Content Interoperability Strategy

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Presentation plan

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Context (1/2)

- Information content interoperability
  - The Community shall encourage interoperability in terms of the content of the information which is exchanged within and across administrative sectors and with the private sector.
  
  - Solutions facilitating interoperability between different message formats shall be preferred to, but not exclude, the development of harmonised message formats. Due consideration shall be given to the linguistic diversity in the Community.
Context (2/2)

- Latest IDABC decision: Specification of XML vocabularies, schemas and related XML deliverables to support the interchange of data in networks.

- To do so, it is recommended:
  - that Member States publish information on the services, business processes and data structures involved;
  - that Member States draft proposals for and agree on the data structures and dictionaries required at pan-European level;
  - that Member States draft proposals for and agree on multilateral mapping tables between the various national and the pan-European data structures.
Objectives

• The heart of the work is to
  ✓ Define the future IDABC strategy in terms of content interoperability
  ✓ Provide recommendations on how to articulate Europe-wide semantic issues.

• The strategy was defined on the basis of collected information, existing know-how, some experimentation, as well as user cooperation and feedback.

• Major goals
  ✓ Semantic Interoperability Strategy Definition
  ✓ European Clearinghouse feasibility study
Input sources

- Lessons learned from past IDA projects
- Lessons learned from national and international initiatives
- Environment and framework: general business requirements and practices, standards
- Expected requirements from future PEGS

A Strategy for global interoperability:
Principles, practical objectives, method

Action Plan
Interoperability layers:
EIF view

Increased complexity
Interoperability layers: Bronnoysund view

Increased complexity

Interoperability

Organization A

Information

Data

Signals

Semantic interoperability

Syntactic interoperability

Technical interoperability

Organization B

Information

Data

Signals
Interviewed People

- Pascal Souhard, ADAE (France)
- Martin Hagen, OSCI XÖV (Germany)
- Alasdair Mangham, Camden London Borough (UK)
- T.M. Kritenssen and Mikkel Hippe Brun (OIO, Denmark)
- M. Xheneumont, Forem/HR-XML (Belgium)
- Jon Borras and Maewyn.Cumming (EGU cabinet-office, UK)
- Alexander Salomon, Min. Interior fed. Level (Germany)
- T-A. Undheim, EC DGINFSO
- Peter Brown (European parliament, Austrian initiative)
Semantic interoperability (EIF)

✓ This aspect of interoperability is concerned with ensuring that the precise meaning of exchanged information is understandable by any other application that was not initially developed for this purpose...

✓ Semantic interoperability is therefore a **prerequisite** for the front-end multilingual delivery of services to the user.

✓ This implies **sharing meaning**, through:
  - Sharing context
  - Sharing objectives
  - Common interpretation
Achieving semantic interoperability

Développeur Java, bonne compétence en génie logiciel et méthode UML, niveau DESS, expérience dev. logiciels graphiques

Profil : développement logiciel
Formation : bac+5 - GL
Expérience : 3 ans
Technologies : Java, UML, graphiques

Category : software development
Training : software engineer
Background : >= 2Y
Specific : Java, UML, graphic arts

What the business officer has in mind

How it is encoded in the database of the local branch of the job agency

How it is recoded and translated in four different languages to be published on the Pan-European service (English example)

How the job seeker describes herself

Well, after my degree in software engineering, I’ve worked one year for XXX where I was in a team in charge of developing a online game...
The European challenge

✓ Adequate support of multilingualism is required
✓ Semantic uniformity through imposed standards is sometimes almost impossible
  ➢ the mapping strategy is often the only one, even if difficult to achieve.
✓ Context-based profiling of PEGS to very heterogeneous user profiles
  ➢ Context information is required
✓ Need for semantic gateways
  ➢ Accessing a clearinghouse
  ➢ Interpreting mapping rules
Semantic interoperability assets

- Dictionaries
- Thesauri
- Nomenclatures
- Taxonomies
- Mapping rules
- Ontologies
- Service descriptions
Categories of IDA projects

- Projects that did not need to develop a terminology but to use existing one:
  - Ex. EUROPHYT and EUDRAVIGILANCE

- Projects which requested a pan-European standard terminology and reference system that did not yet exist.
  - Ex. FADN and CARE

- Projects which would have obviously benefited from exploiting standard multilingual glossaries but could not do it
  - Ex. PLOTEUS, COWEBS
Lessons from IDA projects

• A number of projects supported by IDA have devoted important efforts to build, maintain and exploit Semantic Interoperability Assets.

