MarketPlace

Materials Modelling Marketplace
for Increased Industrial Innovation

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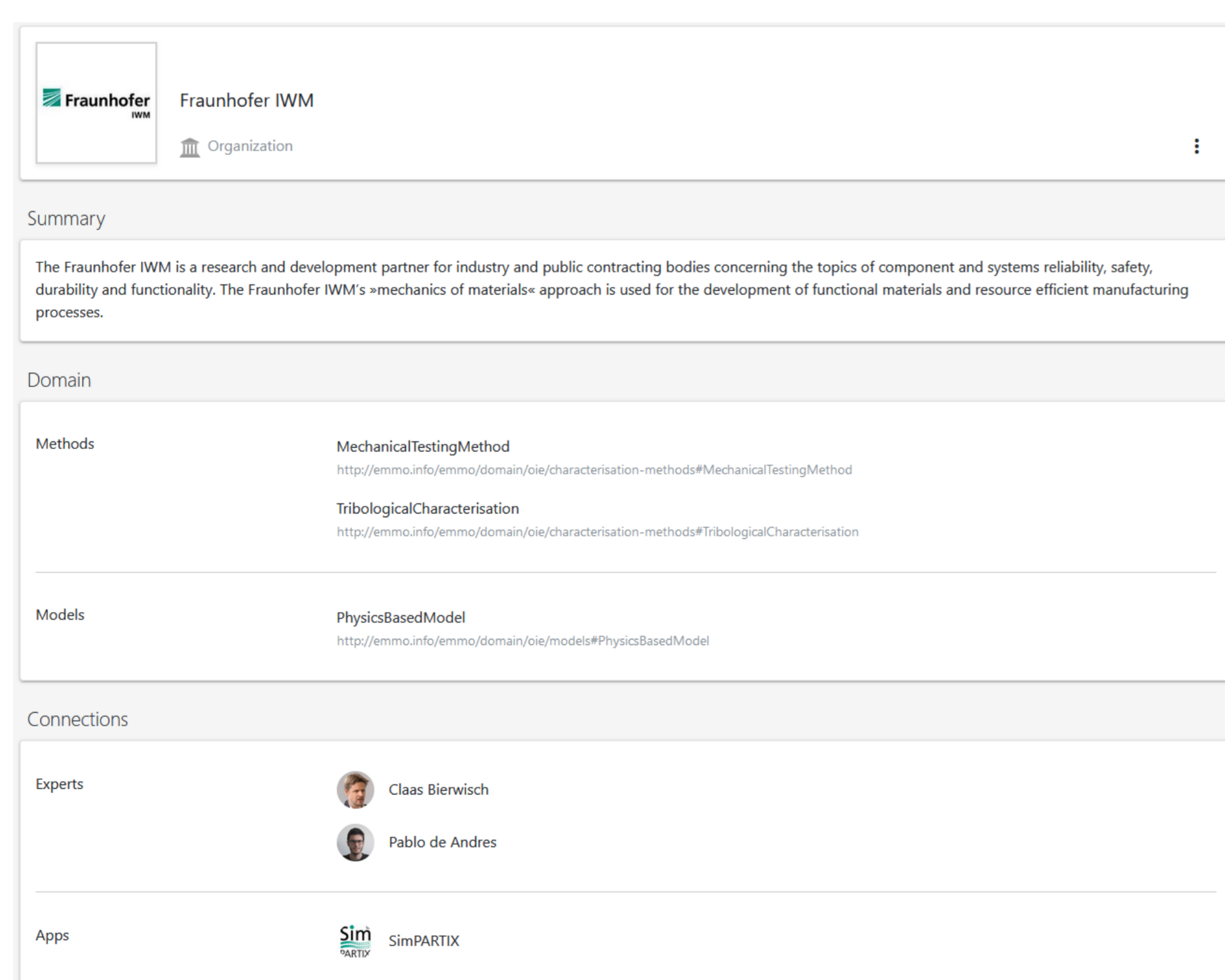**Fraunhofer IWM, Materials Informatics Group**

The MarketPlace platform has been developed as part of the MarketPlace project, funded by the Horizon 2020 program (Grant agreement number: 7601734 under H2020-NMBP-25-2017 call). The MarketPlace impacts the entire modelling community, including model developers as well as translators and software vendors as it addresses the need of designing products that serve the multitude of customer needs. It aims to become a central-hub for all these actors: A web-based collaboration platform that links all the different elements and enables the advancement of the European manufacturing industry. Advanced workflows are being integrated in order to connect the inputs and outputs of the relevant processes in a standardized way, making the flow of information part of the solution rather than the problem.

