Ontologies for MUSICODE

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MUSICODE project description

- MUSICODE
- MUSICODE (An experimentally-validated multi-scale materials, process and device modeling & design platform enabling non-expert access to open innovation in the organic and large area electronics industry) is a European collaborative research and innovation project. [1]
- MUSICODE is led by a multi-disciplinary consortium coordinated by University Ioannina and the targeted application domain is organic electronics.
- Project participants

• AIXTRON	Ansys	Auth
• CVUT	Esteco	Fluxim
• KIT	OET	UOI
• USUR	TinniT	

- Ontology related tasks/deliverables:
- Ontologies for OE materials, devices, processes and related data.
- Cooperation with EMMO and other stakeholders on new OLAE ontology

1. http://musicode.eu/

Ontology Conceptualization

- MUSICODE Platform
- Processes
  - Simulation
    - Electronic
    - Atomic
    - Beads
    - Continum
  - Experimental Material characterization
    - Structural
    - Electrical
    - Optical
  - Fabrication/Manufacturing
    - Roll to roll printing of OPVs
    - Organic vapor phase deposition of OLEDs
- Manufactured Devices and Materials

Role of Partners and templates for data collection

- Partner‘s Participation
- Started with something simple and easy to understand.
- Each partner is involved in the ontology development process through discussions.
- Partners have been provided with pre-defined templates to report their activities.
- Those templates have been shown on the next slide.
- Later on, those templates were transformed into ontologies.
- The ontology development process has been started with the UML for easy understanding of the ontology process.
- The UML diagram can be viewed by visiting the following link.
- https://lucid.app/publicSegments/view/f447d6d9-d574-472e-a595-9d34cdec1c18/image.png

- Templates for data collection

Template for data collection about SRO

1. Simulation process name @ partner's name

1.1 Brief (two-line) description of the process:
1.2 Position within a multiscale workflow:
1.3 Links/connections with the other methods:

2. Inputs required:
2.1 External*?
Enlist all the variable names and their datatypes

Variable Name:	Datatype()

2.2 Internal**?
Enlist all the variable names, their datatypes, and mention respective the partner's name/process

Variable Name:	Datatype()	Partner's/ process name

2. Process Parameters:

Variable Name:	Datatype()

3. Outputs* **for database:**

Variable Name:	Datatype()

3.1 Outputs* for other processes:

Variable Name:	Datatype()

Template for collecting information about characterization

1. Please write/choose the characterization technique and the responsible partner's name.
2. What inputs (also datatypes) are needed for this characterization technique, and how to get those?

