

ISA Programme

20th XBRL Eurofiling Workshop

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dhou DIGIT.B6 (ISA unit)

... and its
interoperability effect
on the EU public
administrations

Interoperability

What is it about?



Interoperability: the ability of disparate organisations, to interact towards agreed goals, by sharing information through their business processes, by means of exchanging data between their IT systems

One-stop-shop

Digital-by-default

Interconnection

Information Sharing

Spreading knowledge

Decision making

Business opportunities

Informed citizens

Is it worth it?



Country	2010 GDP (USD Millions)
World	60,449,499

Impact
0.50%

Australia	368,736
-----------	---------

\$2.347 billion

Belgium	469,374
---------	---------

Brazil	2,087,890
--------	-----------

Canada	1,577,040
--------	-----------

China	5,926,612
-------	-----------

\$12.8 billion

France	2,560,002
--------	-----------

\$16.4 billion

Germany	3,280,530
---------	-----------

India	1,727,111
-------	-----------

\$10.26 billion

Italy	2,051,412
-------	-----------

Japan	5,458,837
-------	-----------

Mexico (*)	1,034,804
------------	-----------

\$3.9 billion

Netherlands	779,356
-------------	---------

Russia	1,479,819
--------	-----------

Minutes to execute	Number of activities per year per citizen				
	10	15	20	25	30
5	0.04%	0.06%	0.08%	0.10%	0.13%
10	0.08%	0.13%	0.17%	0.21%	0.25%
15	0.13%	0.19%	0.25%	0.31%	0.38%
20	0.17%	0.25%	0.33%	0.42%	0.50%
25	0.21%	0.31%	0.42%	0.52%	0.63%
30	0.25%	0.38%	0.50%	0.63%	0.75%
35	0.29%	0.44%	0.58%	0.73%	0.88%
40	0.33%	0.50%	0.67%	0.83%	1.00%
45	0.38%	0.56%	0.75%	0.94%	1.13%
50	0.42%	0.63%	0.83%	1.04%	1.25%
55	0.46%	0.69%	0.92%	1.15%	1.38%
60	0.50%	0.75%	1.00%	1.25%	1.50%

Wasted time
due to "waiting in the line" or
delay produced
due to "lack of interoperability"
when citizens/businesses are served
by a public administration
results to **impact** on the GDP

(*) The Economic Impact of Interoperability, Microsoft research study



Public sector

50% EU GDP

25% of total
employment in
EU

Public
procurement
19% of EU
GDP

e-procurement:
5%-20% of
procurement
expenditure
(€100 - €400 bn
annually)

Modernisation of European public administrations

*"**Open data** is an untapped resource with a huge potential for building stronger, more interconnected societies that better meet the needs of the citizens and allow innovation and prosperity to flourish. **Interoperability and the re-use of public sector information shall be promoted actively.**"*

