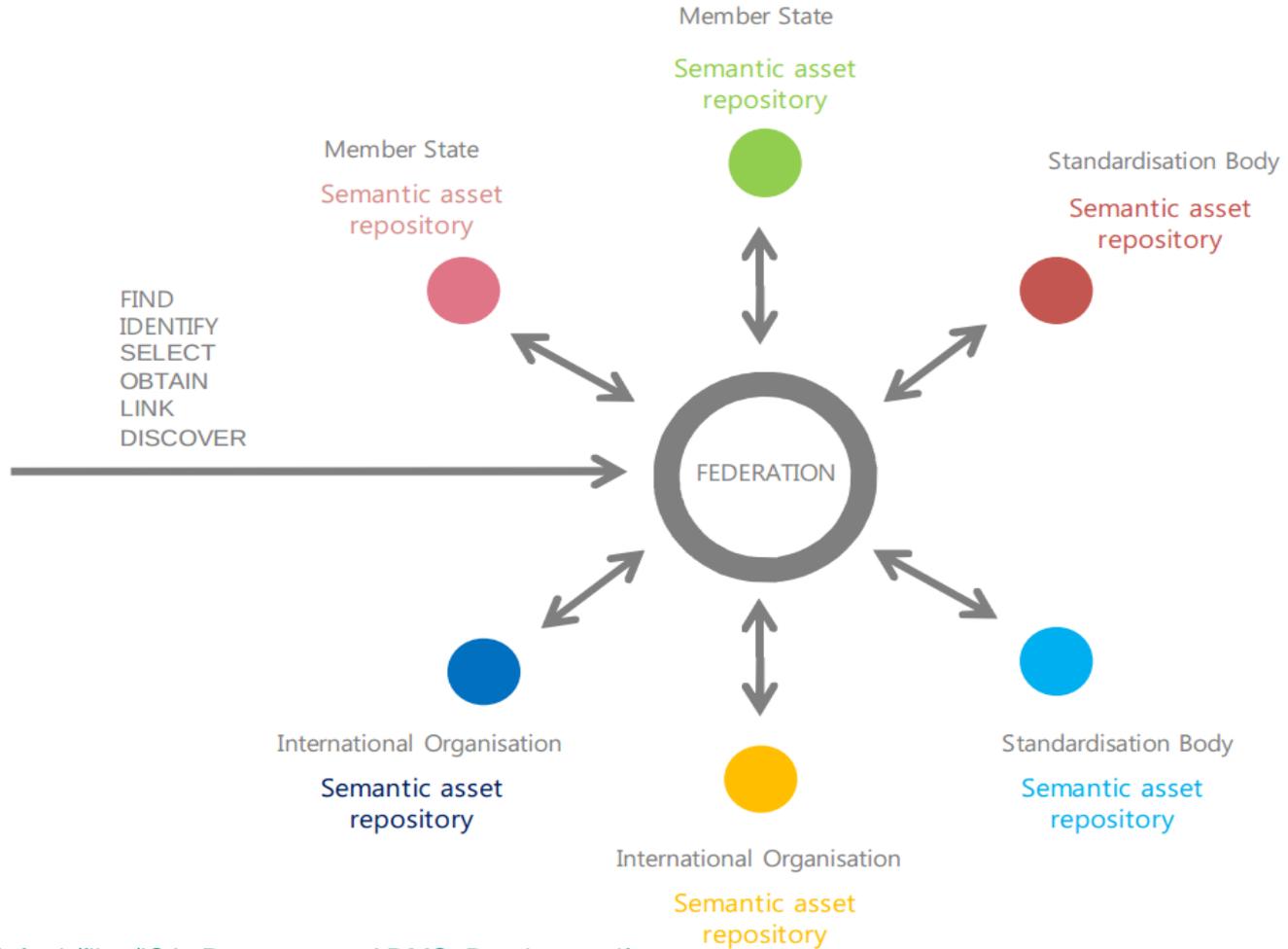


ADMS & LOD



As of September 2011

- Public administrations
- Businesses
- Standardisation bodies
- IT Industry
- Academia



