



EVMF: European Virtual Marketplace Framework

Use Case No 5

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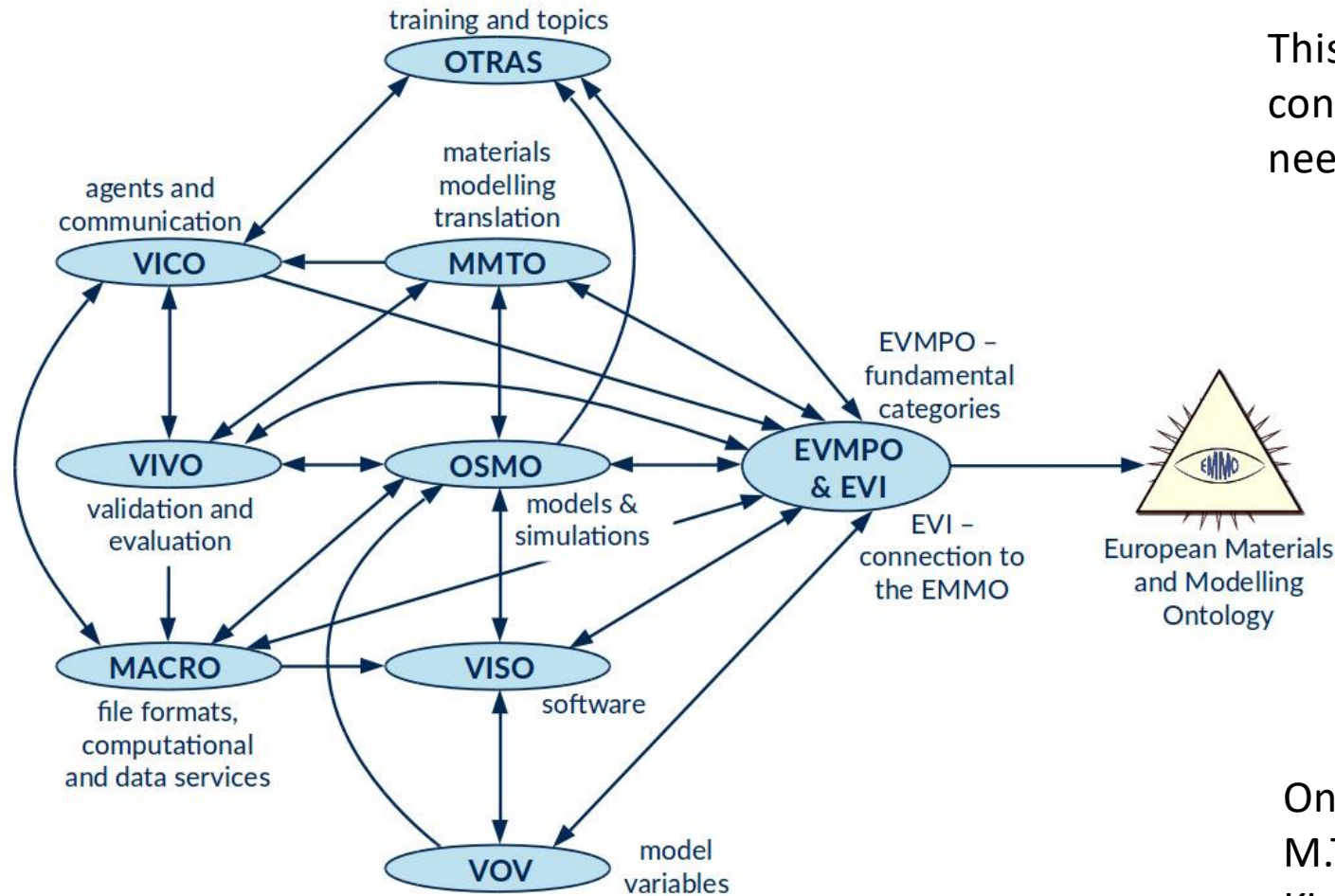
STFC/UKRI and GCL

