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Shaping a Sustainable Future with Digital Product-Service Ecosystems

The project enhances **manufacturing sustainability** by integrating products and services into a unified **Product Service System (PSS)**. Using digital tools, it tracks and shares lifecycle data, including origins, components, and environmental impact.

The project's central idea is that the **DPSSP will provide crucial new insights into the sustainability potential** of both products and services. For example, the overarching hypothesis is that using **Life Cycle Assessment (LCA)**, supported by **Machine Learning (ML)** methods and fed with real-time data, will lead to more accurate LCA results and better life cycle decision-making.

The collected and shared data from the DPSSP will make it possible to effectively use ML for **more reliable circularity decisions for PSS**. Recognizing that the DPSSP concept will likely increase complexity, the project intends to **offer an innovative solution for the DPSSP** and associated simulation and decision-support tools for companies already using PSS and those planning to adopt it.

The project will deliver:



A **Methodological Framework** for creating and updating the DPSSP.



A set of **Ontologies** (structured data models) to improve compatibility within the DPSSP Environment.



A new **DT-based Simulation Framework** for modeling standardized and compatible Digital Twins for PSS lifecycle analysis.



A **Digital Environment** for the DPSSP, based on current technology standards.



An **AI-based method/tool** to forecast the environmental impact of PSS.



The PSS-Pass solutions will be tested and assessed in three different areas:

Pilot 1

Sector - Home appliances



Pilot 2

Sector - Complex equipment



Pilot 3

Sector - Textile