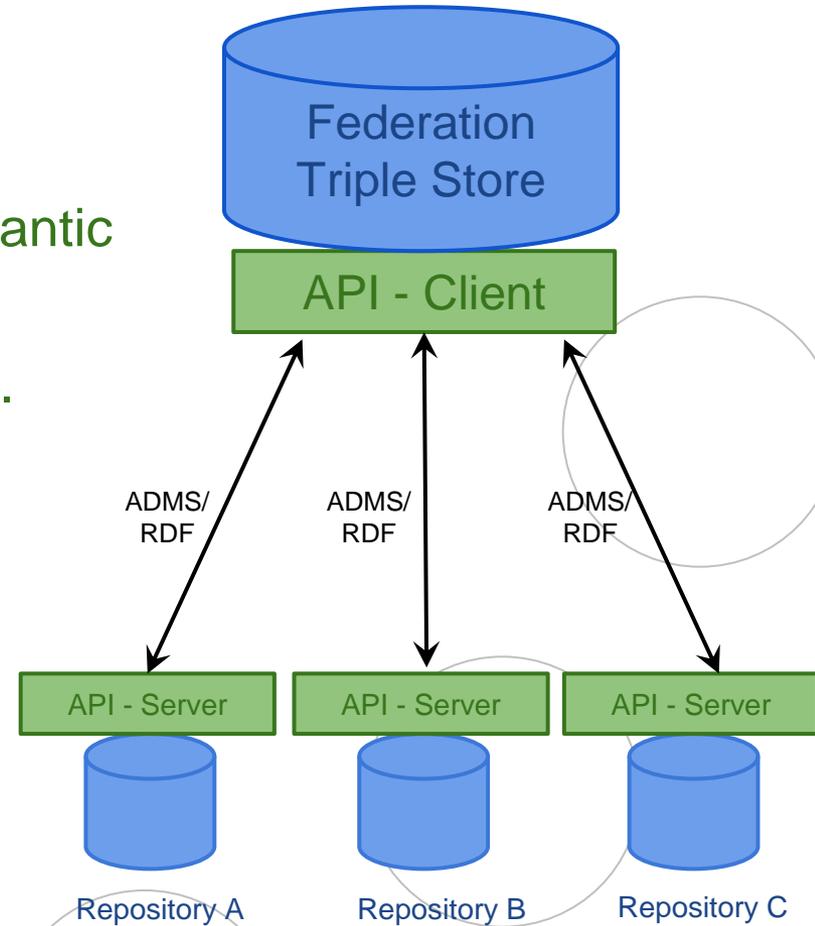
[https://joinup.ec.europa.eu/sites/default/files/ISA Programme ADMS Brochure.pdf](https://joinup.ec.europa.eu/sites/default/files/ISA_Programme_ADMS_Brochure.pdf)

The ADMS Exchange API, is built to :

- i. Retrieve ADMS descriptions of semantic assets from distributed repositories.
- ii. Keep the federation data up-to-date.

Design Principles :

- i. REST architectural style.
- ii. Linked Data representation.



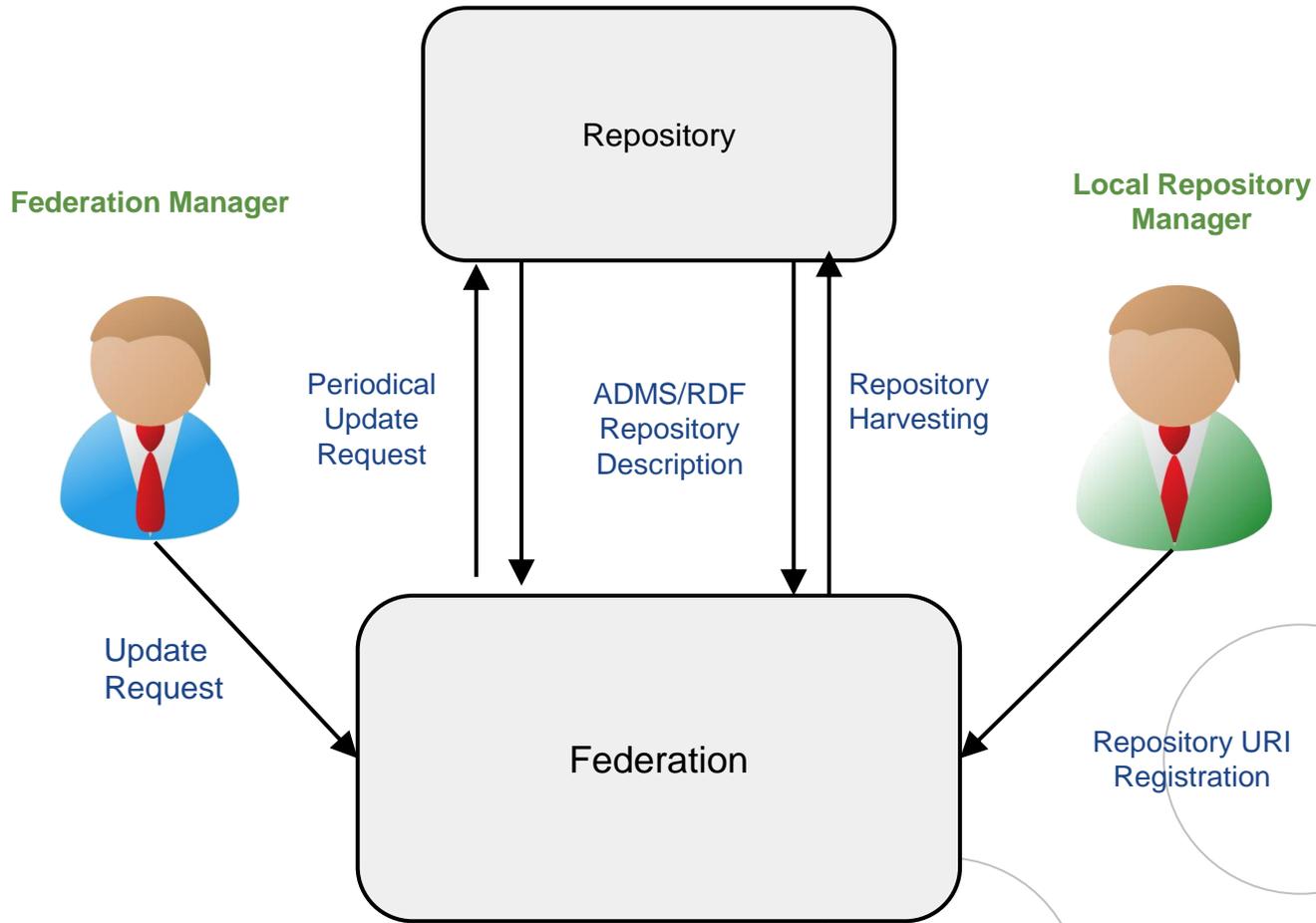
Resource	HTTP Method	Description
repository	GET	a representation of the repository using native ADMS
assets	GET	a representation of a collection of assets

```
<http://vmudi205.deri.ie:8080/digitaliserapis../repository> a
:SemanticAssetRepository;
dct:created "20011026T21:32:52"^^xsd:dateTime;
dct:description "Digitaliser.dk"@en;
dct:modified "20011026T21:32:52"^^xsd:dateTime;
admsapi:assets <http://vmudi205.deri.ie:8080/digitaliserapiserver/adms/assets>;
rdfs:label "Digitaliser (Denmark)";
:accessURL "http://api.digitaliser.dk/rest";
:supportedSchema "1.0" .
```

