A USE CASE OF ONTOLOGY ADAPTATION

the VIVO ONTOLOGY adapted to the French National Institute for Agricultural Research (INRA)

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1st European Ontology Network (EUON) Workshop, Amsterdam, The Netherlands
A use case of ontology adaptation: the Vivo Ontology adapted to the INRA 1st European Ontology Network (EUON) Workshop, Amsterdam, The Netherlands

~10,000 people
- researchers
- engineers
- technicians

http://www.inra.fr/
LINKED OPEN PUBLICATIONS PROJECT GOALS

- Become familiar with conceptual and technical issues: modelling, ontology reuse, data transformation, enrichment, publication…
- Demonstrate the power of Linked data to information professionals, IT specialists, scientists, and policy-makers
- Identify pitfalls, limits
- Experiment Open data ★★★★★★

Make it real!
Published & grey sc. literature
198,487 records
10,1% Open Access full-text
+25 000 new entries/year
56% English, 43% French

HR
16,272 persons
+ structures authority list

INRA keywords
59 000 entries
11 000 synonyms
19 000 English eq.

Activities
3,965 descriptions
1,426 in use

Institutional repository
people & structures directory

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How VIVO answers our needs

“VIVO is an open source semantic web application that enables the discovery of research and scholarship across disciplines at a particular institution and beyond.”

http://www.vivoweb.org/about/faq/about-project

✓ comparable services
  • publication repository
  • person and structure directory

✓ integrated data
  • uniform representation
  • linked data

✓ semantics
  • clearly defined object
  • meaningful relations
The VIVO ontology

Vivo Ontology sources

- VIVO
- Bibliographic Ontology (BIBO)
- Event Ontology
- Friend of a Friend (FOAF)
- Geopolitical.owl (FAO)
- SKOS (Simple Knowledge Organization System)
- eagle-i Resource Ontology (ERO)
- Basic Formal Ontology (BFO)
- Cell Ontology (CL)
- Gene Ontology (GO)
- Information Artifact Ontology (IAO)
- Ontology for Biomedical Investigations (OBI)
- Ontology of Clinical Research (OCRe)
- Reagent Ontology (ReO)
- Relations Ontology (RO)
- Software Ontology (SWO)
- Sequence Ontology (SO)
- Uberon (Uber anatomy ontology)
- Vcard

Source: https://wiki.duraspace.org/display/VIVO/VIVO-ISF+Ontology+v1.6+Overview%3A+Classes
The VIVINRA ontology (beta version)
The VIVINRA ontology
(beta version)
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**Ontology Extension Process + Skills**

- **Modelling**
- **OWL writing**

**Data Understanding & Ontology Selection**

- **Data source knowledge**
- **XML reading**
- **Drawing**

**VIVO Ontology Taming**

- **Modelling**
- **OWL reading**

**Implementation Test in the VIVO Interface**

- **Data source knowledge**
- **Modelling**
- **VIVO tool behavior awareness**

**Class Creation & Controlled List Extension**

- **Data source knowledge**
- **Programming (e.g. XSLT)**

**Data Transformation**

- **Modelling**
- **OWL writing**

**Class and Property Selection**
SOME ISSUES

Is this piece of information worth modelling?

keep in mind the final application goal(s)

Did we respect the semantics?

visit other applications (ex: VIVO repos) that use the concept to get examples (ex: vivo:Private Company vs. vivinra:Private Sector Actor)

check that all the instances of a class refer to the same kind of objects in the real world

Should we create a sub-class OR a controlled value on a data property?

depends on how you want to see it in the VIVO interface (facets on classes only)

How do instances that are referenced coexist with instances that are not?

create a (potentially) underspecified instance

Should we create redundant information, e.g. relation shortcuts?

theoretically no, but you may have to in order to fit in templates
NEXT STEPS

✓ Add data that were first discarded for complexity reasons

✓ Test the ontology stability in another system with other usages

✓ Reconsider using first identified ontologies to enrich the model

✓ Display the created data in another information system (e.g. Drupal) to experiment mash-up

✓ Use text-mining techniques to enrich data and add links to external Linked Data

✓ Use VIVO as a demonstrator to accompany the institutional policy towards open research data
THANK YOU!

VIVO Ontology: https://wiki.duraspace.org/display/VIVO/VIVO-ISF+Ontology

VIVO International Researcher Network: http://www.vivoweb.org/

VIVO Open Source Community: http://vivo.sourceforge.net/

Learn more about Inra open data policy: http://www.ciard.net/community/interviews/towards-open-science-face-agriculture-challenges