(*) Council conclusions Oct 2013



Develop interoperable
solutions

Assess ICT implications of
Union's legislation

Identify legislation gaps that
hinder interoperability

Promote activities about

STANDARDS

Focus

Create

Measure
interoperability
benefits



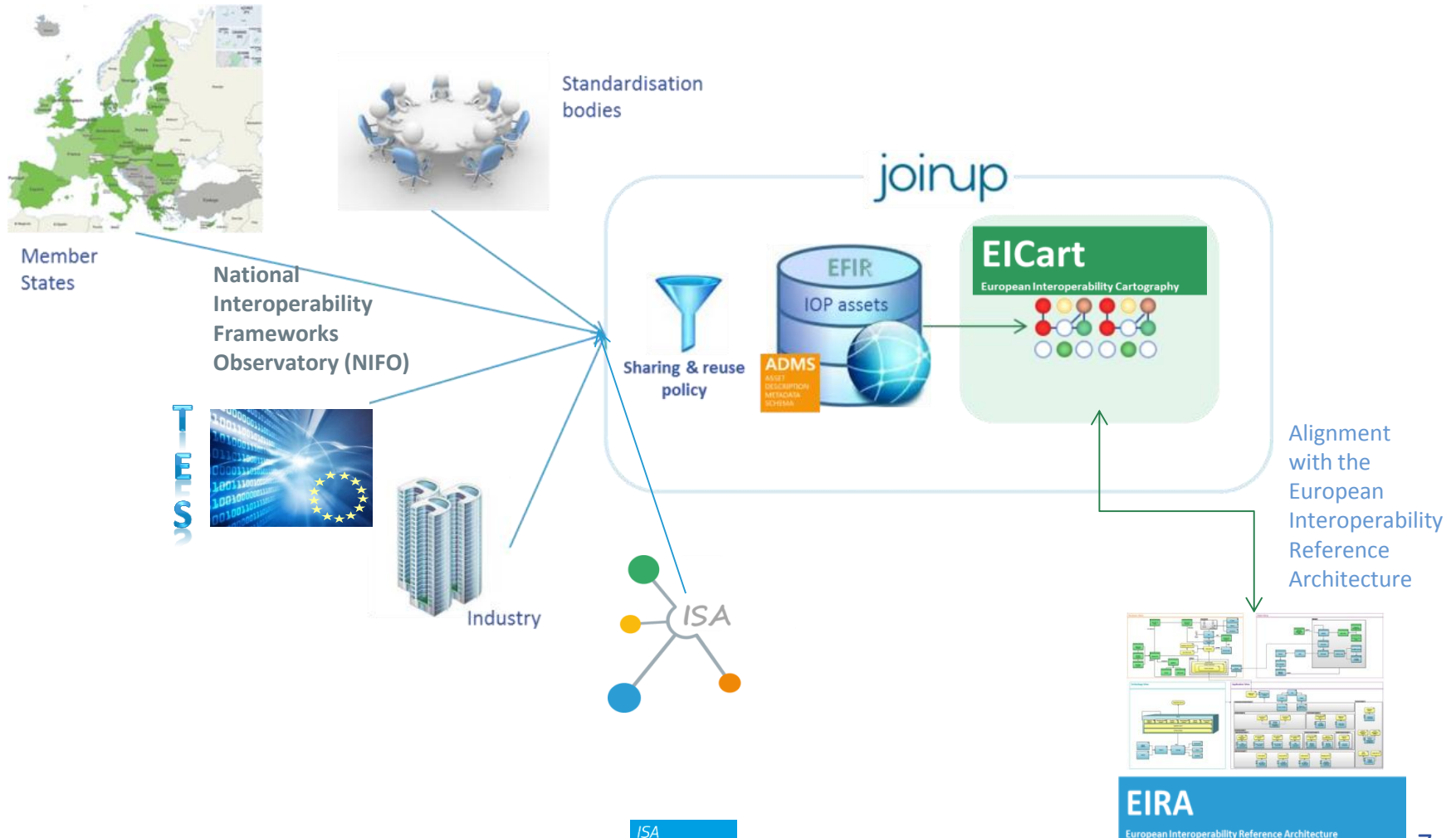
EIRA

European Interoperability Reference Architecture

EICart

European Interoperability Cartography

The end-goal





European Interoperability Framework (EIF)

ΕΙΣΑΓΩΓΙΚΟ (ΕΙΕ)
 ΙΟΥΡΕΟΒΕΙΡΗΡΙΠΛ
 ΕΝΙΟΒΕΣΥ

EIRA

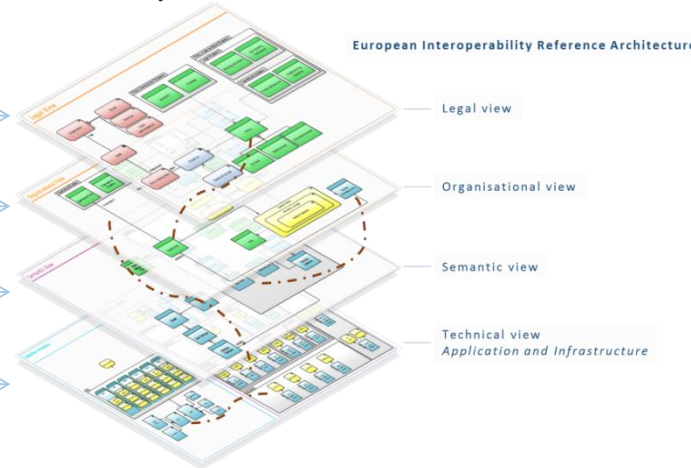
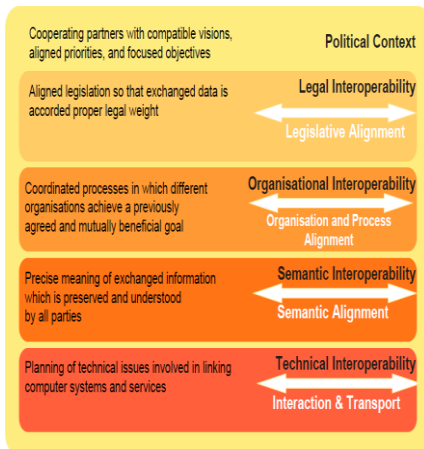
European Interoperability Reference Architecture

A reference architecture for delivering digital public services (across borders and sectors).

EICart

European Interoperability Cartography

A mapping of IOP solutions to the Building Blocks of the EIRA.



Trans-European										
Trans-European System	Workflow Enablers			Data Exchange Enablers				Security Service		
	Chronography Service	Orchestration Service	Data Transformation Service	Data Translation Service	Data Validation Service	e-Signature Service	Identity Management Service	Access Management Service	Audit Service	
e-PRON	No	No	Yes	e-PRON provides data transformation (complex to DLT transformations)	No	e-PRON provides data validation services (XSD validation, Schema.com validation)	No	No	No	Capability of e-PRON
GENES IS	No	No	e-TrustEE e-Delivery	No	Working on Building Block changes: translation of multilingual applications	No	No	ECAS	No	No
e-Trustee	No	No	Yes	e-Trustee provides data transformation (complex to DLT transformations)	No	e-Trustee provides data validation services (XSD validation, Schema.com validation)	No	No	No	Capability of e-Trustee
PROTA	No	No	Yes, digital network infrastructure	No	No	No	No	No	No	No
CONTEX	No	No	Yes, electronic exchange of structured and unstructured data DDI	No	No	No	Yes, authenticate users	Yes, authorize access	No	No

