

ONTO/TRANS NEWSLETTER

Issue 3

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OTE Architecture

The primary user of the OTE (Open Translation Environment) is a Translator. The OTE is multi-user web-based platform where the translators will interact with the system through a web browser.

Translators expect to use this web interface to perform a translation from innovation challenges to innovation recommendations based on utilising a range of data sources, including building and running modelling workflows.

The main functionalities of the system are:

- Perform the process of translation in steps guided by a software wizard
- Search knowledge base
- Validate and run simulation workflows
- Perform data analytics on experimental and modelling data

The OTE (Open Translation Environment) Architecture is intended to guide the implementation of software components in OntoTrans by providing a technical overview of the OTE system and concrete advice and directions to the project participants implementing the software components.

OntoTrans

Ontology driven
Open Translation Environment

H2020-NMBP-TO-IND-2019

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Project acronym

OntoTrans

EC-Grant agreement

862136

Start / End

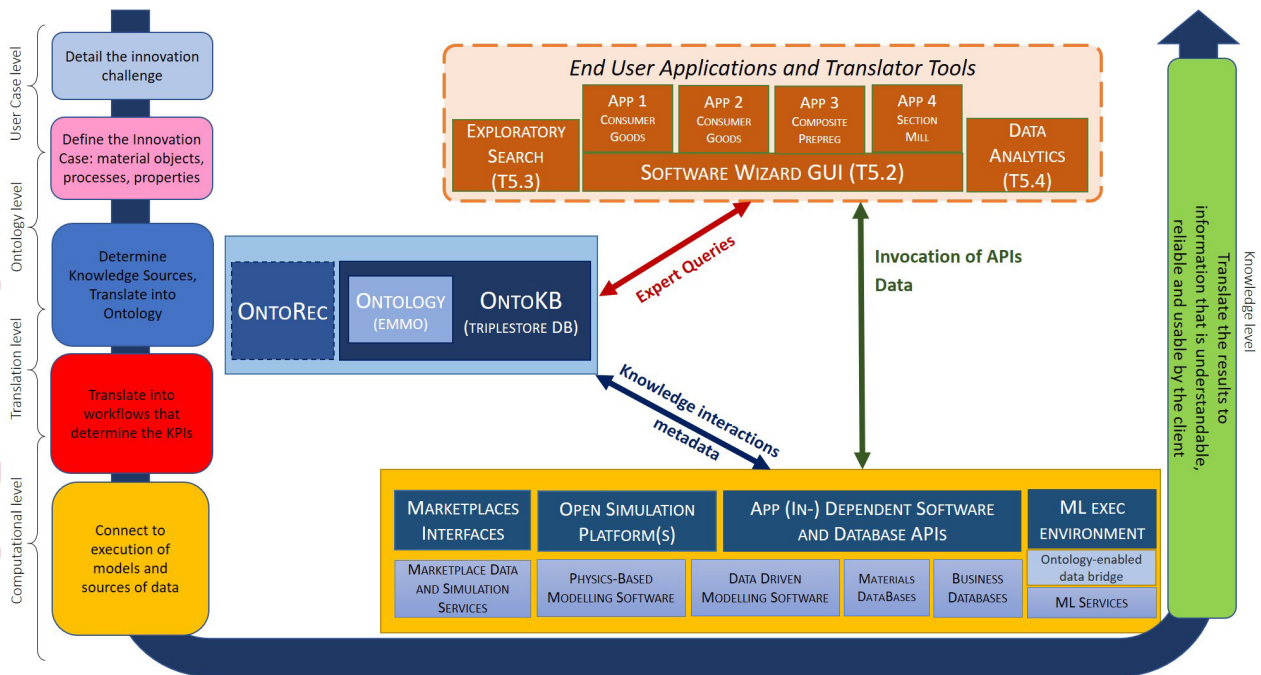
01.04.2020 - 31.03.2024

Web

<https://ontotrans.eu>



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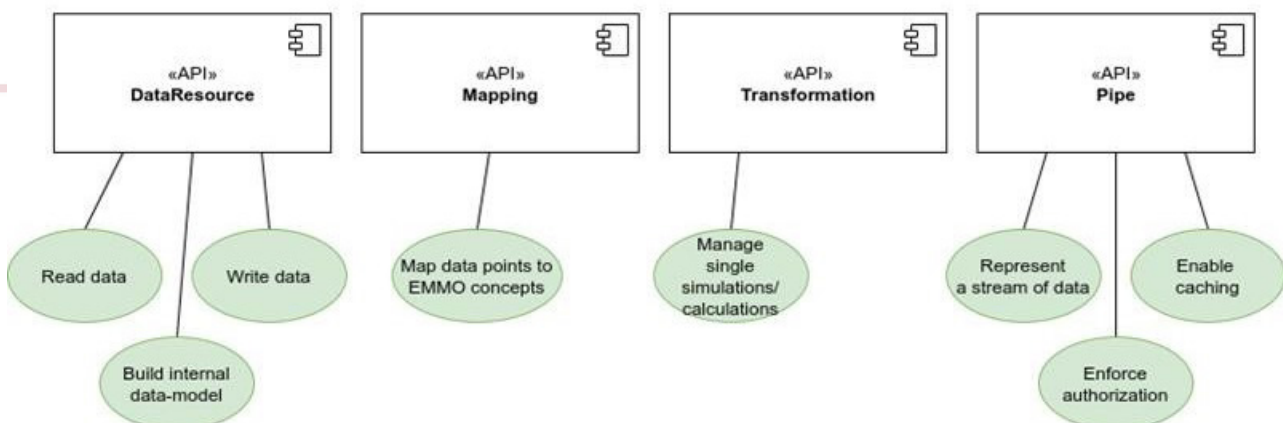
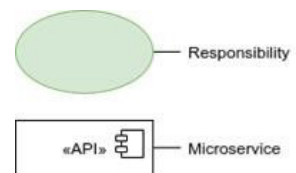


Overview over the main components in OntoTrans

OTE Interfaces

A recent result of the project has been the design of the interfaces needed to connect the OntoTrans OTE to external resources including open simulation platforms, marketplaces, databases and machine learning tools. From a design perspective these interfaces can be categorized into interfaces to data sources, data sinks and transformations. A data source is a resource one can read data from, a data sink is a resource one can write data into and transformation is a process that creates new data, like a simulation or post processing.