Support of Pagination : Calling asset collection URI of a big repository, the server redirect the call to the first page of assets, e.g, *<AssetCollectionURI>?firstpage :*

```
@prefix rdf:<http://www.w3.org/1999/02/22rdfsyntaxns#>.
@prefix bp:<http://openservices.net/ns/basicProfile#>.
@prefix o: <http://example.org/ontology/>.
<http://example.org/netW/nw1/assetCollection> a bp:Container;
  <http://example.org/netW/nw1/assetCont?firstPage> a bp:Page;
  bp:pageOf <http://example.org/netW/nw1/assetCollection>;
  bp:nextPage <http://example.org/netW/nw1/assetCont?p=2>.
```

Support of Synchronization : A date parameter that can be associated with asset collection URI, e.g, *<AssetCollectionURI>?date=date_of_last_call.*



	Digitaliser.dk 	DERI Vocabularies 	ESD Standards 	Joinup 
Access mechanism	REST	URIs	SPARQL endpoint	N/A
ADMS Support	No	Yes	No	No

ADMS Federation Prototype

<http://vmudi205.deri.ie:8080/apiclient/home>

Assets

1117 Asset

sorted by: [labels](#); then by... [grouped as sorted](#)

1.

German Service List, Norwegian Service List, Dutch Service List, Belgium Service List, and Swedish Service List
 Created : 2001-10-26T21:32:52
 Modified : 2001-10-26T21:32:52
 Themes : http://def.esd.org.uk/ServiceClass
 Status : Published
 Keywords : esd-toolkit, Service List, German Service List, Norwegian Service List, Dutch Service List, Belgium Service List, and Swedish Service List
 homepage :
 Coverage : esd-assets.xml
 Publisher : ESD
 Interoperability Level : Semantic

2.

Agenda for fourth network meeting
 Created : 2001-10-26T21:32:52
 Modified : 2001-10-26T21:32:52
 Themes : http://eurovoc.europa.eu/2171288?language=en
 Status : Published
 Keywords : Digitaliser.dk
 homepage : http://api.digitaliser.dk/rest/resources/1012507
 Coverage : Denmark
 Publisher : Digitaliser
 Interoperability Level : Semantic

3.

