

W3C LBD Community Group

Minutes - Call 20/03/2023

Attendees:

- Alex Donkers (Eindhoven University of Technology)
- Katja Breitenfelder (Fraunhofer IBP)
- Rahel Kebede (Jönköping University)
- Julia Kaltenegger (Eindhoven University of Technology)
- Francisco Forns-Samso
- Peter Johansson (Jönköping University)
- Mathias Bonduel (KU Leuven)
- James Allan (Empa)
- Joel Bender (Cornell University)
- Marin Ljuban (BIM A+)
- Conor Shaw (University College Dublin)

Presentation slides

- Julia Kaltenegger: [GitHub](#)
- Rahel Kebede: [GitHub](#)

Date and time

- 20/03/2023, Monday, 14:00-15:30@UTC/ 16:00-17:30@CEST/ 07:00-08:30@PST

Moderators

1. Alex Donkers and Katja Breitenfelder

Agenda

1. Introduction of new members
2. Presentation: Julia Kaltenegger - A data management perspective on building material performance
3. Presentation: Rahel Kebede - Integration of manufacturers' product data in BIM platforms using semantic web technologies
4. Discussion
5. Further topics

Minutes

1. **Introduction of new members**
 - a. **Alex Donkers - New LBD CG chair**
2. **Presentation: Julia Kaltenegger - A data management perspective on building material performance**
 - a. Julia
 - b. Material modeling + Building performance
 - c. Lack of scalability and data granularity

- ii. Making use of SW technologies in combination with existing tools (BIM authoring tools ect.)
 - iii. Workflow: Combining SW technologies, Autodesk Revit and Dynamo (VPL)
- c. allow product owners to compare products and to optimize them according to their individual needs (efficiency, energy ect.) -> run SPARQL queries
- d. Sources: PhD Mathias Bonduel, Anna Wganer (..)
- e. Porpuse: integrate LD and dynamo to develop new workflows (..)
- f. research workflow
 - i. 1: Collection of data of lightening manufacturers, excel, mapping product data with Swedish standard (..) and CEN/TS 17623:2021 - (..)
 - 1. xx
 - ii. 2. Visual Programming application

(ADD)

4. Q&A on presentation 1 - Julia Kaltenegger

- a. (Mathias) Q: Modeling of material properties: How do you deal with modeling functions? A: Posing this question currently, still to be solved. When it comes to sequences of performances, then it will become a linkage of different databases, sequent database combined with graph database for instance. Q: Why wouldn't it be possible to link this data in the graph? A: Maybe we will include it in the ontology itself, still not solved, depends on the data needed. (Mathias assumes that in modeling product data this question will be frequently coming up)
- b. (Mathias) Q: Aligning of approaches : material modeling in ifc / EU standard (EN 17632-1:2022 - Semantic Modeling and Linking (SML) top-level ontology) describing a top level ontology to describe it. Wondering if it could be used for modeling directly A: Good point, she will be looking into it.
- c. (Peter) Q: Interesting work. How to integrate complex data sources for manufacturing- and product data. A: Depending on your goal as a user, in Julia's case coming from the material science. When dealing with product data it is a complex congregation level. Julia has a similar question to Rahel: Which sources to use for a material/ product database.
- d.

5. Q&A on presentation 2 - Rahel

- a. (Mathias) Q: xxx. A: Lightening manufacturer collected data "in a structured way" (using excel). Experts in the department assisted in mapping those data.
- b. (Mathias) Q: Would it be also possible that they publish directly structured Linked data according to the European Standard? A (by Peter): It's rather linking their terminology to the mapped standard.
- c. (Julia) Q: How did you structure the data collection from manufacturers? How do you structure the backend and query and where did you get the information from? A: The manufacturers provided pres-structured data, families, instances of lights; when developing the ontology making use of those families and instances. Using RDFC to connect those data with.. (ADD)
Lifedemo Dynamo script
- d. (Julia) Q: Do you add those parameters? A: Yes, if there is a parameter not available in Revit, it would be added. Using cpython.Julia's approach: avoiding "adding" additional (meta)data to BIM objects / or to one environment in general, but she sees that manufacturer might be asking for that.
- e. (Alex) Q: Did you consider native ifc viewers (and skip Revit)? A: Yes. When we started the project we took a look at the technological solutions the industry was

using during that time. We took this as a starting point. (Alex): feel free to contact him for using the developed viewer.

- f. (Mathias) Q: I understood that you also intended to use Revit specific plug-ins for energy simulation. A: Indeed, we wanted to use Relux (Plug-In and stand-alone solution) (lightning).
- g. Peter: Linking the product, deleting the material properties might become the future
- h. Julia: There solutions developed out there developed for DPP, ut it depends on the application specific requirements
- i. A: Product ontology: Currently working on formalizing the ontology and aligning with additional ontologies (master students being involved). DPP: Representing graph data as shown during the presentation current issue in research.
- j. (Alex) Q: How do you see the role of the bSDD in this alignment process? (Peter): We see this as the future, we have in Sweden a payment system for using it. Connecting ontologies will become more and more important, for this, the bSDD will be providing a “practical” basis.

Discussion:

- k. Julia: If it comes down to properties and parameters, there are law definitions in order to take measures as a basis for calculations. This makes it much easier. However, there might be national differences in national calculations methodologies. Peter: We have to teach students to use existing terminology and to not invent terminology anew.
- l. Alex: Do you know the existing tool Madaster? Providing use cases on their Website.
- m. Julia would have some questions on reasoning and inheriting information. Recommendations for gaining knowledge would be appreciated. Mathias: First question is : do you have a good use case allowing to smoothly run SPARQL queries. If you do more complex calculations you might need additional simulation software.
- n. Julia: Do you have experience with using existing simulation software? Mathias: Normally you will have to develop your own parsers etc.
- o. Alex is working on a EC3 referred project and could provide examples for reasoning ontologies and using for services.
- p. Rahel:
Alex: ifc.js parser, also including the GUID of an element; add the elements' IFC GUID to knowledge graph (automated by converter), using GUID as a starting point for querying (knowledge graph at the backend, ifc visualized geometry using a web viewer at the frontend), Alex wrote “SPARQL box” making the workflow more user friendly. Using comunica framework querying different LD sources. Mathias: would be a nice use case. Alex: We tried this already, creating virtual RDF graphs for several users. Peter: would like to integrate their use case on product data into that. Alex: Happy to assist it that should be easily possibly to integrate it.

6. Further topics

Next Call

- 17/04/2023, Monday, 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/>