The three main pillars of the MarketPlace platform

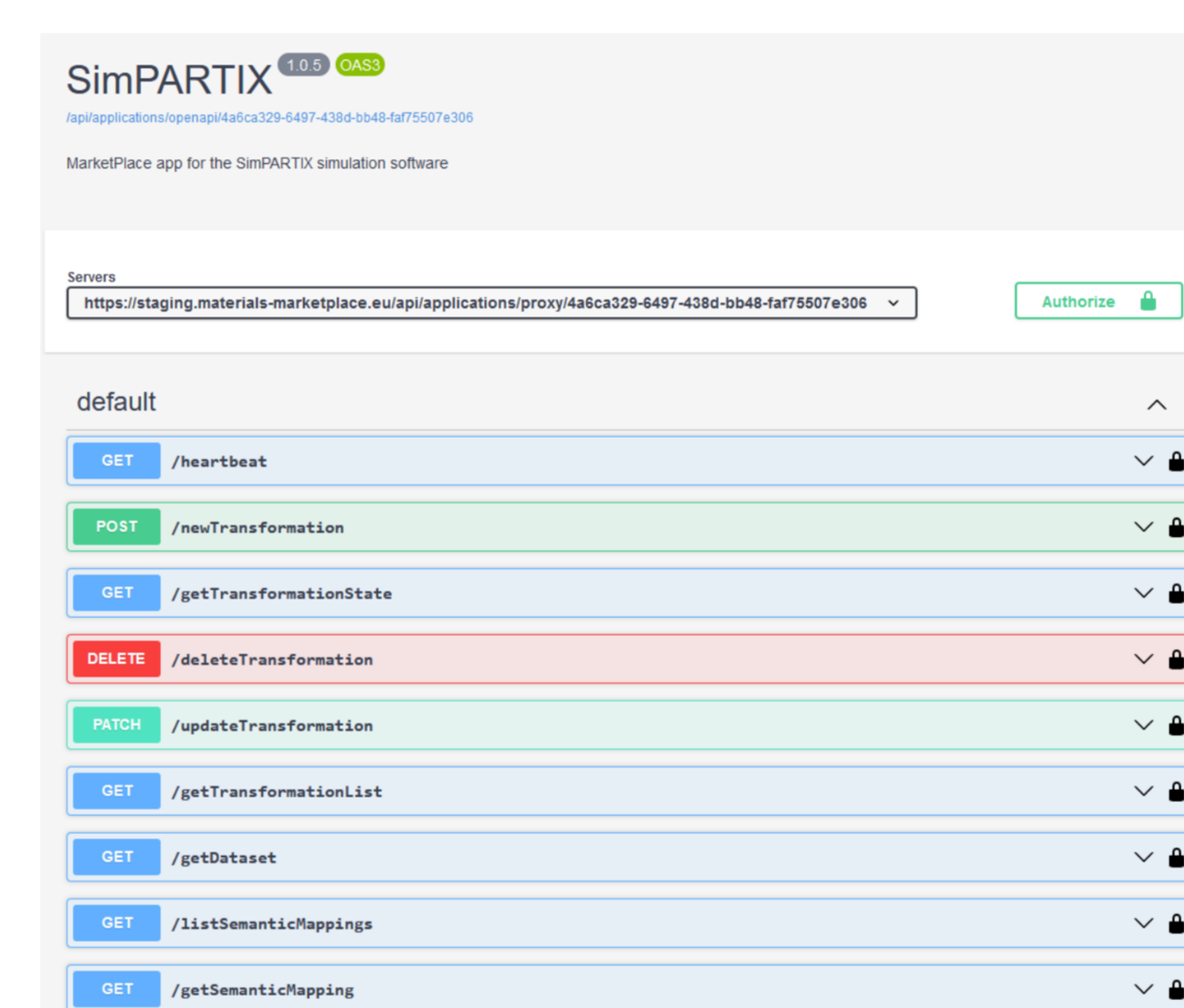## Create, explore & interact

The web platform offers various functionalities to enable users to create, explore, and interact with knowledge items efficiently. Additionally, the platform allows users to add ontological metadata to the knowledge items they