

W3C LBD Community Group

Minutes - Call 21/09/2022

Attendees:

- Mathias Bonduel (KU Leuven and Neanex Technologies)
- Michel Bohms (TNO)
- Lucas Verhelst (BIM-Connected)
- Louise Dam (Semmtech)
- Joel Bender (Cornell University)
- Maria Husmann (Siemens)
- Rahel Kebede (Jönköping University, Sweden)
- Eduard Loscos (IDP)
- Pierre Bourreau
- Ranjith Soman
- Madhu
- Francisco R
- Irfan
- Gabe Fierro
- Wouter
- Seppo Törmä

Presentation slides

- Link to Github repository:
 - Slides in [PDF](#)
 - Slides in [PPTX](#)

Date and time

- 21/09/2022, Wednesday, 14:00-15:30@UTC/ 16:00-17:30@CEST/ 07:00-08:30@PST

Moderators

1. Mathias Bonduel

Agenda

1. Introduction of new members
2. Presentation: Michel Bohms - 'Status of CEN TC442 Semantic Modelling and Linking (SML) standard'
3. Questions
4. Further topics

Minutes

1. Introduction of new members

- a. Eduard Loscos: IDP, engineering company, and BDTA (building Digital Twin Association), working in CEN WG9 on building digital twins. Working on interoperability in SPHERE project with TNO (simulation) and Neanex
- b. Lucas Verels: Dutch company BIM Connected, help Dutch organizations (government and contractors) with information management and use Linked Data for that
- c. Louise Dam: Dutch company Semmtech, working with Linked Data for engineering companies
- d. Maria Husmann: Siemens, building products, working with ontologies and semantics in industry, contributing to BRICK, interested in alignments

2. Presentation: Michel Bohms - 'Status of CEN TC442 Semantic Modelling and Linking (SML) standard'

- a. Has presented earlier in the LBD group > technical/deeper discussions are possible
- b. CEN 442 WG4 - use of dictionaries in BIM
 - i. Always regarding terms/definitions, but beyond > ontologies (similar to bSDD)
 - ii. Why > general challenges of construction industry (circularity, energy, housing shortage, etc.) => digitalization => SML can contribute to future-proof data landscape
 - 1. Scope:
 - a. assets in the built environment > incl products are assets that can be bought
 - b. Any type of construction (incl. Infrastructure, public spaces)
 - c. Total asset life cycle and actors
 - d. Total information lifecycle
 - iii. Key use cases
 - 1. Data exchange (can get out of sync) => data sharing
 - 2. Linked Data often collected in centralized repositories => grow to more decentralized approach
 - iv. Holger Knublaug (TopQuadrant): better to create local copy of external data
 - 1. Partially agree > publish Linked Data that is dereferenceable (content negotiation)
 - a. New for NEN/CEN/ISO
- c. Guiding principles
 - i. FAIRness of data > interoper through open W3C standards + reusable (well defined semantics > ontologies)
 - 1. Ontologies should be FAIR as well
- d. What is Information? > ISO 8000 extended (red)

- i. Master data (reference data, project independent, of one organization)
 - ii. Data specification > ontology => concepts defined in data dictionary
 - iii. Identification strategy for concepts and individuals
 - iv. Formal syntax (RDF serializations)
 - v. Missing
 - 1. Data specification > dictionary language (SKOS, RDFS, OWL, SHACL)
 - 2. Alternative to formal syntax: Query language / API
 - 3. Metadata > needs a specification and dictionary
- e. What can SML offer?
 - i. Reuse (enough on W3C level) > more on application level: when to use what (part of) technology
 - ii. Generic top-level ontology > objects, activities, states, events, interrelations
 - iii. Capability levels 1-3 (RDF+SKOS / RDFS / OWL or SHACL)
 - iv. Modelling patterns
 - 1. Enabling systems engineering (basics) > simple example but can become more complex in practice
 - a. Planned/ Actual
 - b. Functional / TechnicalEntity
 - 2. Property modelling > levels
 - a. V2 of SML allows QUDT for quantityKinds
- f. Examples
 - i. SML top level model > SML compliant ontology > SML compliant information set (data source)
 - 1. SML top level model used in both the ontology and information set
- g. Related
 - i. Where do we put the data deliveries > ICDD
 - ii. buildingSMART bsDD > ontology in STEP/XML/LD/JSON
 - iii. BOT
 - iv. CEN TC442 data templates > IFD (ISO 12006-3) => similar to SML to certain extend
 - v. Industry application
 - 1. RWS OTL (Rijkswaterstaat)
 - 2. Amsterdam OTL
 - 3. Gelderland OTL
 - 4. Waternet OTL
 - 5. IMBOL-LD
 - 6. TenneT OTL
 - 7. Asphalt contractors/designers > PIM (pavement information modelling) => creating their own OTL
 - a. Tables to Linked Data OTL