AddressComplete
 Created : 2001-10-26T21:32:52
 Modified : 2001-10-26T21:32:52
 Themes : http://eurovoc.europa.eu/2171288?language=en

Publisher

- 1000 [Digitaliser](#)
- 8 [ESD](#)
- 49 [Semic.eu](#)
- 60 [vocab.deri.ie](#)

Coverage

- 27
- 1000 [Denmark](#)
- 2 [Europe](#)
- 60 [Ireland](#)
- 1 [africa](#)

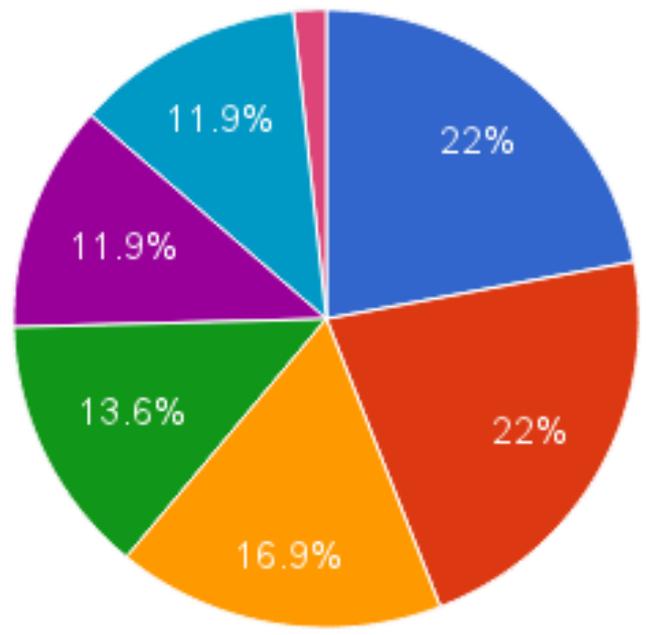
keyword

- 2 [Behandling](#)
- 1 [Behandling tekst](#)
- 1 [Behandling udført](#)
- 1 [Belgium Service List](#)
- 1 [Beløb](#)

status

- 1117 [Published](#)

What are the **benefits** of the ADMS-enabled federation of semantic assets ?



- Increase the visibility of semantic assets
- Stimulate the reuse of semantic assets
- Discovery of the appropriate semantic assets
- Reach a wider audience
- Easier understanding of semantic assets
- Increased value of semantic assets
- No direct benefits

<http://joinup.ec.europa.eu/community/cesar/home>

- ADMS Working Group & JoinUp
- ADMS on the *Government Linked Data Working Group (GLD)* charter.
- ADMS is adopted by many repositories throughout Europe, i.e W3C, Digitaliser.dk and Listpoint.
- More than 400 downloads.
- JoinUp Exchange API recommendation.

- ADMS Standardization
- Automating the mapping process between host repositories models and ADMS.
- Including more repositories in the federation.
- Harvest metadata from RDFa sources.
- Crawling instead of manual registration.

ADMS V1.0 recently published.
<https://joinup.ec.europa.eu>

CESAR
COMMUNITY OF
EUROPEAN
SEMANTIC ASSETS
REPOSITORIES

Community of European Semantic Assets Repositories

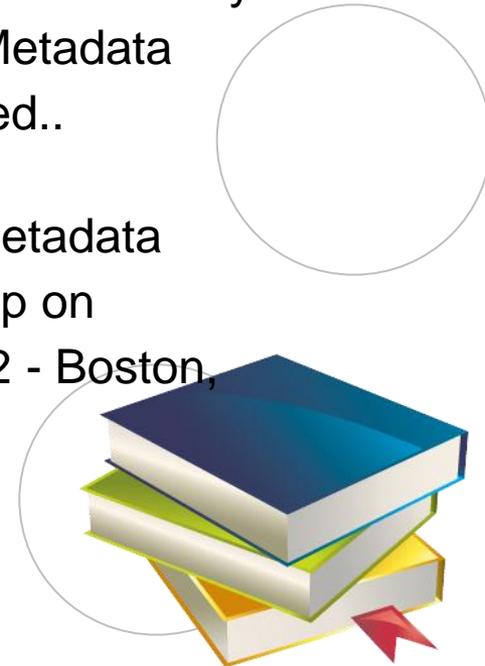
Keywords: federation, semantic asset repository, semantic assets
Domains: Information Society (other), Internet

ADMS
ASSET
DESCRIPTION
METADATA
SCHEMA

The Asset Description Metadata Schema (ADMS)

Keywords: federation, metadata, semantic asset repository
Domains: Internet

- Shukair, G., Loutas, N., Peristeras, V., Reichling, k., Maali, F., & tarabanis, K. Towards a Federation of Government Metadata Repositories. [Share-PSI.eu](#) May 2011.
- Shukair, G., Loutas, N., Peristeras, V., & Sklarß, S. Towards semantically interoperable metadata repositories: The Asset Description Metadata Schema. Computers in Industry Journal 2012. To be published..
- Shukair, G., Loutas, N., & Peristeras, V. Integrating Linked Metadata Repositories into the Web of Data. 3rd International Workshop on Consuming Linked Data (COLD2012), ISWC November 2012 - Boston, USA.



26/28