newsletter

DS2
DATA SPACE | DATA SHARE

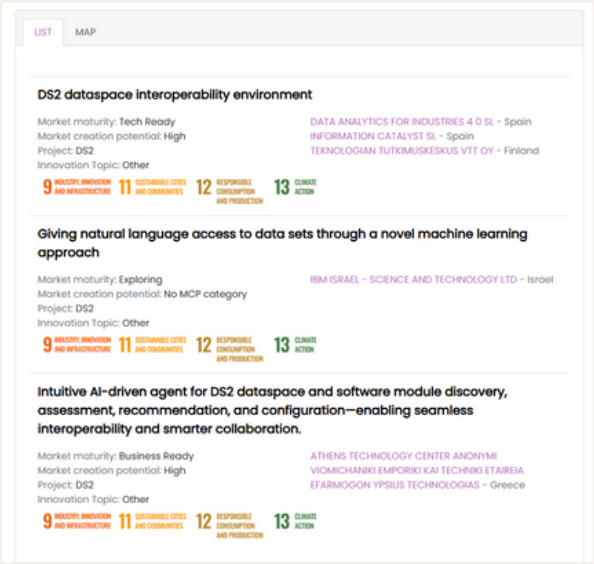
www.dataspace2.eu
@data-space-project
@DS2_EU
@DataSpace2

WELCOME TO DS2 NEWSLETTER 2!

Over the past year, the DS2 project has made significant progress, achieving notable results in several key areas. These include advancements in architecture and module development, progress in addressing use case challenges, active participation in industry events, and the successful organization of workshops. The project has also contributed to a growing body of knowledge through publications and collaborative initiatives—such as joint workshops and publications with the Data Space Cluster.

DS2 has also been featured in the European Commission's Innovation Radar with 3 innovations:

- DS2 Dataspace Interoperability Environment
- Giving Natural Language Access to Data Sets Through a Novel Machine Learning Approach
- Intuitive AI-driven Agent for Ds2 Dataspace and Software Module Discovery, Assessment, Recommendation, and Configuration - Enabling Seamless Interoperability and Smarter Collaboration



READ MORE

DS2 PORTAL AND MODULES

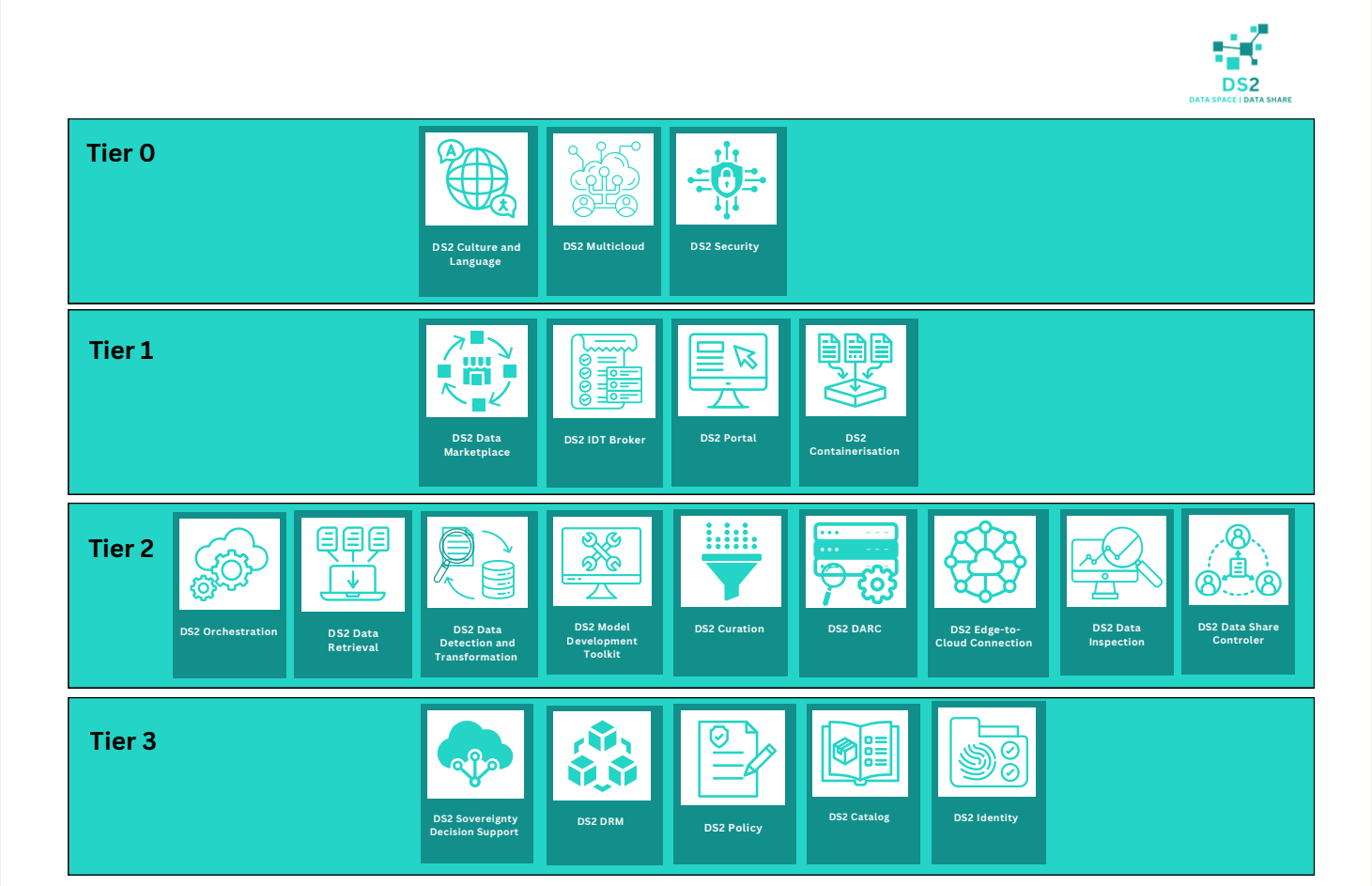
The technical architecture is based on the vision of the project, which is a modular, secure, trust-sensitive, platform-neutral environment for the networked sharing of data.