• Methods and tools that were designed and/or used for this Semantic Interoperability Assets (SIA) design activity are neither documented nor made available to other projects,

• This results in potential duplication of efforts and a loss of synergy among these projects and with future ones.
Lessons from PEGS

• Several foreseeable PEGS will require using or building semantic assets.
• Some PEGS may be grouped in clusters sharing the same assets.
• A policy should encourage or even ensure that these future projects will actually share methods, tools, standards and results whenever this will be relevant.
Lessons from national initiatives

• Semantic interoperability deserves the same priority and effort as all the other interoperability layers.

• The most mature results appear to relate to syntactic interoperability: XML Schemas, core components, metadata etc.

• National terminology standards exist only in their domestic language, but awareness exist that exchange at EU level will require developing common multilingual semantic assets.

• Public players who have strong experience in developing semantic interoperability assets insist on the fact that such developments are often long-term efforts.
Policy principles (1/2)

- Long-term oriented, reliable and sustainable
  - Guarantee of maintenance
  - Stakeholders confidence
- Focus on effective collaboration processes among stakeholders
  - Production and quality processes
- Encourage open dissemination and reuse
  - IPR licensing rights that guarantee free use of assets
  - Preserve integrity and uniqueness of reference version
Policy principles (2/2)

- Define and implement a quality policy
  - Quality methodology and label
- Synergy with national and international initiatives
  - Standardisation of core components
  - Eb-XML initiative
  - Most current focus is on syntactic assets
Actions (1/2)

- Setup a European Interoperability (XML) Clearinghouse

- Develop a pan-European Administration and services map
  - Formalized descriptions of European services
  - European service registry
  - Multilingual, multi-profile user search and navigation in services

- Demonstrate a reference architecture with semantic interoperability components
  - Middleware for semantic gateways
Actions (2/2)

- Organize regular information exchange among stakeholders
  - Online forum
  - Annual workshop

- Develop documentation on semantic interoperability
  - Guide and guidelines

- Encourage the production of interoperability assets

- Encourage PEGS to use certified and standardized assets
European XML Clearinghouse feasibility study

- **Main objectives:**
  - Evaluate the possibility of the Clearinghouse for pan-European services;
  - Define the main parts of a project plan for its development;
- **Main results:**
  - A Clearinghouse functional and organisational analysis;
  - A Clearinghouse component architecture;
  - A phased project plan for its implementation
    - including cost estimates etc.
Clearinghouse features

✓ Storing, publishing and versioning content interoperability assets.
✓ Searching assets, and checking for their consistency and compatibility.
✓ Documenting assets
✓ Web service functionality for looking up resources
Clearinghouse content (1/2)

- Reusable information assets that may be valuable to provide interoperability when setting-up pan-European governmental information systems (PEGS)

  ✓ **Syntactic interoperability assets**
    - XML schemas, core-components, metadata schemas, models

  ✓ **Semantic interoperability assets**
    - Nomenclatures, thesauri, multilingual dictionaries, ontologies, mapping-tables and mapping-rules, service descriptions, categories etc..
Clearinghouse content (2/2)

✓ Guidance information

- Asset documentation, preferably multilingual
- Asset creation and maintenance methodology
- Best practices
- Relevant national and international work and assets
- Relevant tools
Document model of an asset
Clearinghouse organisation

- Supporting organisation (IDABC?)
- Steering committee, technical committee
- Users
- Contributors
- Clearing manager
- Server administrator and webmaster
System Architecture
Success factors

- Political commitment of the EC
- Technical and organizational credibility
- Synergy with national and regional agencies
- Close follow-up of PEGS requirements
- Permanent liaison with EU entities
- Adaptability to moving IT market
Q&A

For more information:

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