Recommendation 18

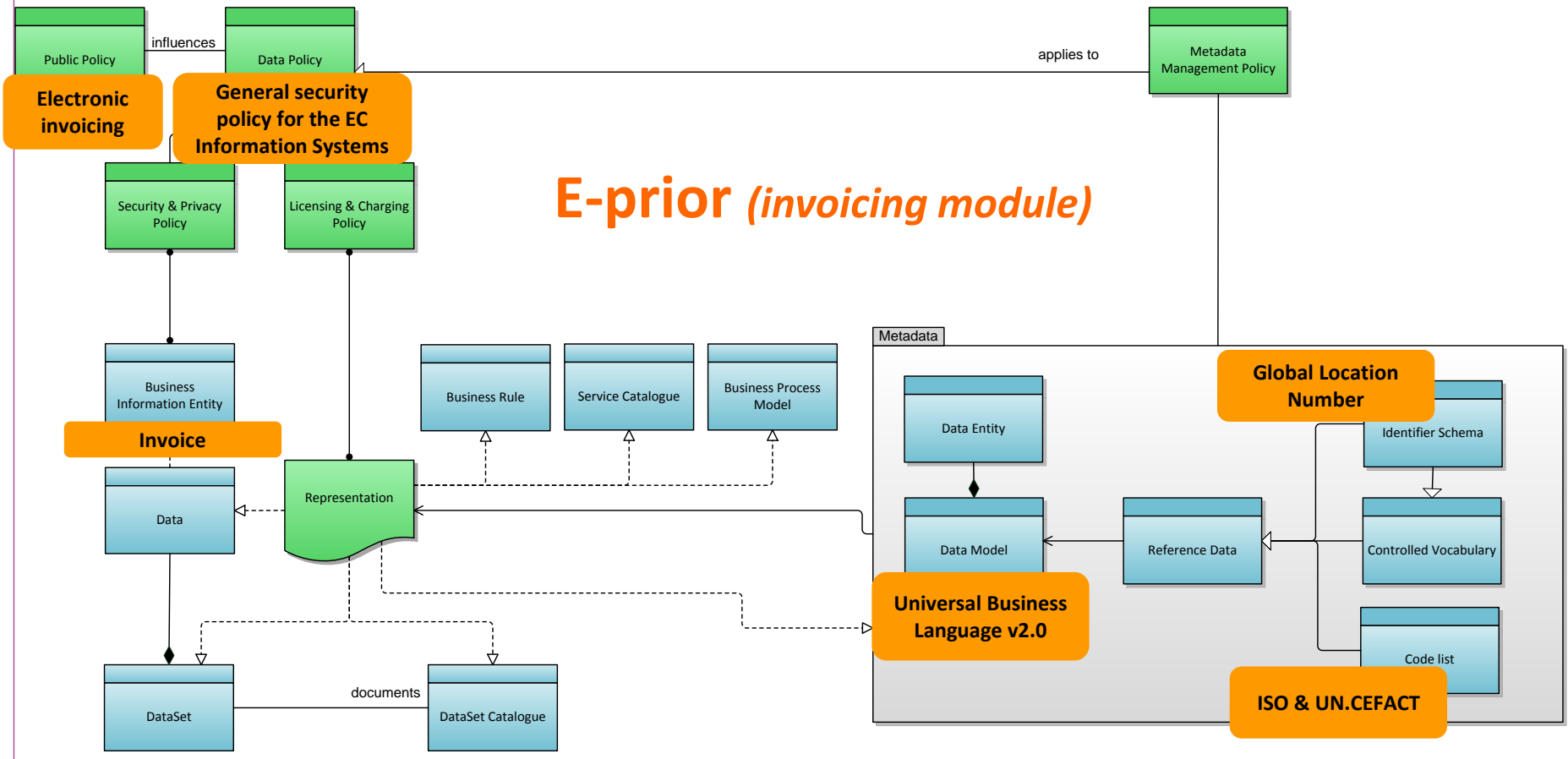
European
Interoperability
Framework

Public administrations should support the establishment of sector specific and cross-sectoral communities that aim to facilitate semantic interoperability and should encourage the communities to share results on national and European platforms.

http://ec.europa.eu/isa/documents/isa_annex_ii_eif_en.pdf

Semantic View

E-prior (invoicing module)



[Data], which groups [Data Sets] and is documented in the [Data Set Catalogue], is represented using a specific [Representation] format. [Business Rule], [Service Catalogue] and [Business Process Model] are also subject to a representation.

[Metadata], composed of [Data Models] and [Reference Data], provide the structure for a [Representation]. The reference data include [Identifier Schemas], [Controlled Vocabularies], and/or [Code Lists].

Data is classified according to a [Security & Privacy Policy]. A [Licensing & Charging Policy] can be [applied / not applied], which can depend on the specific representation of data. [Metadata] are managed through a specific [Metadata Management Policy].