The journey begins with accessing the DS2 Portal, where dataspaces and participants are registered along with their identities. From there, users can explore other dataspaces and establish collaboration agreements. The Portal also provides access to the Marketplace, offering modular, pick-and-mix components. Users can select marketplace products for DS2 modules and datasets and proceed with deployment through the DS2 Intersector Dataspace Toolkit (IDT).

Once deployed, data services enable participant connectivity to data sources. Publishing and discovery are supported through both manual and automated catalog entries, ensuring flexibility and scalability. The next stage is contract execution, which enforces policies, enables data inspection, and supports multicloud integration. Finally, the dataspace consumer layer facilitates data retrieval and curation, enhanced by large language models (LLMs).

The modules are organized into four main tiers:

- **Tier 0**: Support
- **Tier 1**: Marketplace and Deployment
- **Tier 2**: In-Dataspace Enablement
- **Tier 3**: Inter-Dataspace Sharing



TIER 0 AND TIER 1 MODULES

Tier 0 and Tier 1 modules will be presented in this newsletter, while Tiers 2 and 3 will be featured in upcoming newsletters.

Tier 0: Support

Enables the multilingual conceptual understanding, annotation, and enrichment of textual data across the DS2 ecosystem.

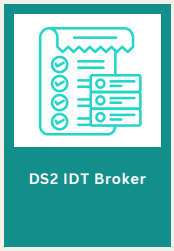
Enables efficient transfer of discrete data, vast amounts of data, and streaming data between participants of dataspaces from data stores that are distributed across multi-cloud storage infrastructure.

Covers data security, data protection, and privacy with a focus on securing the edge-to-cloud data enablement and ensuring data quality and privacy.

Tier 1: Marketplace and Deployment

Provides a marketplace for data and data models. Allows the registration of data from a catalog, record all transactions, and communicate transactions to any external system if required.

Allows easy and automated packaging and deployment of modules on the IDT Kubernetes runtime subcomponent environment.



DS2 Core enabler allowing the deployment of DS2 modules of the various tiers, whose purpose is to be deployed in front of participants' data source/spaces and network connected to any other IDT-enabled data source. Its aim is to run all DS2 modules.