- The **UK Research and Innovation (UKRI)** agency is a non-departmental public body. It brings together the seven disciplinary research councils, Research England, and Innovate UK. The **Science and Technology Facilities Council (STFC)** is a multi-disciplinary science institution whose field of activity includes astronomy, particle physics, space science, nuclear physics as well as the provision and operation of research facilities for all areas of activity of UKRI.
- **Goldbeck Consulting Ltd (GCL)**, based in Cambridge (UK), aims to bridge existing gaps in the materials modelling ecosystem, connecting communities, supporting the validation and technology transfer of academic developments to industry, translating industrial needs into impactful materials modelling projects and researching the pathways and barriers to economic impact.



- The **Virtual Materials Marketplace (VIMMP)** is an ongoing H2020 project (Jan 2018 - Dec 2021) developing a digital marketplace, *i.e.*, a platform to facilitate exchanges between providers and users in the area of materials modelling.
- The **VIMMP ontologies** are the semantic basis of the VIMMP platform and are meant to support **interoperability within it and with similar platforms and services** (including marketplaces, open innovation platforms, and business decision support systems from the NMBP line of projects).
- Here we will improve/extend them based on a wider agreement with the community, to foster their perspective use by other initiatives, in particular, for the description of Materials Modelling (MM) software and of use-cases.
- Involved actors: MM Software developer/distributor, MM software user, industrial end-user, modelling expert (“translator”)

The VIMMP ontologies and the EVMF



This system of ontologies, aligned with the EMMO, constitutes a framework to organize the knowledge needed on virtual marketplaces

