

Welcome to the Ninth DOME 4.0 Newsletter!



DOME 4.0

DOME 4.0
Newsletter N°9

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We are pleased to announce the publication of the ninth issue of the DOME 4.0 newsletter. If you are interested in industrial data and digital marketplaces, you are at the right place!

DOME 4.0 is a 4-year Research and Innovation Action (RIA) from 2020 to 2024 funded under Horizon 2020 focusing on developing a comprehensive industrial data ecosystem aligned with the Open Science and Open Innovation objectives to enable sharing of business-to-business (B2B) data for the purpose of value generation and creation of new or enhanced products, processes, and services.

DOME 4.0 will be open to all providers and users of data, and aims to facilitate maximum

knowledge extraction with the help of ontology-driven semantic data interoperability and modern data processing technologies adopted from the fields of Machine Learning (ML) and Artificial Intelligence (AI). These features are crucial to scale and advance the proposed ecosystem to any sector of the economy. Given the significant contribution of the materials and manufacturing sectors to the European economy, DOME 4.0 focuses on data-driven knowledge generation within these key sectors.

STAY TUNED

Stay updated on all our latest news, developments, research and general information regarding the DOME 4.0 project.

PROJECT INFORMATION

Digital Open Marketplace Ecosystem (DOME) 4.0

Grant Agreement ID: **953163**

Start Date: **December 1st, 2020**

End Date: **November 30th, 2024**

Coordinator: **COMPUTATIONAL MODELLING CAMBRIDGE LIMITED (CMCL)**



Ontology-Driven Interfaces: Building Seamless Data Interoperability

The **Ontology-Driven Interfaces** (WP3) is a cornerstone in the development of the **DOME 4.0 ecosystem**, ensuring seamless communication and data exchange between platform participants. This initiative focuses on creating standardized, machine-readable ontologies that enable efficient and secure interactions among data consumers, providers, and service partners.

The primary objective is to establish a universal language for data and service exchange, thereby streamlining communication within the ecosystem. By developing robust information models and semantic interfaces, the project aims to bridge gaps between disparate systems, making data integration smooth and efficient.

At the heart of this work package is the development of a **semantic broker service** that uses advanced ontology-driven methods to match data sources and services with relevant users. This service facilitates automated negotiations, ensuring that data exchanges are

secure, efficient, and compliant with relevant standards.

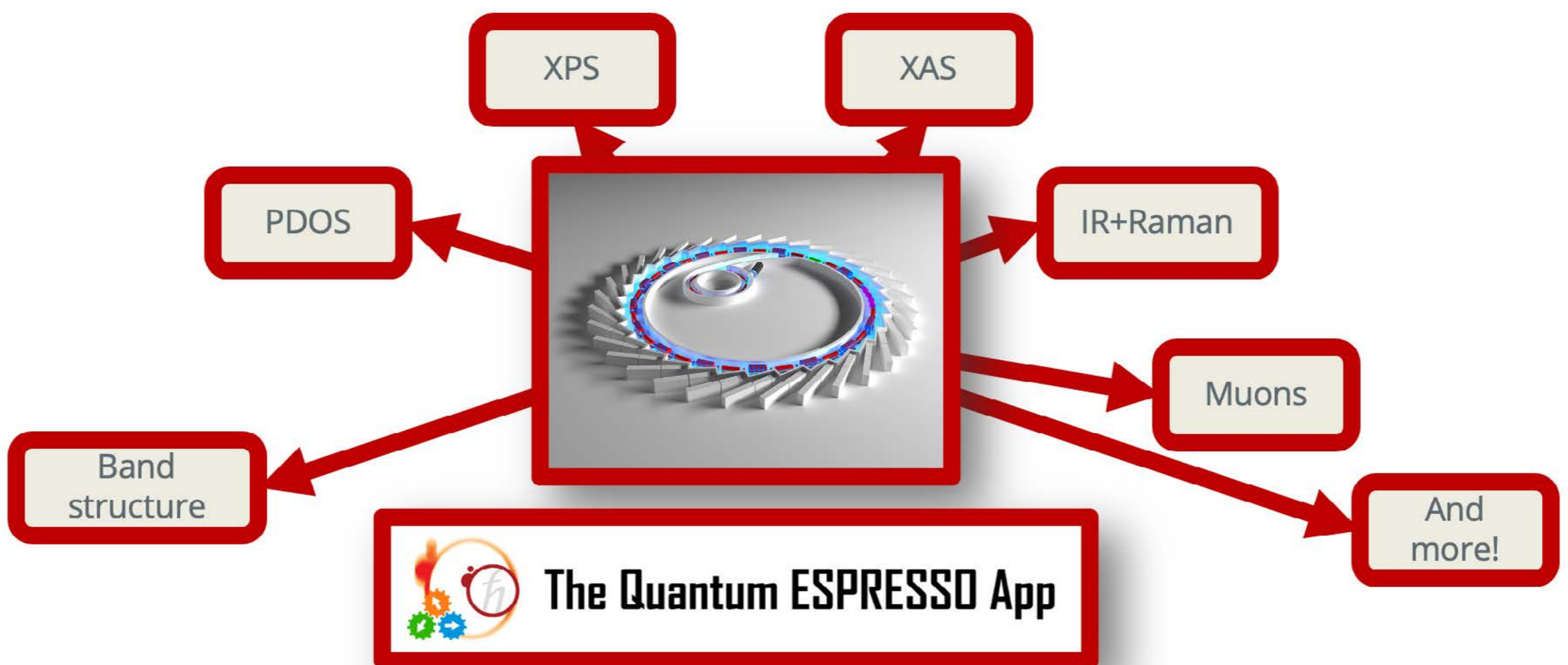
To extend the ecosystem's capabilities, specialized **Ecosystem Connectors** are being developed to integrate external platforms and marketplaces. These connectors enhance the DOME 4.0 platform's reach, enabling broader collaboration across industries.