[Invoices], are represented using a specific representation format. Metadata, composed of the [Universal Business Language v.2.0] and reference data, provide the structure for the representation. The reference data include the [Global Location Number] and [ISO & UN.CEFACT] code-lists.

Data is classified according to the [General Security Policy for the EC Information Systems].

Semantics

(from Ancient Greek: σημαντικός *sēmantikós*, "significant") is the **study of meaning**. It focuses on the relation between *signifiers*, like words, phrases, signs, and symbols, and what they stand for, their denotation

(*) Wikipedia

Open Semantic Standards
=
Social agreement on data
standards



"Now! ... That should clear up
a few things around here!"

An old "need" ... still "needed"



WASTE IN INDUSTRY

By the COMMITTEE ON ELIMINATION OF
WASTE IN INDUSTRY *of the* FEDERATED
AMERICAN ENGINEERING SOCIETIES

FIRST EDITION
THIRD IMPRESSION

PUBLISHED BY
FEDERATED AMERICAN ENGINEERING SOCIETIES
WASHINGTON, D. C.

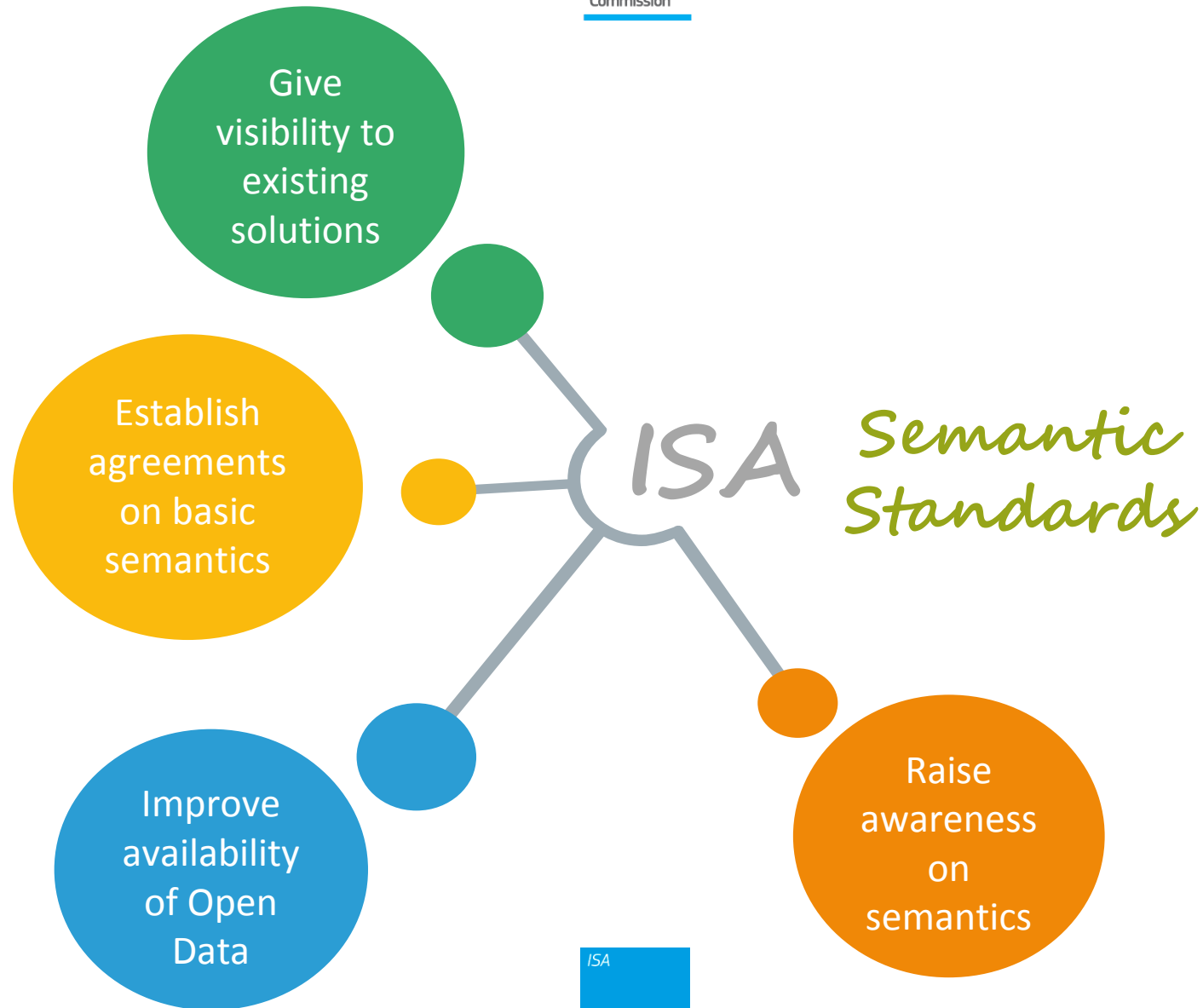
McGRAW-HILL BOOK COMPANY, Inc.
SOLE SELLING AGENTS
NEW YORK: 370 SEVENTH AVENUE
LONDON: 6 & 8 BOUVERIE ST., E. C. 4
1921

Year 1921, Scope 288,376 establishment

"Thus the first work of the Committee was to set up units and methods of measurement in an endeavour to determine and to proportion the main constituents of waste"

*"It is a fact that **no accepted management and labour terminology exists** and, further, few units of weighing or measuring the performance of industry, or of any plant or department or section thereof have been developed by engineers in a way to **be standardized**, or to yield results and conclusions on a comparable basis"*

Yet our industrial machine is far from perfect [...] from lack of standardization [...]