- b. Application of SOSA/SSN > observations (frequency of 1000Hz) => when switching to other way of representing data (excl metadata, stays always in Linked Data)
 - vi. Note: OTL used in Dutch context > actually ontologies (OTL can create confusion)
 - h. Bigger picture > ISO TC59 / SC13 and TC442
 - i. Different areas, historically grown > looking to make interaction between standards more logically (proposed update in WG4+WG7)
 - ii. Process, status and steps
 - 1. Context: Dutch standard NEN2660-2 => direct inputs to CEN FpreEN-17632-1 > pt might be published by Dec 2022
 - 2. Part of NEN2260-2 to CEN DpreEN-17632-2 + new stuff (geometry) => back to NEN 2660-3

3. Questions

- a. [Seppo] OTL is exactly the same as an ontology?
 - i. Yes. Only individuals can in LD world also be called an ontology. OTL only focuses on conceptals
- b. [Pablo] property modelling > in IFC properties are not always well-defined. Are you preparing a series of property definitions?
 - i. Ways of modelling properties. We don't offer a list of properties (e.g. length, width, color, etc.) > difficult to standardize because it depends on context. Already existing work
 - ii. Meta properties (PPBIM inspired) > way for defining them using STEP <> Linked Data using SML
- c. [Wouter] IFC, gbXML, etc. how to relate them all. Not aware of SSN/SOSA. How related to SML?
 - i. Always lots of variants. Simpler subset of SSN, SOSA is more practical
 - ii. [Wouter] Competitor of Haystack? ASHRAE standardization?
 - 1. Semantic tagging. Originally less structured information
- d. [Mathias] levels of properties. Simplicity (by limiting patterns) vs flexibility
 - i. Excel => simple patterns possible in many cases (e.g. when no units)
 - ii. Machine learning => want simple patterns
 - iii. Complex patterns => because people want metadata on the properties
- e. [Seppo] considered RDF* for metadata to properties
 - i. Yes, not standard at the moment
 - ii. [Seppo] link to ontologies
 - 1. Difficulties with reasoning
 - iii. [Gabe] not ontologies background > practical attitude to ontologies. People implementing and using the ontologies should not care more on RDF* > level 2 could be most practical. What is straightforward? Using SQL and spreadsheets over SPARQL
 - 1. [Michel] problem stays

2. [Gabe] there's a point where becoming more correct, the added effort is not worth it
 - f. [Pablo] most developers for IFC realize that Excel should be used. Problem is often how IFC is applied by people (too many properties, no structure). Would vote for level 3 of properties, too solve (almost) everything
 - i.
- 4. Further topics**

Next Call

- 12/10/2022, Wednesday, 14:00-15:30@UTC/ 16:00-17:30@CEST/ 07:00-08:30@PST

Agenda: TBD

We are interested in getting suggestions from the community about potential agenda items and **Elevator Pitches** for the following calls. Please send your suggestions to the chairs or to internal-lbd@w3.org, whether you have a short presentation to bootstrap the discussion, and an approximate duration you think the discussion will last.

Previous minutes

<https://www.w3.org/community/lbd/meeting-minutes/>