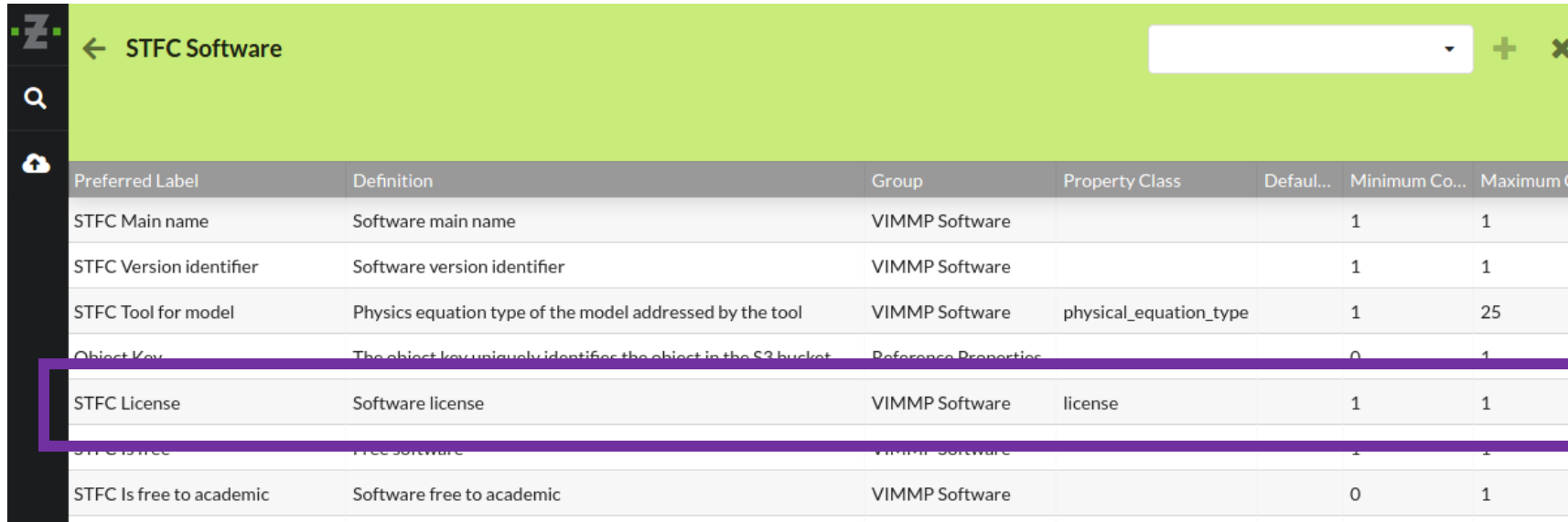


<https://www.vimmp.eu/>

Ontology release at
[doi:10.5281/zenodo.3936795](https://doi.org/10.5281/zenodo.3936795)

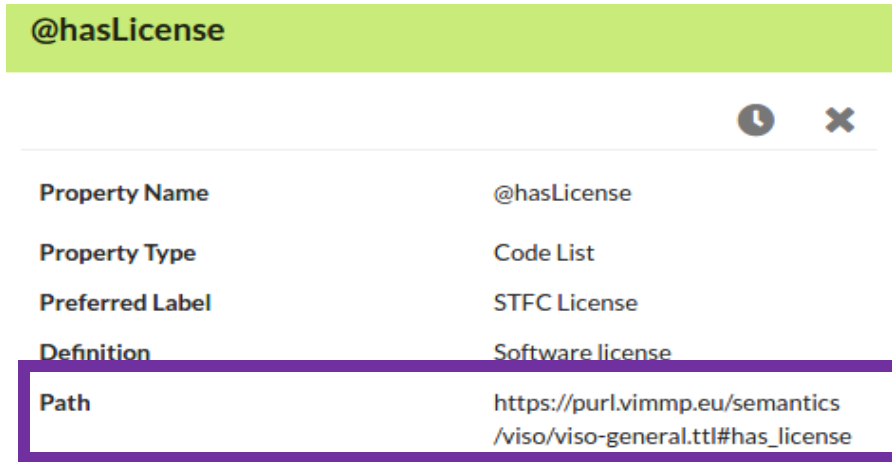
Ontologies for the Virtual Materials Marketplace
 M.T. Horsch, *et al*
 KI – Künstliche Intelligenz 34(3), 423–428, 2020

The VIMMP ontologies in use on Zontal



Preferred Label	Definition	Group	Property Class	Default...	Minimum Co...	Maximum C.
STFC Main name	Software main name	VIMMP Software			1	1
STFC Version identifier	Software version identifier	VIMMP Software			1	1
STFC Tool for model	Physics equation type of the model addressed by the tool	VIMMP Software	physical_equation_type		1	25
Object Key	The object key uniquely identifies the object in the S3 bucket	Reference Properties			0	1
STFC License	Software license	VIMMP Software	license		1	1
STFC Is free to academic	Software free to academic	VIMMP Software			0	1

Note: here "STFC" is a temporary tag in names, needed to avoid name clash in this development phase