Existing solutions are scattered and difficult to find

- National initiatives: repositories/libraries/catalogues of semantic standards (e.g. Germany, Denmark, Finland, Estonia...)
- Standardization bodies (e.g. OASIS, W3C, UN.CEFACT...)
- Independent projects making available semantic standards on their own websites





Agree on a common language
(template) to describe
semantic standards

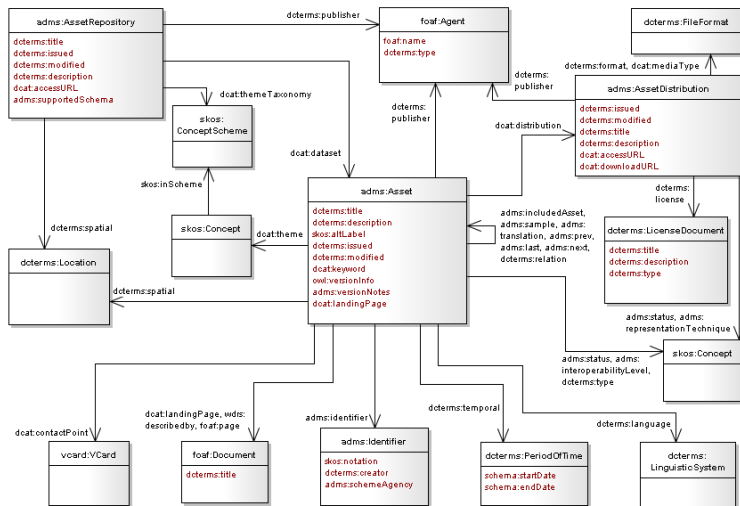


Federate semantic standards
on a yellow page infrastructure

Give
visibility to
existing
solutions



The application ADMS/Joinup



W3C
note



Asset Description Metadata Schema

DCAT profile/RDF vocabulary to
describe **semantic interoperability
assets**



2000+ **semantic interoperability
assets** in ADMS

+25 federated repositories

"Semantic interoperability asset" is highly reusable metadata (e.g. xml schemata, generic data models) and reference data (e.g. code lists, taxonomies, dictionaries, vocabularies)



```
- <xs:simpleType name="PublicOrganizationTypeCodeContentType">
  - <xs:restriction base="xs:token">
    - <xs:enumeration value="1">
      - <xs:annotation>
        - <xs:documentation xml:lang="eng">
          <ccts:Name>Ministry</ccts:Name>
        </xs:documentation>
        - <xs:documentation xml:lang="ell">
          <ccts:Name>Υπουργείο</ccts:Name>
        </xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    - <xs:enumeration value="2">
      - <xs:annotation>
        - <xs:documentation xml:lang="eng">
          <ccts:Name>University</ccts:Name>
        </xs:documentation>
        + <xs:documentation xml:lang="ell">
          <ccts:Name>Ανεξάρτητη Αρχή</ccts:Name>
        </xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    - <xs:enumeration value="3">
      - <xs:annotation>
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        </xs:documentation>
        - <xs:documentation xml:lang="ell">
          <ccts:Name>Ανεξάρτητη Αρχή</ccts:Name>
        </xs:documentation>
      </xs:annotation>
    </xs:enumeration>
  </xs:restriction>
</xs:simpleType>
```

The screenshot shows the Joinup application interface. At the top, there's a header with the European Commission logo and the text "Share and reuse interoperability solution". Below this, a navigation bar includes "My Page", "Communities", "Interoperability solutions", and "News". The main content area displays the "Greek Interoperability Catalogue" with a search bar and tabs for "Overview" and "Solutions". Under the "Solutions" tab, the "e-GIF Code Lists 1.1" solution is highlighted. It shows a rating of 0/5 stars, 0 votes, and 124 reads. The description states: "The Approved CodeLists and Identifier Lists of the e-GIF". Under the "Themes" section, "Information Technology and Data Processing" is listed. The "Distributions" section shows two entries: "Attachment Delivery Status" and "Public Organization Type", each with a download button labeled "URL".

