



The European Materials Modelling Council

Project idea

Call

DT-NMBP-10-2019: Translation of manufacturing problems into materials modelling

Contact

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Project Idea

Development of an integrated platform to allow efficient access and use at industrial level of material modelling software codes



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Main Objectives

Development of an integrated platform able to translate manufacturing problems in material modelling workflows.

The framework will implement interoperability among different codes operating in different domains.

This is achieved through

- syntactic intop (based on a standard such as HDF data format)
- semantic intop (metadata linking data to a specific vocabulary)
- Apps dedicated to the design of workflows, for example through re-use and extension of existing APIs developed in FP7 Project Deepen

Relevant industrial cases will be identified for application examples.



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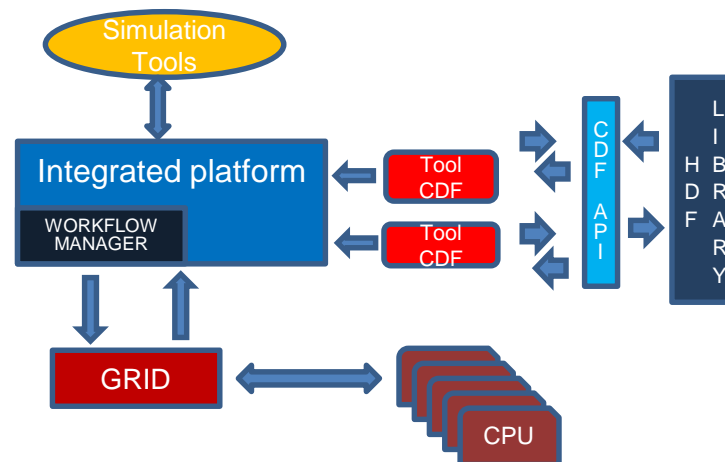
Main Objectives

Apps based on graphical user interfaces will be implemented for

- an efficient browsing of HDF file, providing tools to handle and edit particular fields.
- access/modify data and metadata
- provide tools for post-processing and for metadata management, to treat functionalities such as search keywords and univocal identifiers

*Schematic structure of a possible implementation.
A GUI allows workflow editing while SW tools can be linked through APIs.*

Same APIs ensure access to the HDF library and to a Database, including handling of rigorously defined metadata.





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Innovative Aspects

- **Metadata** structure to describe in a formal way the information entities and their relationships which characterize the data management environment of the project.
- Implementation of an efficient database and data repository service based on this architecture
- Designed metadata will allow comparability of data with different databases. Appropriate functionalities will be designed to provide data indexing and a system for univocal data citation.
- Coupling and linking based on different strategies (APIs, Python interfaces) will provide integration of different physical models for a thorough design cycle at multiple length scales
- Specific data prescriptions will be decided in order to make data findable, accessible, interoperable and reusable (**FAIR**)



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Expected results

The outcome of the Project is expected to be an integrated environment for exploiting of material models for industrial applications

Applications to relevant industrial cases will demonstrate the technology in industrial environment (TRL6)

Expected impact

Impact on the industrial stakeholders: reduced time-to-market through facilitated access to material modeling

Enhanced diffusion and reuse of material modelling expertise through standardization of data and metadata information

Consortium

At this stage looking for partners to set up the consortium, in particular industrial end-users