The interfaces to these abstract external resources will be implemented using standard APIs that an OntoTrans APP can connect into a data pipeline. In addition to sources, transformations (models) and sinks, other types of small modules (so called filters) may be inserted into a pipeline, to perform tasks like mapping the data to the OntoTrans ontology or slicing large datasets. In order to allow the microservices to be seamlessly connected, they will all operate on an internal data representation based on the data model.

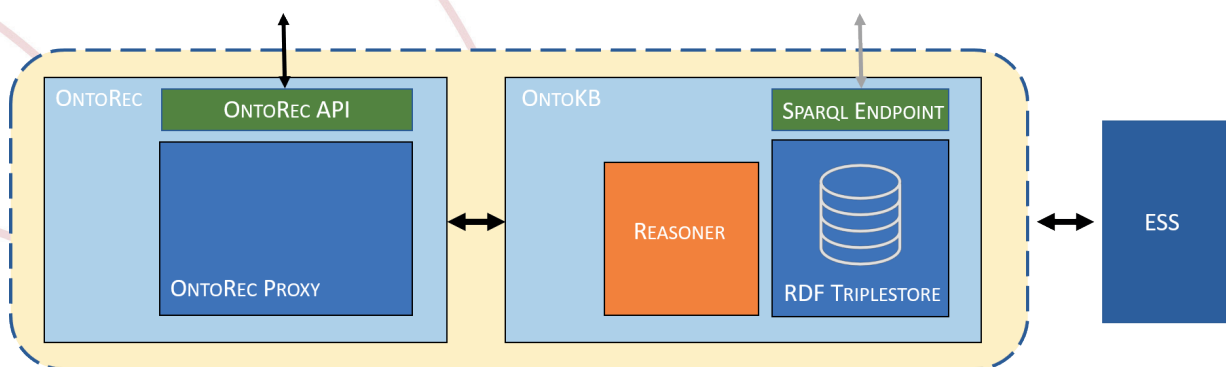


Outline of interfaces

This design with a set of modules that can be combined in different ways provides a lot of flexibility and makes it easy to reuse modules in new use cases. Another benefit of this design is that the individual microservices should have a small and simple API and hence be easy to implement and test. The system will also be very efficient since data is only transferred when needed and only between the tools that need it. The End User Application will in most cases merely orchestrate the data pipeline and only at the end ask for the final results for viewing, reporting and visualisation.

OntoTrans Core Design

An initial activity was to identify existing software technologies to be used as backbone for the development of the OntoTrans Core components (i.e., OntoRec and OntoKB, see the figure). After detailing the desired characteristics that a suitable Triplestore database should exhibit to fulfil the requirements of OntoTrans Core components, the project partners examined the existing Triplestores under such OntoTrans-based perspective, ending up by motivating the choice of employing Stardog as a Triplestore platform.



OntoTrans Core components zooming in. The ESS module is showed as an example of component, internal to the OntoTrans system, that needs to interact with the OntoTrans Core module. The grey arrows connected to the SPARQL endpoint just remind that such way of accessing the OntoKB module should be limited and controlled.

A first demonstration of the OntoKB and of its interaction with OntoRec are presented. Two possible alternative deployments for OntoKB are proposed, and installation details – that can be useful also for those within the project who would like to experiment with it until the licenses for the project are available – are provided. An import toolchain has been developed to automate the process of populating OntoKB. Finally, pystardog, i.e. a Python wrapper for communicating with the Stardog HTTP server, is used to query the Stardog Triplestore; the OntoREC APIs can be implemented relying on such a Python package.

OntoTrans @ EMMC Webinar

In November/December 2021, OntoTrans will organise a Webinar on OTE - Open Translation Environment as EMMC Webinar. The consortium will present the current status, an overview of achieved results and goals of the project. Relevant stakeholders of the EMMC will be invited to participate in this webinar.

More detailed information will be published soon on <https://emmc.eu/events/>



WEBINAR SERIES

OntoTrans @ EuroNanoForum May 2021

The EuroNanoForum is Europe's benchmark event in nanotechnology, nanoscience and advanced materials and looks at the role of nanoindustry on the road to a greener and more resilient Europe. OntoTrans participated in EuroNanoForum's Satel-lite event on May 4 with a presentation about the modelling and characterisation interoperability facilitated by EMMO.

[Read more & presentation ...](#)



OntoTrans Presentation @ DORIC-MM June 2021



The Domain Ontologies for Research Data Management in Industry Commons of Materials and Manufacturing (DORIC-MM) was an event supported by our related H2020 project OntoCommons for both ontologists and experts from all domains of materials and manufacturing. DORIC-MM took place as a full-day event on June 7, including a half-day of presentations followed by a half-day of discussions and joint writing. OntoTrans participated in the event with two presentations.

[Read more & presentation ...](#)

OntoTrans Consortium Meetings

M12 Consortium Meeting / Online/ March 17-18 & 24, 2021

M18 Consortium Meeting / Online / September 9-10, 2021

M18 Review Meeting / Online / September 29, 2021

OntoTrans Consortium