Input	
Sample manufacturer /Partner's name	
Input specifications	

3. What are you analyzing through this measurement technique?

Independent / applied variable /w.r.t	Dependent /measured variable

4. The crucial processing parameters of the characterization instrument?

Variable	Datatype

5. What are the main raw outputs?

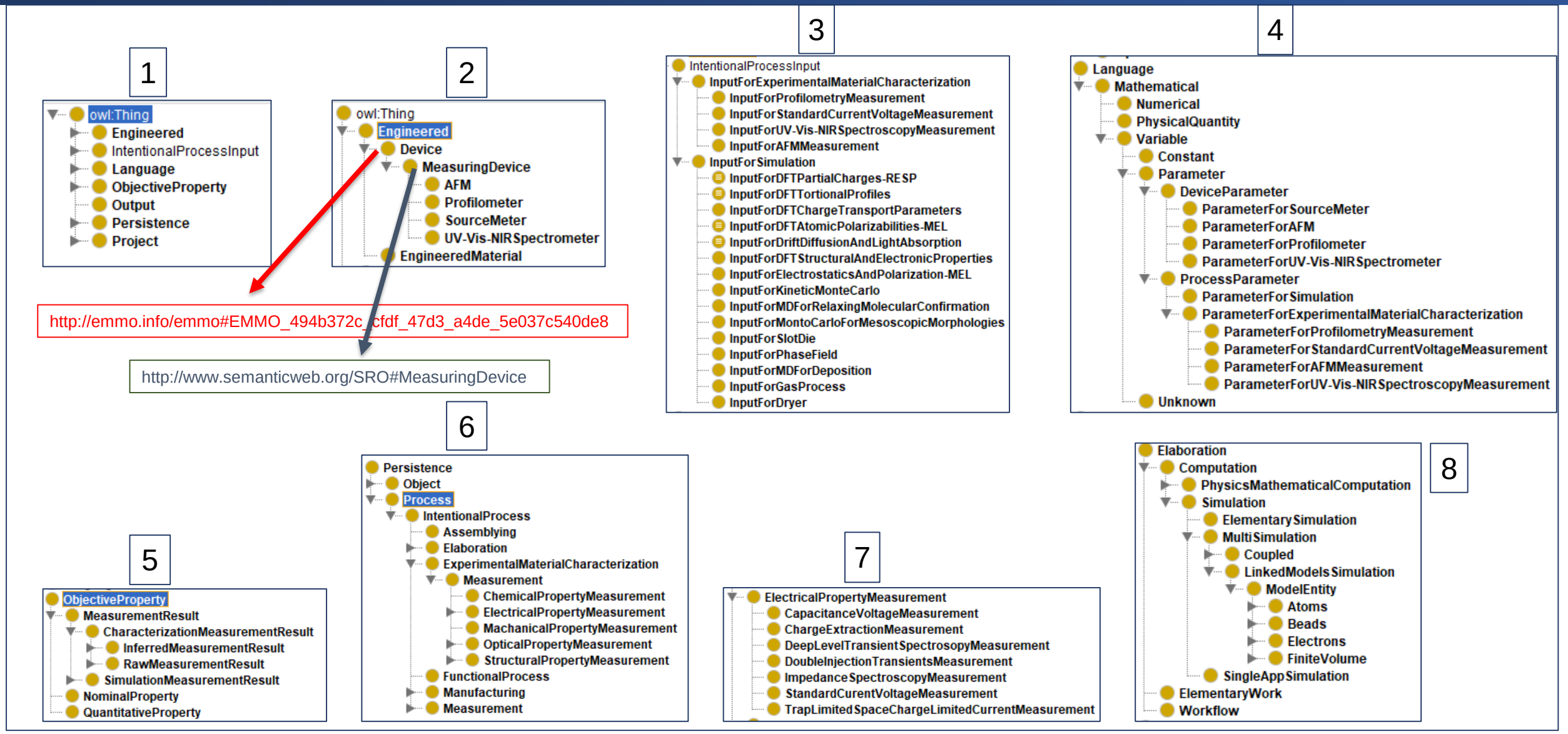
Variable	Datatype