Provides a user and developer-friendly portal allowing dataspace participants to register and select DS2 modules.

More details on each module are available on the DS2 website. To support adoption, demos of different modules are provided, helping users understand their functionality and decide which best meet their needs.

USE CASES - CITY SCAPE

DS2 | CITY SCAPE

In our first newsletter, we introduced the DS2 use cases and outlined their objectives. This edition shifts the focus to one of them - **City Scape.** The other two use cases will be featured in future newsletters.

Aims and Stakeholders

City Scape aims to create smarter and more sustainable cities by developing and operating interoperable dataspaces that support data-driven decision-making.

This use case, based in Cluj-Napoca, Romania will empower stakeholders - municipal staff, researchers, SMEs, and citizens - to collaboratively achieve climate neutrality objectives.

Dataspaces

Two complementary dataspaces - City Dataspace and ZERO Net Dataspace - have been set up for integration into the City Scape use case. The former one represents the macro-city data flows around net zero ambitions of the city, while the latter one represents a micro perspective at the level of residential buildings.

By integrating these datasets into federated dataspaces, real-time insights, predictive analytics, and policy modelling tools are facilitated. These are critical for climate-smart governance, sustainable public service delivery, and stakeholder engagement.

The application offered through this use case enables urban stakeholders to access, share, and analyse diverse datasets related to energy consumption, mobility, environmental conditions, and citizen behaviour.

The DS2 project showcases outstanding integration between its pilot use cases and the core technical work packages. Rather than serving merely as validation environments, the use cases act as co-creators. They provide essential requirements, constraints, and real-world complexity that fuel innovation across all technical domains.

By eliciting diverse requirements, the use cases play a pivotal role in shaping the DS2 intersectoral dataspace framework. Together, these contributions ensure that DS2 delivers a robust, adaptable, and future-ready dataspace framework.

READ MORE

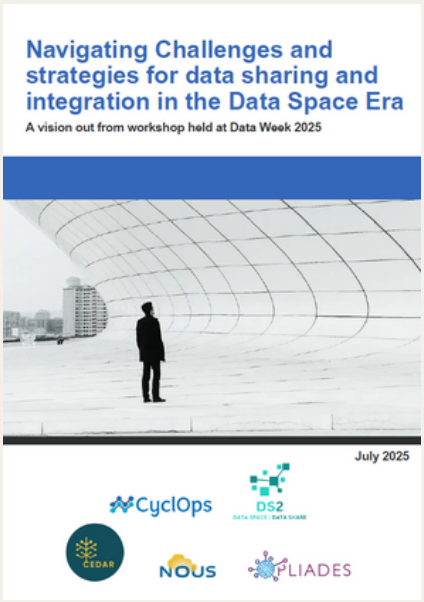
EVENTS & PUBLICATIONS

The DS2 consortium is committed to giving back to the community by publishing peer-reviewed scientific papers. In addition, the consortium has actively participated in more than thirty high-profile events during the first twenty months of the project, including the European Big Data Value Forum (EBDVF), the AI, Data, Robotics Forum (ADRF25), Smart City Expo World Congress, the DSSC Stakeholder Forum, Data Week, and the Gaia-X Market-X/Tech-X event.

DS2 has also been featured by NESSI, further strengthening its visibility within the European innovation ecosystem. Moreover, consortium members have authored two insightful Medium articles that highlight how structured, conversational prompting and permission for uncertainty make LLMs far more reliable partners in complex tasks. For details on all published papers, please visit our website.

DATA SPACE CLUSTER

The DS2, CEDAR, CyclOps, NOUS, and PLIADES projects have joined forces to establish the Data Space Cluster a collaboration initiated by DS2. Since its launch at the beginning of 2024, the collaboration has grown steadily and proven highly successful. Over the past year, it culminated in the publication of two joint reports: one developed as a result of Data Week in May 2025, and another produced following the AI, Data, and Robotics Forum (ADRF25) in September 2025.



DOWNLOAD

DOWNLOAD

FOLLOW

FOLLOW US SO YOU DON'T MISS AN UPDATE FROM THE DS2 PROJECT!

www.dataspace2.eu

@data-space-project

@DS2_EU

@DataSpace2

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101135967.