create, which facilitates better organization and retrieval of information. Through these features, users can explore the knowledge items and connect them to create a graph. This graph enables users to visualize relationships between different entities and gain insights into how they relate to each other.
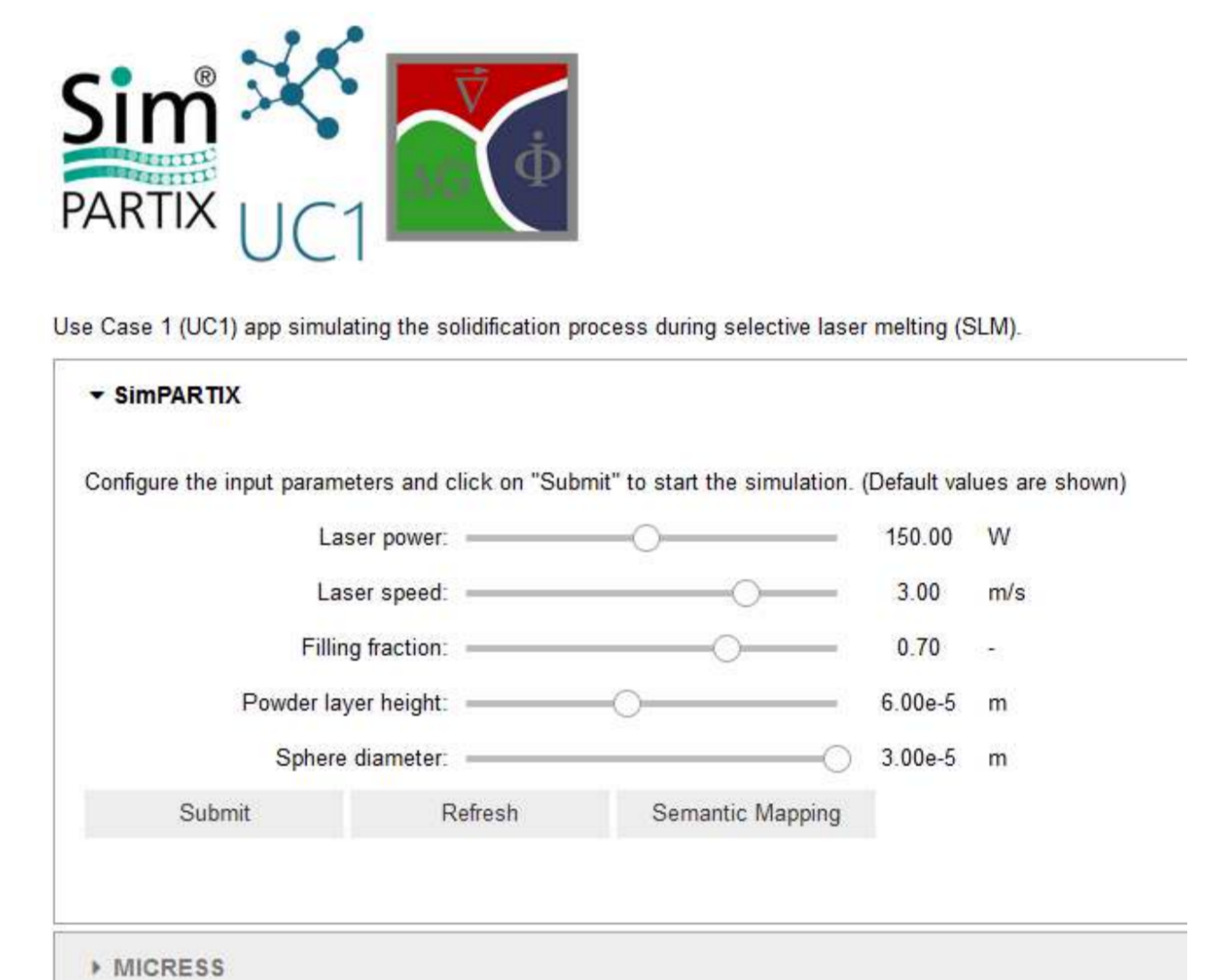