6. What are the major processed outputs (in the context of MUSICODE)?

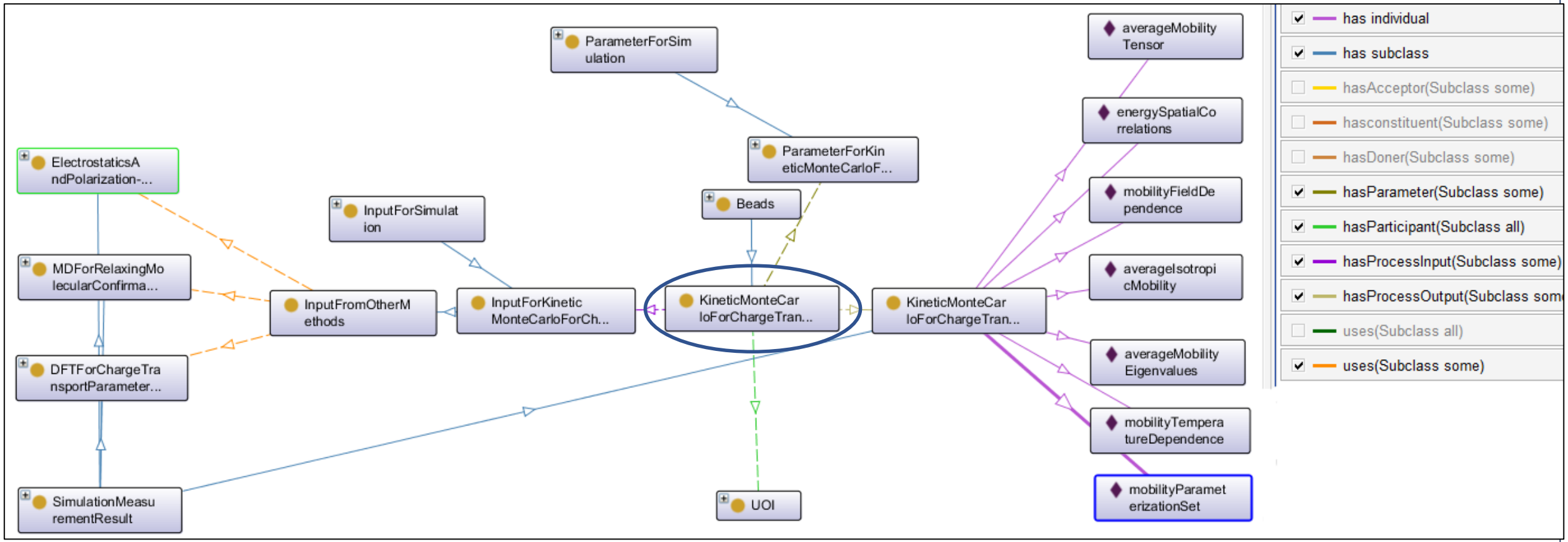
Variable	Datatype

7. What tool/method is used to convert the raw output to processed output?
8. What is the significance/physical meaning of the output?

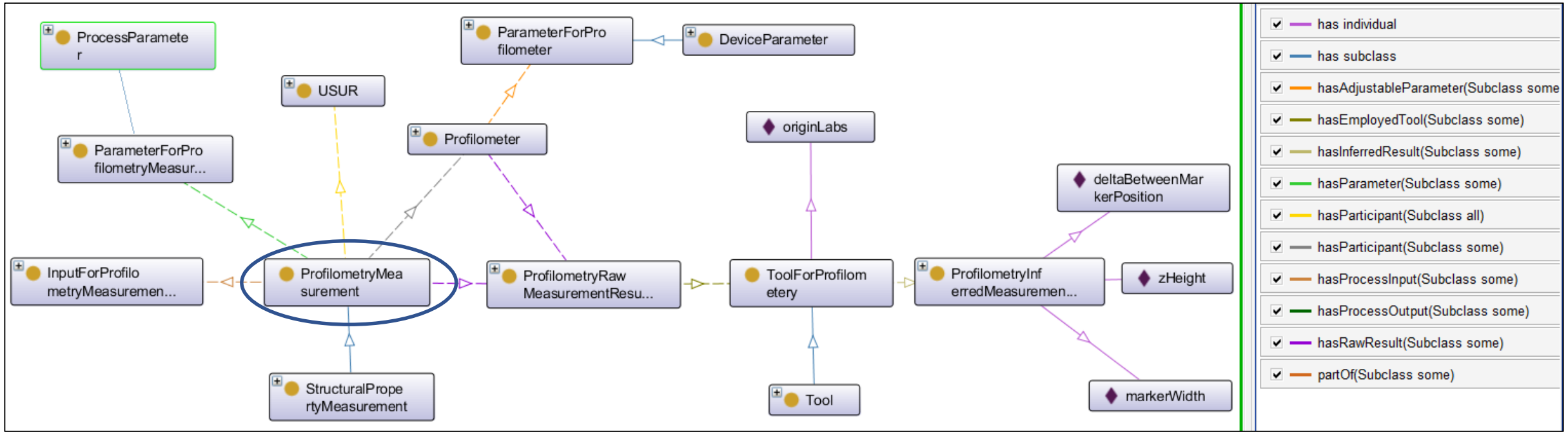
Ontologies for OE materials, devices, processes and related data