<http://www.yap.gov.gr/e-gif/schemas/current/CodeLists> a [<http://www.w3.org/ns/adms#Asset>](http://www.w3.org/ns/adms#Asset) ;

dcterms:issued "2014-02-17T10:39:14+01:00"^^xsd:dateTime ;

dcterms:description "The Approved CodeLists and Identifier Lists of the e-GIF"@en ;

dcterms:modified "2014-05-19T17:19:22+02:00"^^xsd:dateTime ;

dcterms:publisher [<http://www.yap.gov.gr>](http://www.yap.gov.gr) ;

dcterms:title "e-GIF Code Lists"@en ;

dcterms:type "<http://purl.org/adms/assettype/CodeList>"@en ;

adms:status [<http://purl.org/adms/status/Completed>](http://purl.org/adms/status/Completed) ;

dc:distribution

[<http://www.yap.gov.gr/e-gif/schemas/current/CodeLists/eGIF_AttachmentDeliveryStatusCodeList_v1-1.xsd>](http://www.yap.gov.gr/e-gif/schemas/current/CodeLists/eGIF_AttachmentDeliveryStatusCodeList_v1-1.xsd),

[<http://www.yap.gov.gr/e-gif/schemas/current/CodeLists/eGIF_PublicOrganizationTypeCodeList_v1-1.xsd>](http://www.yap.gov.gr/e-gif/schemas/current/CodeLists/eGIF_PublicOrganizationTypeCodeList_v1-1.xsd),

[...]

[<http://www.yap.gov.gr/e-gif/schemas/current/CodeLists/eGIF_PublicOrganizationTypeCodeList_v1-1.xsd>](http://www.yap.gov.gr/e-gif/schemas/current/CodeLists/eGIF_PublicOrganizationTypeCodeList_v1-1.xsd)
a **adms:AssetDistribution** ;

dc:accessURL [<http://www.yap.gov.gr/e-gif/schemas/current/CodeLists/eGIF_PublicOrganizationTypeCodeList_v1-1.xsd>](http://www.yap.gov.gr/e-gif/schemas/current/CodeLists/eGIF_PublicOrganizationTypeCodeList_v1-1.xsd) ;

adms:status [<http://purl.org/adms/status/Completed>](http://purl.org/adms/status/Completed) ;

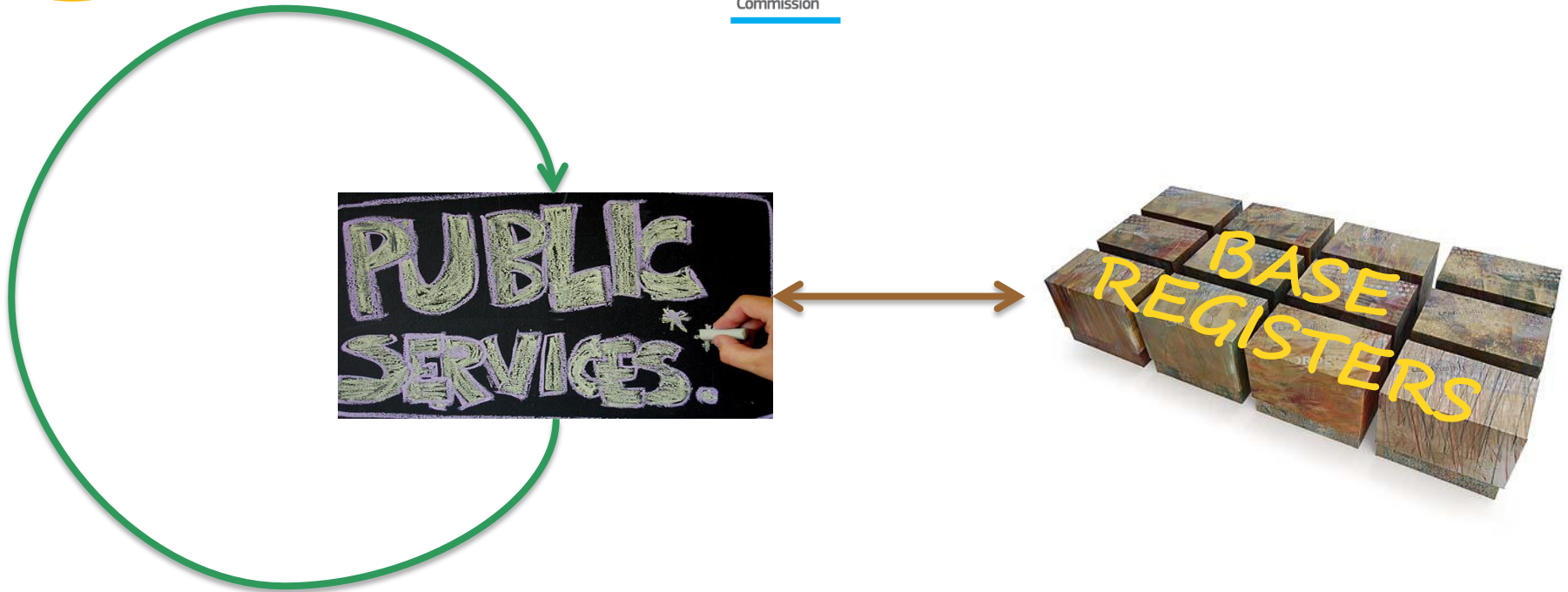
dc:mediaType [<http://publications.europa.eu/resource/authority/file-type/XML>](http://publications.europa.eu/resource/authority/file-type/XML) ;

adms:representationTechnique [<http://purl.org/adms/representationtechnique/XMLSchema>](http://purl.org/adms/representationtechnique/XMLSchema) .

