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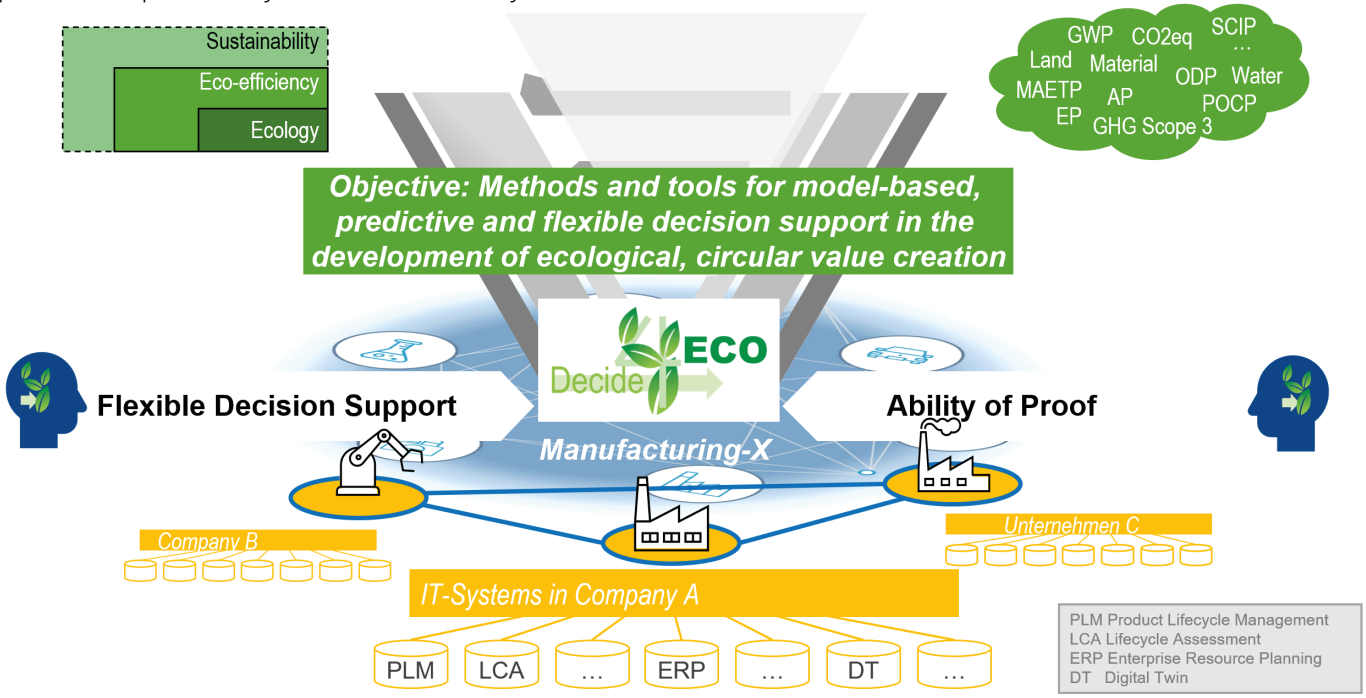
SUSTAINABILITY STARTS IN PRODUCT DEVELOPMENT

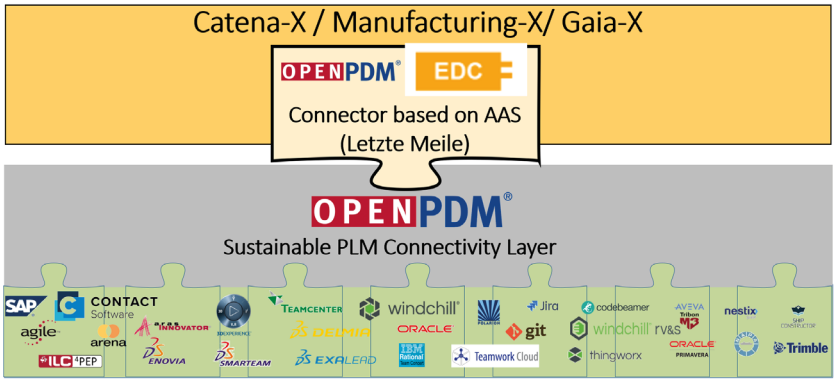
CHALLENGES

- The costs involved in manufacturing, maintaining and recycling a product are determined as early as in the product development phase. This phase also determines the ecological footprint of a product during production, product use and its feedback into circular value networks. Often only incomplete data with low data quality is available in this context.
- Companies therefore need methods and tools that allow them to make decisions regarding the sustainable production and operation of their products at an early stage, while at the same time taking into account the constantly changing laws and regulations in order to enable circular value creation.
- In order to assess a product's environmental impact, sustainability-related information must be collected across the entire manufacturing and supply chain and made available for product development. Data ecosystems such as Catena-X or Manufacturing-X enable structured, cross-company access to such information. To harness this potential, companies must be empowered to integrate this data specifically into their development and decision-making processes – particularly into PLM and ERP systems.