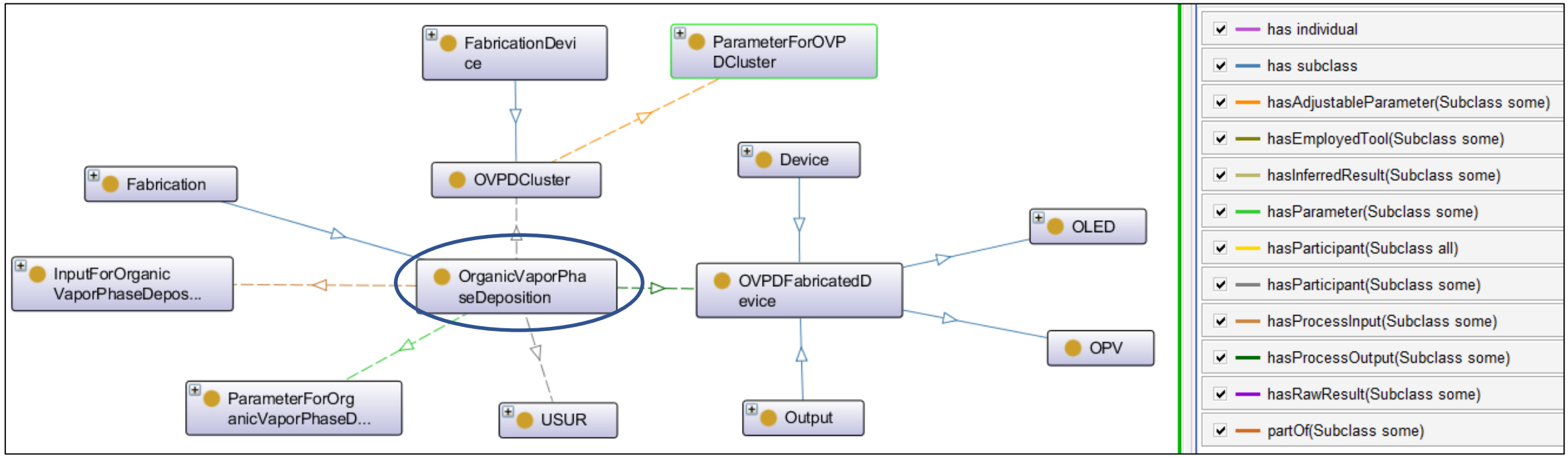
Simulation process overview



Characterization process overview

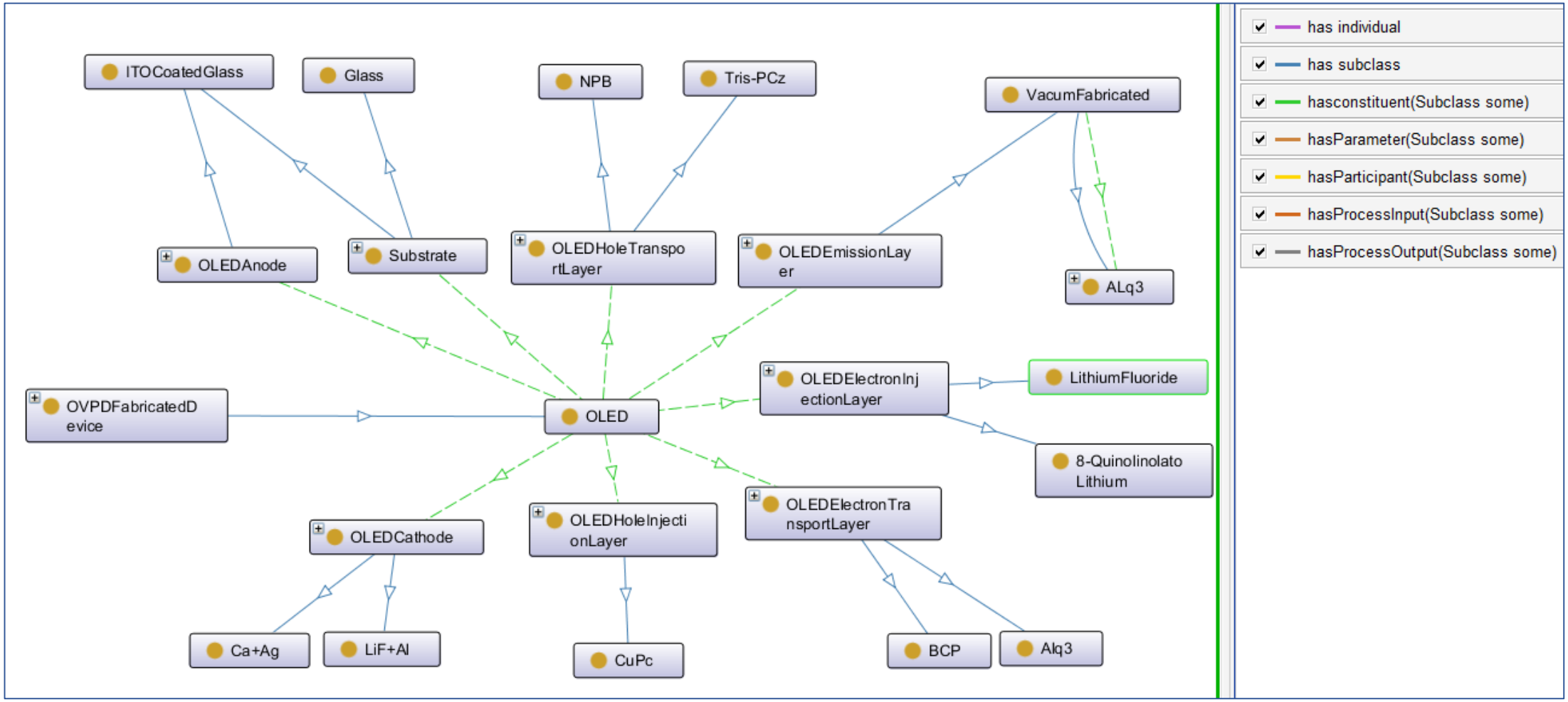