The package also focuses on developing a **Reference Data Connector**, which simplifies the integration of new data sources by providing reusable tools and adapters. This ensures that data exchanges are not only efficient but also compliant with established industry standards.

Lastly, the work package emphasizes the importance of interoperability through the creation of a **Semantic API** for secure data and service exchange. This API is designed to support diverse workflows, enabling data providers and consumers to interact seamlessly.



SHOWCASE: Turnkey Services and Custom Workflows Integrating Simulations and Data



Quantum ESPRESSO is the most used open-source package in the world for quantum mechanical simulations of materials - with more than 4,000 papers published every year.

In this showcase, the Materials Cloud introduces a jupyter-like modeling tool known as **AiiDALab**, designed for in-browser quantum mechanical calculations, ready to be freely and openly used by non-experts to calculate materials properties. DOME 4.0 facilitates the seamless transfer of atomic structures adhering to the **OPTIMADE**

standard to AiiDALab, offering considerable flexibility due to the extensive network of OPTIMADE providers, encompassing millions of structures. This integration mutually enhances AiiDALab by providing a substantial data source for quantum mechanical calculations and benefits OPTIMADE by incorporating a simulation tool capable of processing its served data.

[Link of the video](#)

[Learn more](#) about our showcases

Events

DOME 4.0: 9 Showcases Dissemination Workshop



 **DOME 4.0**

**9 SHOWCASES
DISSEMINATION
WORKSHOP**

OCT
16
2024

Online 

On October 16th, the much-anticipated **9 Showcases Dissemination Workshop** took place online, gathered participants from diverse industries, research institutions, and stakeholders across Europe. Moderated by **Adrien Scheuer** from Siemens Software, the workshop provided an in-depth look at the DOME 4.0 project and its collaborative efforts, setting the stage for future breakthroughs in digital and sustainable manufacturing.

[Read more](#)

Blog Posts

DOME 4.0 blog: How we are making a difference with our project

We invite you to read the blog posts that our project partners have written about their experiences and insights from working on DOME 4.0. The blog posts cover various topics, relevant to the project and they will give you a glimpse into the DOME 4.0 project.

- [DOME 4.0: A Powerful Platform for Data Sharing and Discovery](#)
- [DOME 4.0: Revolutionizing Data-Driven Knowledge in European Manufacturing and Materials Sectors](#)



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Stay tuned [@www.dome40.eu](http://www.dome40.eu)
SUBSCRIBE here to our newsletter!



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