EUROPEAN
DIGITAL INNOVATION HUB

The European Digital Innovation Hub is supporter for companies and their digital challenges of the present.

LEITPROJEKT
SM4RTENANCE

AI 5 PRODUCTION

Kontakt:
Michael Fälbl
E-Mail:
michael.faelbl@plattformindustrie40.at
www.sm4rtenance.eu
www.plattformindustrie40.at

Federal Ministry
Republic of Austria
Labour and Economy

FFG
Promoting Innovation

Contents

SM4RTENANCE

Trusted Data Sharing for Manufacturing Equipment Industry

Project Facts

Project:	**SM4RTENANCE** **Trusted Data Sharing for Manufacturing Equipment Industry**
Duration: Funding Scheme: Estimated Project Cost: Partners : SM4RTENANCE	01.10.23– 30.09.26 Digital Europe **13.469.540** EUR Innovalia, Dawex, Top-ix, NTT Data, OTE, Cosmote, Brainport Industries, Fiware, Sovity, SQS, Trimek, Itema, Comau, Fill, Datapixel, TXT, Core Innovation, Unimetrik, Atlantis Engineering, Syxis, Cefriel, CEA, Fraunhofer IOSB, University of Oslo, Piacenza, AVL, BEMAS, Platform Industry 4.0 Austria, MADE Competence Center, Baidata, Afnet, Intellimech, VDMA, Carsa, EIT Manufacturing, TNO, Schneider Electric, Ijssel, DGS, Prima Industrie, FIDIA, Visual Components, PACE Aerospace
	The SM4RTENANCE project is supported by funding from the Digital Europe Programme through the call DIGITAL-2022-CLOUD-AI-03, the requested EU contribution to the project is 7.999.692 EUR. Project number: 101123490

Summary

SM4RTENANCE is an EU-backed project designed to establish a trusted, cross-sectoral data space for predictive maintenance in manufacturing. The project emphasizes secure, efficient data sharing across stakeholders, from OEMs to service providers, with a focus on enhancing operational resilience and sustainability.

Leveraging Industry 4.0 technologies, SM4RTENANCE aims to facilitate predictive analytics, enabling manufacturing systems to autonomously monitor, diagnose, and predict maintenance needs. This data-driven approach should minimize equipment downtime, reduces costs, and optimizes overall productivity.

The project plans to utilize a framework for secure data exchanges, incorporating innovative adequate protocols to foster trust. Through its operational portal, SM4RTENANCE connects stakeholders, offering a secure environment to share data and collaborate on lifecycle

management of assets. The framework also includes digital twins and AI-driven diagnostics to bolster proactive and autonomous maintenance solutions.

SM4RTENANCE is supported by a network of partners from academia, industry, and technology firms. Together, they are working to standardize the exchange of maintenance data and develop scalable use cases that demonstrate tangible benefits. A collaborative approach is central to SM4RTENANCE, with a focus on creating a robust ecosystem for connected maintenance solutions that can be adapted across different manufacturing sectors.

A broad variety of partners is involved in the project:

Project Concept

The SM4RTENANCE concept centers on building a secure, transparent environment for real-time maintenance data sharing. By enabling advanced predictive maintenance, SM4RTENANCE aims to reduce unplanned machine downtime, promote sustainability, and optimize asset management. The project's core technology includes a cloud-based platform where manufacturers, OEMs, and service providers can interact and share data.

Through digital twins and machine learning algorithms, SM4RTENANCE aims to bring predictive maintenance to new levels of efficiency. Predictive models foresee potential failures, trigger alerts, and suggest maintenance actions. These data-driven insights promote effective resource use, enabling manufacturers to balance operational demands with environmental goals. The project also supports multi-sector integration, aiming to make predictive maintenance widely accessible.

Key Questions Addressed

Throughout the SM4RTENANCE project the following questions should be answered:

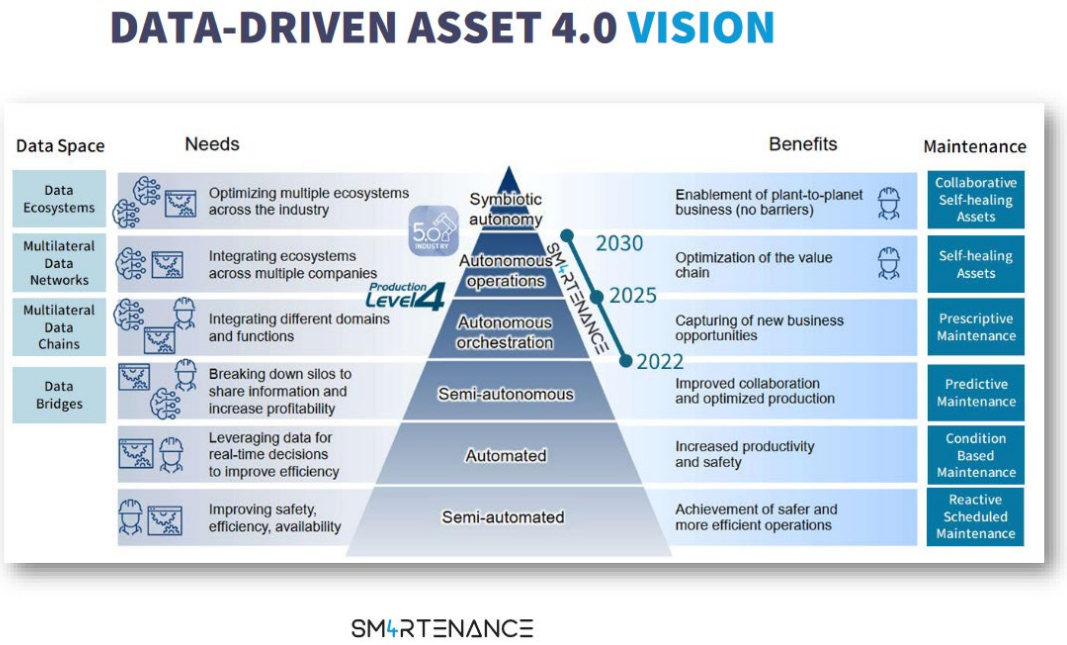
- How can predictive maintenance improve manufacturing efficiency?
- What are the best practices for secure and transparent data exchange?
- How can AI and digital twins optimize maintenance processes?
- What are the impacts of predictive maintenance on operational costs and sustainability?
- How can cross-industry collaboration enhance predictive maintenance standards?

Project Goals

The goals of the project are manyfold and include the following targets:

- Develop a secure, trusted data space for predictive maintenance in manufacturing.
- Enhance collaboration between OEMs, service providers, and manufacturers.
- Utilize AI and digital twins for real-time predictive diagnostics.
- Reduce maintenance costs and unplanned downtimes in manufacturing.
- Promote sustainable manufacturing practices through optimized resource use.

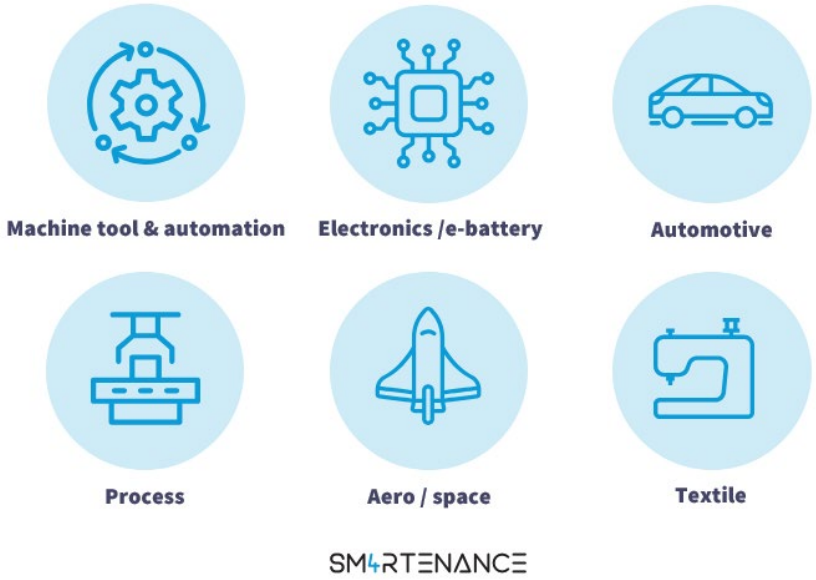
The project's vision can be derived from the following figure:



SM4RTENANCE

Use Cases

The concrete use of the SM4RTENANCE project are currently under development. The different pilots will be implemented in six different industries:



There will be four different business applications implemented through SM4RTENANCE:

- **Asset 4.0 Collaborative Engineering**: Collaborative connected product/production ecosystem to support engineering and virtual commissioning (digital twin) aiming for resilience and autonomous production. *Zero defect, zero accident, zero errors, zero time to market.*
- **Collaborative Net-Zero Operations**: Collaborative services focused on improving machine tool operations, reducing scrap, energy consumption, manufacturing errors and optimal use of manufacturing asset consumables. *Zero defect manufacturing, zero raw material use, zero net energy.*
- **Cooperative Condition Monitoring (Predictive Maintenance)**: Collect data, predict health status, and plan maintenance operations and consequently reduce operations costs, improve safety, and avoid environmental harm and human casualties. *Zero stocks, zero break downs, zero supply network breaks, zero reconfiguration time.*
- **Circular Asset Management**: Development of regenerative asset systems aiming to increase resilience, reduce global supply chain reliance, and foster strategic, local, and regional capabilities while meeting sustainability targets and 9R processes. *Zero waste.*