Fabrication process overview



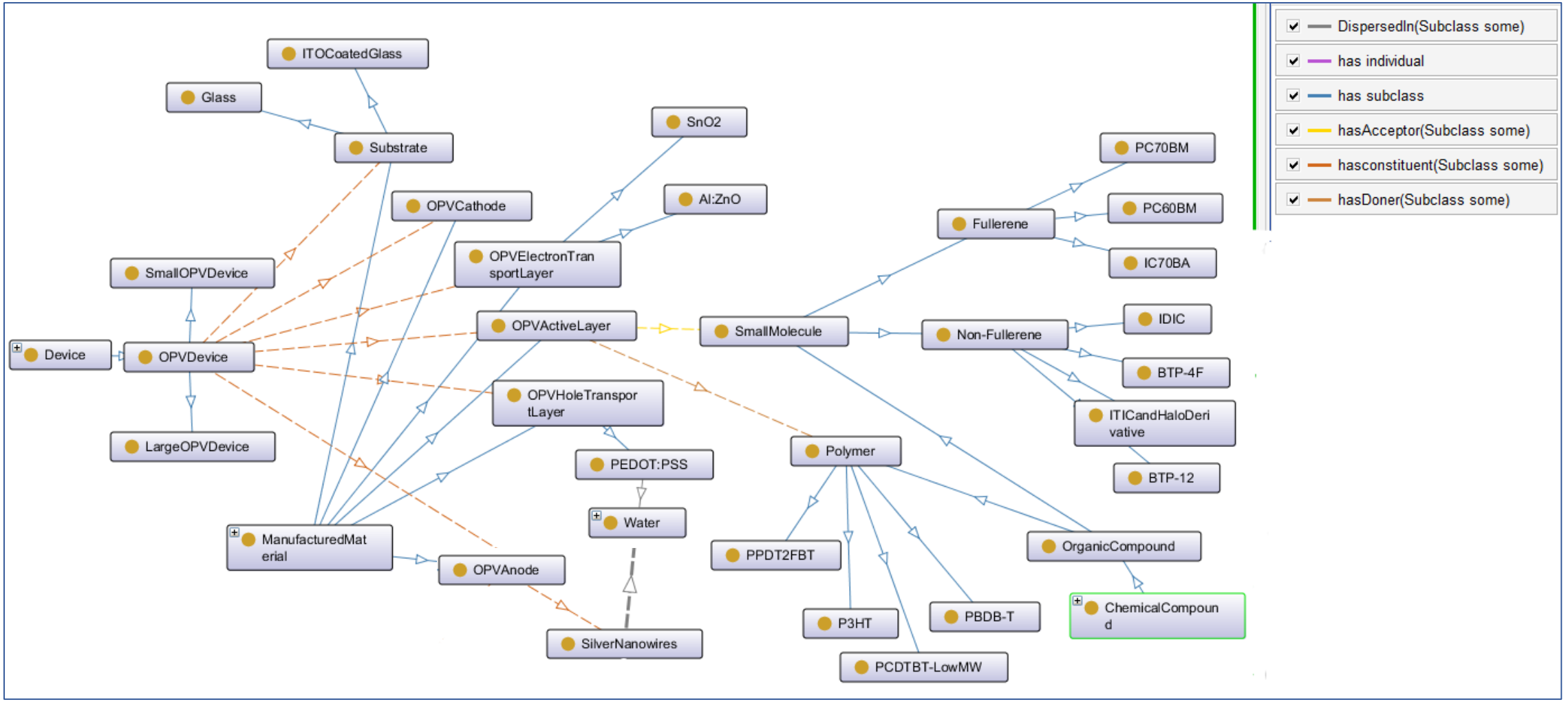
Ontologies for OE materials, devices, processes and related data