Establish
agreements
on basic
semantics



The need

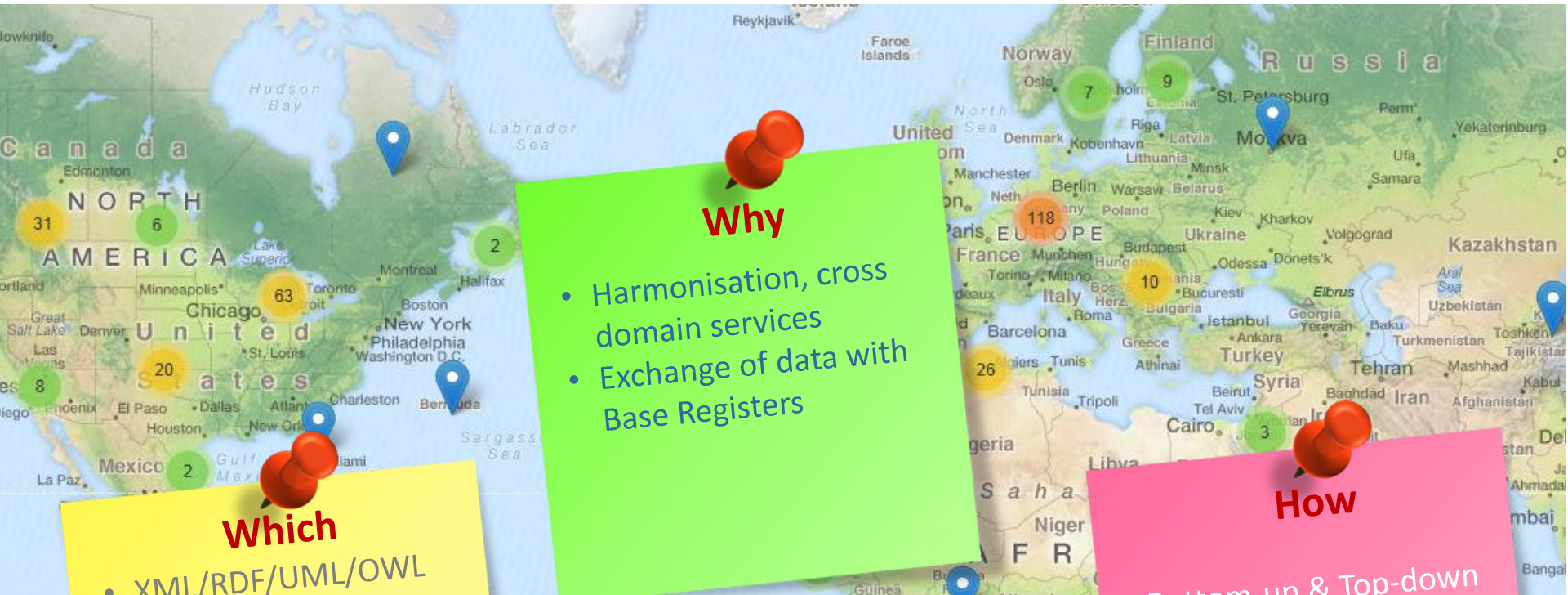


Interoperability of public services:
*greatest common denominator to
which one can add context-specific
extensions.*

Interoperability of base registers:
*common vocabularies for
interconnecting authentic sources of
Government data*

The As-Is

(for core data models)



Which

- XML/RDF/UML/OWL
- Person, business, location, vehicle, organisation
- Domain specific, context free
- Usually of small size

Why

- Harmonisation, cross domain services
- Exchange of data with Base Registers

How

- Bottom-up & Top-down
- Initiated by Government agencies

CORE VOCABULARIES

*Simplified, re-usable, and
extensible data models that
capture the fundamental
characteristics of a data entity
in a context-neutral fashion*



CORE
PUBLIC
SERVICE
VOCABULARY

CORE
PERSON
VOCABULARY

CORE
BUSINESS
VOCABULARY

CORE
LOCATION
VOCABULARY



Core Location Pilot - Interconnecting Belgian address data

4 location repositories in 1

<http://location.testproject.eu/BEL/>

Search for addresses:

Search

Properties

ex:abstracts	http://location.testproject.eu/id/address/SPW/248565
ex:osmVisualization	http://nominatim.openstreetmap.org/search?q=Chaussée de Bruxelles 135,La Hulpe&polygon=1
addressFeature	http://location.testproject.eu/so/ad/Address/SPW/248565
transportLink	http://location.testproject.eu/so/tn/Road/RN/13100025
adminUnit	http://location.testproject.eu/so/au/AdministrativeUnit/STATBEL/25050
type	Address
admin unit level 1	Belgique
admin unit level 2	0
locn:adminUnitL3	Province du Brabant Wallon
locn:adminUnitL4	Arrondissement de Nivelles
locn:adminUnitL5	La Hulpe
full address	Chaussée de Bruxelles 135 1310 La Hulpe
geometry	http://location.testproject.eu/id/geometry/SPW/248565
locator designator	135
post code	1310
thoroughfare	Chaussée de Bruxelles

admin unit level 1

The uppermost administrative unit for the address, almost always a country. The domain of locn:adminUnitL1 is locn:Address and the range is a literal, conceptually defined by the INSPIRE Geographical Name data type.