@hasLicense

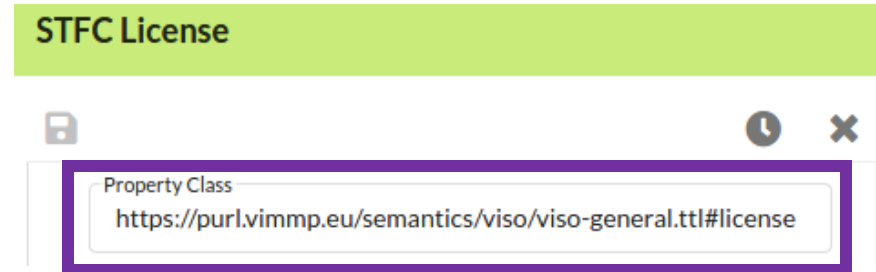
Property Name: @hasLicense

Property Type: Code List

Preferred Label: STFC License

Definition: Software license

Path: https://purl.vimmp.eu/semantics/viso/viso-general.ttl#has_license



STFC License

Property Class: <https://purl.vimmp.eu/semantics/viso/viso-general.ttl#license>

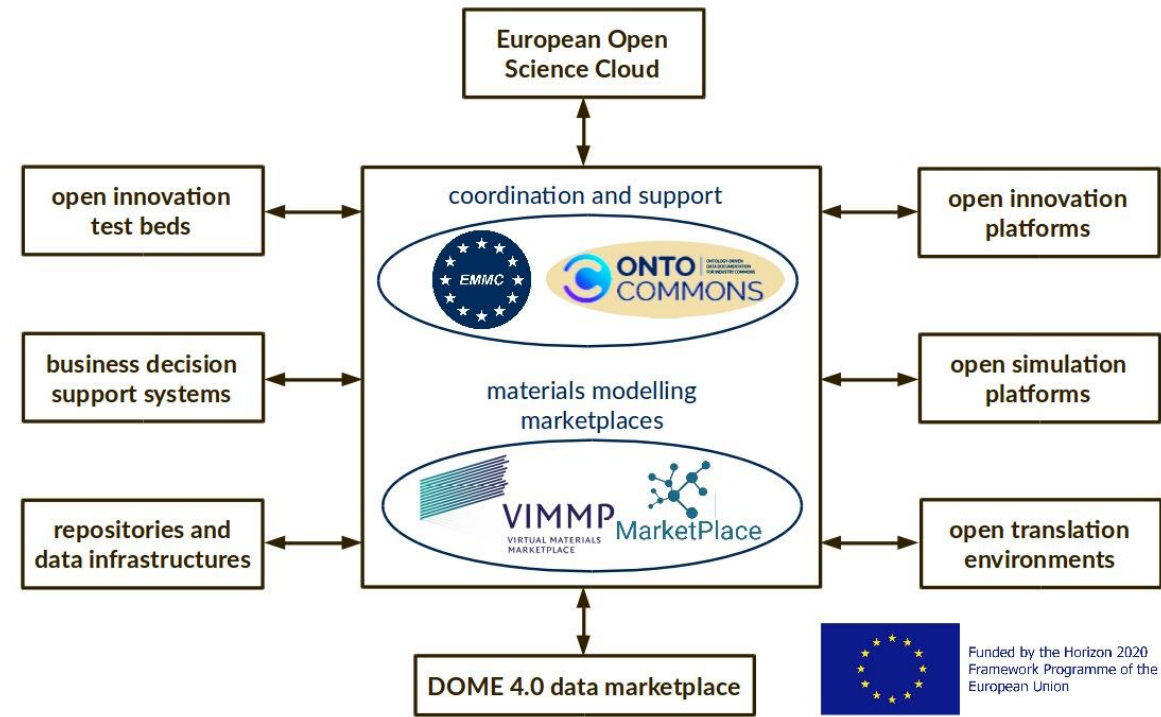
URIs for properties and for classes for dropdown menus.



Ontology use in the UC5

● Purpose of ontology application in the use case:

- Interoperability
- Data model / data structuring
- Overview and visualization
- Data sharing



UC5 requirements

- Description of the use case requirements and its challenges/highlights
 - Documentation of Materials Modelling software
 - Description of a use case for Materials Modelling
 - Extension/improvement of VIMMP Ontologies
 - Wider agreement (via the EMMC focus areas on digitalisation and interoperability)

EMMC – European Materials Modelling Council (<https://emmc.eu>)

Main expected benefits

- A **concrete implementation** will allow to discuss and improve the proposed framework via the interactions with similar initiatives
- Provide to the OntoCommons Ecosystem with **prototypical needs from digital marketplaces** and similar NMBP platforms
- An opportunity to discuss the **alignment to EMMO** of applied domain ontologies

EMMO – European Materials and Modelling Ontology

Acknowledgements

- The VIMMP Consortium in general, and in particular:
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Thank you for your
attention!

Questions?

www.ontocommons.eu



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