OLED overview



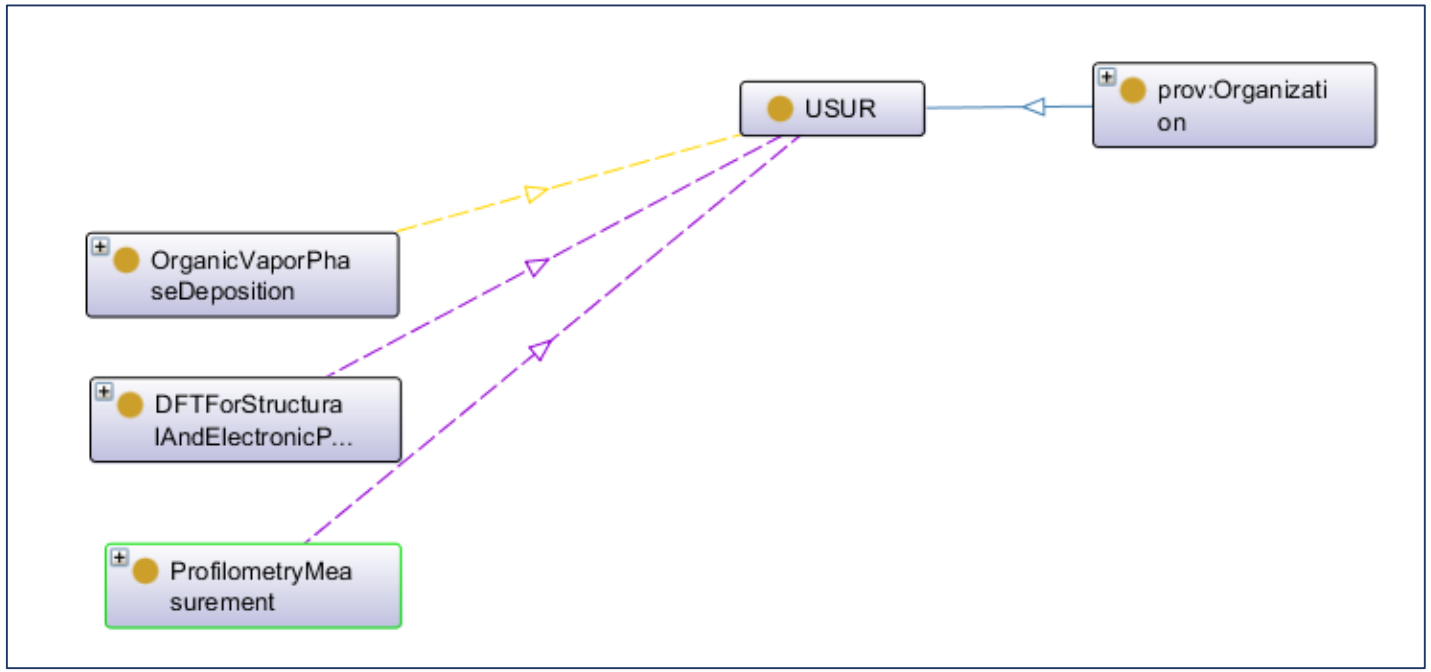
Task 1.4 – Ontologies for OE materials, devices, processes and related data - KIT

OPV Device overview:



Ontologies for OE materials, devices, processes and related data

Participant contribution overview:



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