An experimentally-validated multi-scale materials, process and device modelling & design platform enabling non-expert access to open innovation in the Organic and Large Area Electronics Industry (MUSICODE)

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Ontologies for OE materials, devices and processes

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Publishable summary

This deliverable provides the ontological description of the modeling process (i.e., simulation) and establishes the specifications for the construction of an ontology for all the other applications (devices, materials, etc.) present within the scope of the MUSICODE project.

The ontology which showcases complete simulation activities in the platform is called simulation requirement ontology (SRO). It is available both in UML and OWL. The data collection format which has been used to collect relevant data from all partners is also represented in this report.

The SRO represents the division of all simulation processes according to length scale and the responsible partner/ organization. It also shows the connection between the different partners and the importance of outputs of one simulation activity for another. The concepts, data items, naming conventions, and relations have been finalized after a rigorous discussion with partners. The partners who have been actively involved in the discussion were UOI, Tinnit, USUR, and KIT.

At first, the ontology has been constructed by using unified modeling language (UML). But later on, it has also been transformed into a traditional representation using web ontology language (OWL). The advantages and shortcomings of both ontological depictions have been discussed in detail.