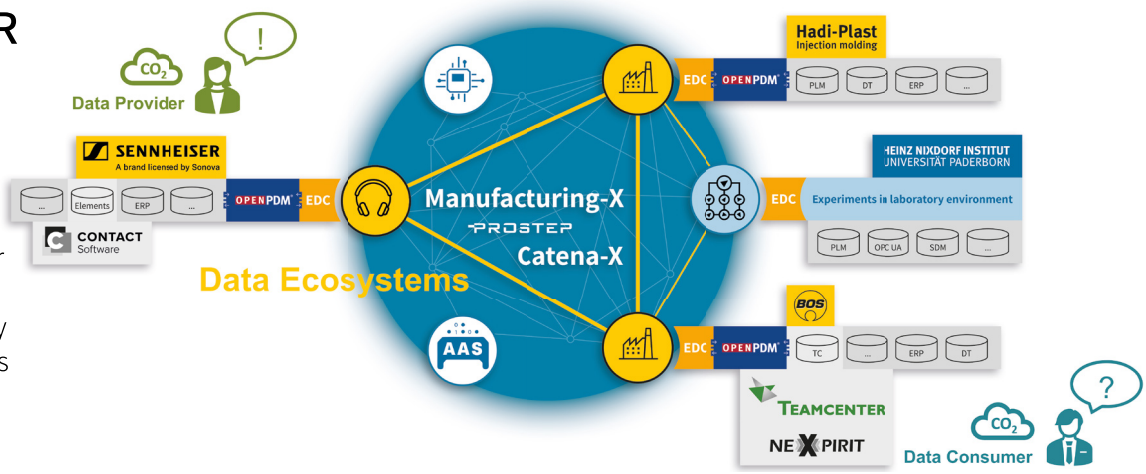
PROJECT GOALS

The goal of Decide4ECO is to create a methodology which uses data ecosystems such as Manufacturing-X or Catena-X and develop a systematic and flexible decision support system for product planning and development with respect to the sustainability of a product and its entire value chain in shared data ecosystems. The methodology is based on connectors for integrating PLM and other systems into data ecosystems as well as on AI-based methods for sustainability assessment which are developed by the project partners.



DEMONSTRATOR

The project partners continuously implement the project results in a demonstrator, which is validated by the industrial partners. The demonstrator is also being used to test the transfer of sustainability data to the data ecosystems of other Manufacturing-X projects, such as Chem-X and Semiconductor-X.



PROJECT RESULTS

As part of Decide4ECO, PROSTEP develops an Eclipse Data Space Component (EDC) Connector for its PLM integration platform OpenPDM to provide data from PLM, ALM or ERP systems via the Asset Administration Shell (AAS) in data ecosystems such as Manufacturing-X or Catena-X or to import data from these data ecosystems. During the course of the project, other Manufacturing-X projects may use these tools. In addition, an editor for defining and executing data exchange processes is being developed for the manual use of data ecosystems. This tool integrates an administrator tool and the EDC connector and enables easy file exchange (e.g., of certificates or AAS files containing product passport information) via data ecosystems. An AI-powered solution is being developed to generate product passports, which uses agents to consolidate information from various sources.

CONTACT Software and Nexpirit will implement new functions for sustainability analysis and integration into data ecosystems in their solutions to support companies in the collaborative development of sustainable products and to enable them to make decisions about sustainability-relevant product features earlier and with more certainty. The industrial partners will use the new methodologies and IT solutions to develop more sustainable products. In addition, they will be able to participate in data ecosystems in the future.

The IT solution providers will use their experiences from the project to expand their consulting offerings in the direction of „Eco Compliance“ and enter into strategic partnerships to exploit the project results. The Heinz Nixdorf Institute develops algorithms for sustainability assessment and makes them available as reference implementations. In addition, the institute is setting up a test and demo environment in which Manufacturing-X technologies—including interfaces between engineering and production (such as OPC UA)—can be tested flexibly. Brainport Industries supports the dissemination of the project results in the Netherlands.

OPEN TO NEW PARTNERS

Interested companies can participate as associate partners to test the project results. This will give them an early insight into the Decide4ECO methodology and access to our demonstrators. We expect them to provide feedback on the Decide4ECO solutions and to actively participate in the discussions.

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PROJECT DETAILS

Project name:	**Decide4ECO**
Project volume:	**6 Millionen Euro**
Duration:	**April 2024 bis September 2026**
Consortium head:	**PROSTEP AG**

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