The Knowledge Item for SimPARTIX app

App store

To provide users with easy access to a wide range of applications and software for modelling and simulation, the platform offers its users the ability to browse and purchase applications directly via an app store, in which they can quickly find the tools they need for their specific cases. Applications in the store are registered by users and are plugged into the platform by implementing a standard API, ensuring that they are easily integrated into users' workflows and can connect with other applications. For convenience, we provide a Python SDK for easier scripting, enabling users to automate repetitive tasks and focus on the more complex aspects of their work. Additionally, users can create custom workflows by connecting different applications, providing flexibility and efficiency for modeling and simulation processes.
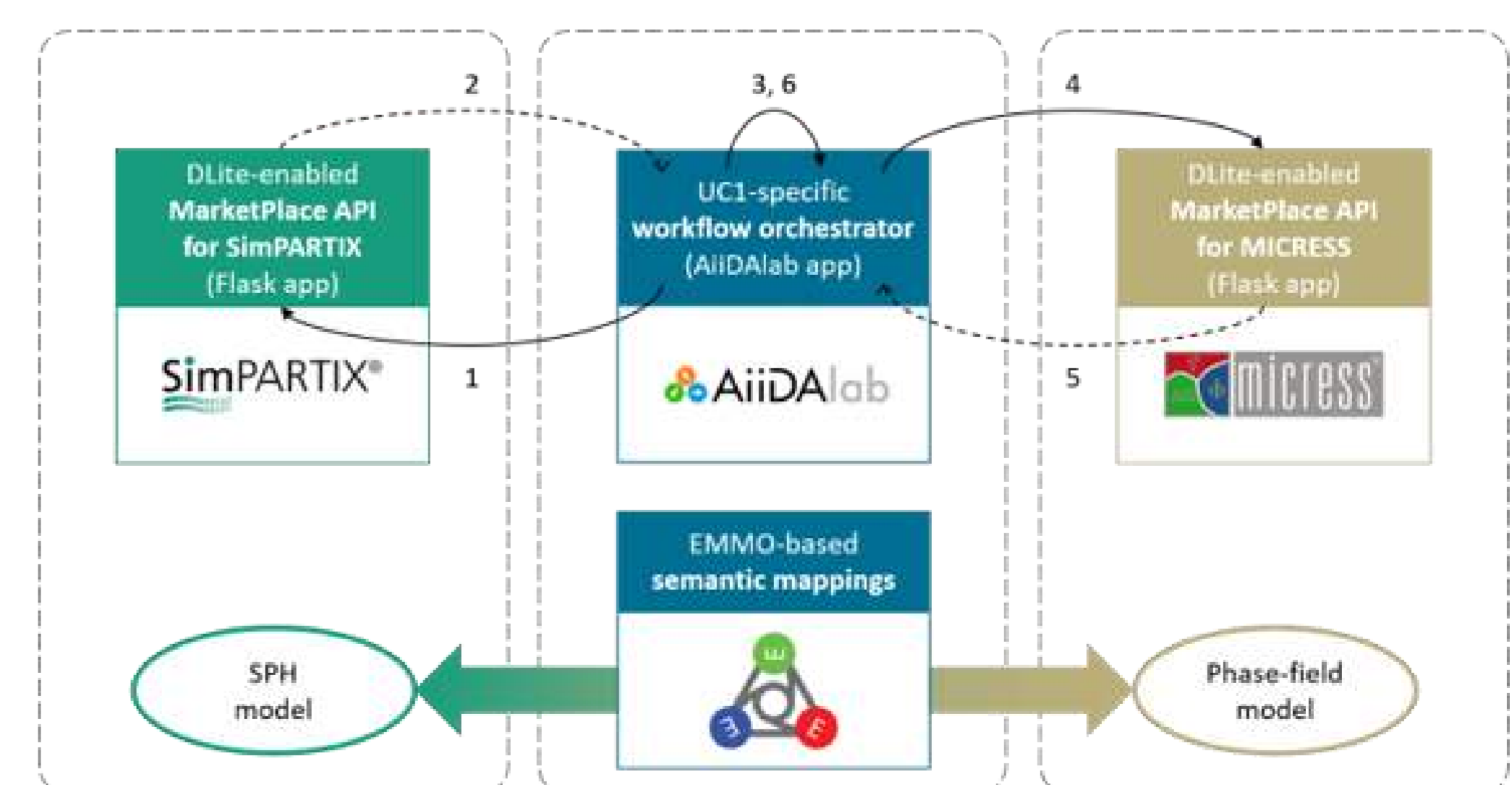

The MarketPlace standard API for the SimPARTIX app

Jupyter-based GUI for an easy interaction via the MarketPlace

Semantic metadata and global search

MarketPlace offers several functions to assist users in discovering information efficiently. With its semantic metadata search feature, users can easily find knowledge items that are relevant to their needs. The platforms also enables users to search for information beyond the platform's own database by utilizing a global search capability that app owners may choose to implement. Additionally, the platform provides a helpful forum section, where users can browse through various posts to gain insight and learn from the experiences of others. With these features, the platform aims to provide users with a comprehensive knowledge discovery experience.

Use Case 1: Additive manufacturing of superalloys