DOME 4.0 H2020 EU funded project – Digital data marketplace based on FAIR principles!

In line with the objectives of Open Science and Open Innovation, a big challenge is to make data FAIR (findable, accessible, interoperable and reusable) through an effective common information system that allows in particular business-to-business (B2B) data sharing and enables new or improved products, processes and services. Such a system could take form of a user-friendly, state-of-the-art marketplace ecosystem that is open to all providers and users of data to maximise the spill over of knowledge across all economic sectors.

To achieve these aims, the Digital Open Marketplace Ecosystem (DOME) 4.0 offers an industrial data marketplace ecosystem based on Open Science and Open Innovation principles to enable sharing of B2B data and creation of new or enhanced products, processes and services. The multi-sided ecosystem DOME 4.0 will be open to all providers as well as users of data and aims to facilitate maximum knowledge extraction with the help of ontology-based semantic data interoperability and modern data processing technologies.

DOME 4.0 intends to offer a semantic industrial data ecosystem for knowledge creation across the entire materials and manufacturing value chains. The ecosystem provides a sustainable solution to the information silos problem related to the past efforts and puts forward a formal, ontology-based documentation for open and confidential data spaces applicable to future and current projects thereby delivering added value. Furthermore, the flexibility of the proposed semantic architecture of DOME 4.0 naturally adapts to the emerging Industry Commons developments and the scale-up of the ecosystem to large amounts of data, tools and services applicable to wider sectors of the European economy.

The unique offerings of DOME 4.0 are twofold. Primarily, to instigate wider market impact, stakeholder adoption and engagement, while aggregating a critical mass community in the DOME 4.0 ecosystem above what the individual showcases would ever achieve on their own. In parallel, DOME 4.0 supports the generation of novel business models cross cutting the individual marketplaces, complemented with transparent and fair compensation schemes that augment the operations and effectiveness by adding value to the individual marketplaces, data repositories and platforms.

DOME 4.0 entails two main parts:

- Core technology developers including platform, ontologies and interfaces with other marketplaces and data spaces.
- Services development to connect the data providers with the data consumers to help demonstrate nine B2B showcases in the materials and manufacturing domains.

Large and small industries, research organisations and academia from across Europe collaborate in this project to develop this digital data marketplace based on FAIR principles.

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The nine B2B showcases will offer measures for assessing the in-project exploitation of DOME 4.0. These showcases will be gauged in terms of the improved effectiveness of decision making, improved quality by design and reduction of cost and time to market.

NO.	B2B SHOWCASE	DATA SOURCE(S)	PARTNER(S)	INDUSTRIAL SECTOR(S)
1	**Chemical kinetics Knowledge Graph (KG) – marine, air quality**	Ontokin KB: species, thermodynamics, chemical kinetics, sensors and geolocation data	CMCL	MARINE/SHIPPING ENVIRONMENTAL NANOPARTICLES
2	**Light weight construction – fibre reinforced plastics**	Laboratory experiments, multiscale models	FRAUNHOFER, BOSCH	PLASTICS
3	**Polymeric additives for coatings: anti-corrosion**	Thermodynamic, Laboratory Regulatory, Modelling	FRAUNHOFER, SISW	POLYMERS
4	**Structural adhesives: Fatigue behaviour**	Experimental data, MatWeb: Materials property data	FRAUNHOFER, SISW	ADHESIVES
5	**Production equipment tools and service catalogues (metals, plastics, high-tech)**	Semantic data repositories of MARKET4.0	INTRA	MANUFACTURING
6	**Turnkey services & custom workflows integrating simulations and data**	Materials Cloud (Open Science, FAIR data principles)	EPFL	MATERIALS
7	**Formulated consumer products**	gPROMS (PSE), molecular simulation (UKRI), Cheméo (Céondo), and REFPROP (NIST)	UKRI	CHEMICAL PROCESSES AND MATERIALS
8	**Semantic Analytics of Manufacturing Assets**	Bosch I4.0 Knowledge Graph, manufacturing production data	BOSCH	SMART MANUFACTURING
9	**Virtual development of composite materials**	Experimental data, material data sheets	SISW	COMPOSITE MATERIALS

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For more information, visit our website: www.dome40.eu

Project Information	
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Topic	DT-NMBP-40-2020, Creating an open market place for industrial data (RIA)
Project duration	1 December 2020 – 30 November 2024, 48 Months
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Coordinator	Computational Modelling Cambridge Ltd.

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