URI: <http://www.w3.org/ns/locn#adminUnitL1>

Type: Property

Raw data: RDF/XML

Open Data



Available ...

- ... as raw datasets in various formats (e.g. pdf, xls, csv, xml)
- ... through Data Catalogs
- ... on Portals

<http://energy.publicdata.eu>

Electricity Generated from Renewable Sources

Percent of gross electricity consumption

⏪ 2008



e.g. Domain of application

Energy

Open Data Catalogues

It spreads ...

- ✓ Plenty of countries with national data portals
- ✓ Numerous initiatives at regional/local level
- ✓ International Organizations already on board

European Union Open Data Portal



And grows internally too...

- ✓ Over 300.000 datasets in data.gov

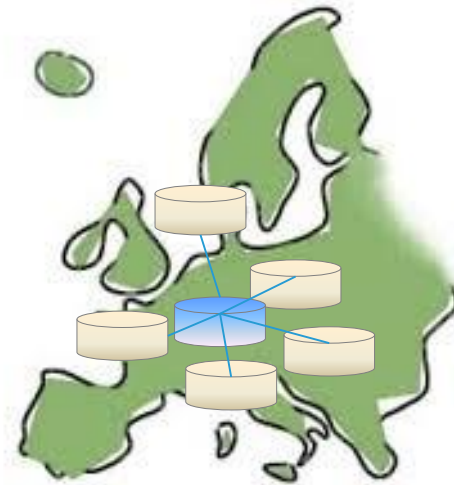


Source: <http://datacatalogs.org/>



As-Is

- +150 Data Portals in EU
- Different metadata
- Limited accessibility

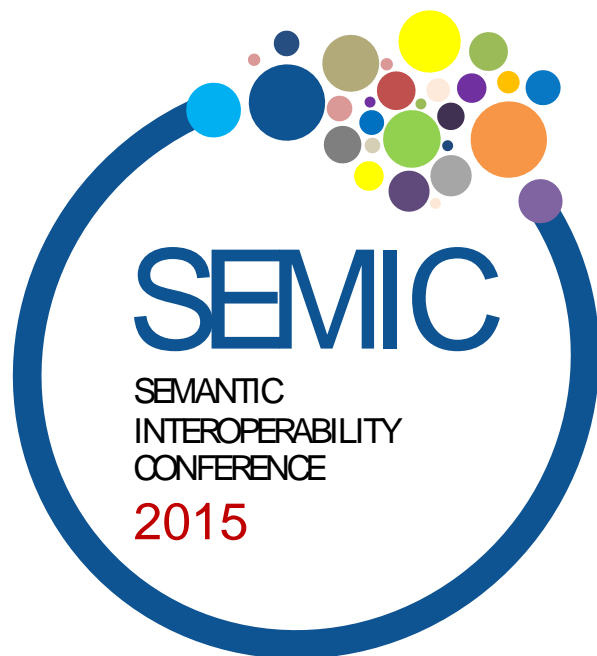


To-Be

Pan European Data Portal
A single point of access

Semantic Interoperability Conference 2015

Save the date



SEMIC 2015
Tuesday 5 May 2015
Riga, Latvia

Semantic

Le mot de la Fin

- Pursue **collaboration**
- Apply **open processes**
- Apply the **Minimum Viable Product** strategy

Interoperability

Le mot de la Fin

- Strategy, Framework, Tools
- Interoperability is not only ICT but also political decisions, organisational processes and data
- By design

Computer

Innovative Technology for Computer Professionals
www.computer.org/computer

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ABOUT THIS ISSUE

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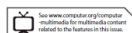
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See www.computer.org/computer for related content related to the features in this issue.

October 2014, Volume 47, Number 10



joinup
European Commission

Share and reuse interoperability solutions for public administrations

European Commission > ISA > Joinup > Projects > Eia > Description

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Catalogue Federated repositories Projects

European Interoperability Architecture (EIA) (5/5) 5/5 | 3 votes

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Overview Description Members list Issues Interoperability Solutions Highlights Forums Communications

Submitted by [Eia Team](#) on August 06, 2014

Description

With the growing amount of information exchanges between public services (across borders and sectors), the need for interoperability in Europe is higher than ever. The ISA Action 2.1 (EIA) introduces a reference architecture to guide public administrations in their work to provide interoperable European public services to businesses and citizens.

Propose your... Actions

Related Content

06 May 2014 | Europe: PUBLIC ENTITIES REDUCING LOCK-IN: THE WAY FORWARD.

11 April 2014 DIGIT - Common Information Sharing Environment - CISE Incubator

Join ISA initiatives at: http://ec.europa.eu/isa/index_en.htm
and @ <http://joinup.ec.europa.eu>



<http://goo.gl/eK1EY>



@SEMICEu



<http://joinup.ec.europa.eu>

ISA