

# Automated Digital Twins for Circular Value Chains: A Data-Driven Process Mining Approach



13 partners

7 countries

7.2M Total Budget

36 Months

**Automatically  
Generated &  
Autonomous  
Digital Twins**

**A trustworthy  
high-resolution  
track & trace  
of products  
and processes**

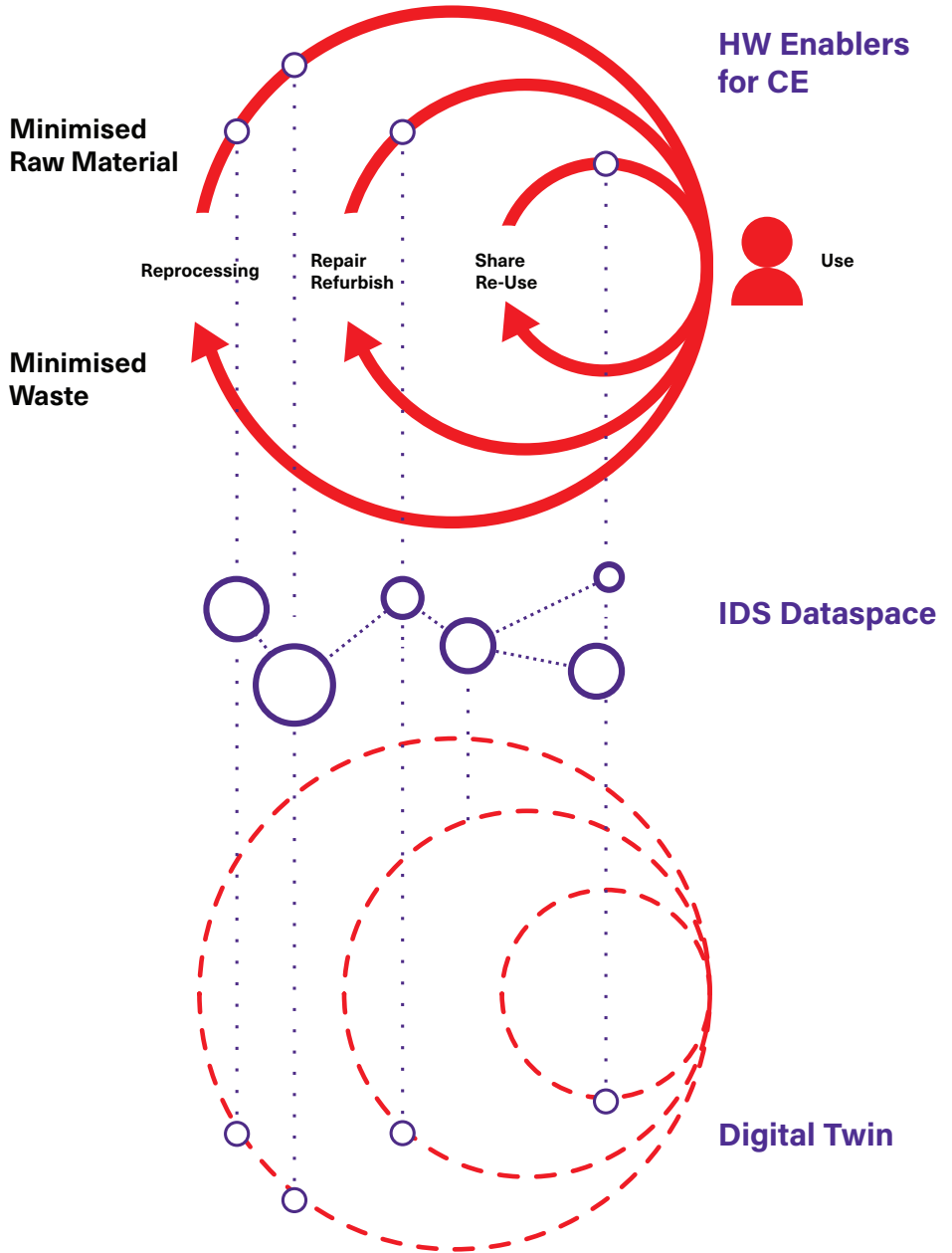
**Reduce skills  
and knowledge  
gaps**

**AI algorithms  
for decision  
making  
at Green  
Gateways**

# The Project

AUTO-TWIN is a new method for creating digital twins, which are digital replicas of physical systems. It aims to address the limitations of current system engineering models by introducing a breakthrough method for automated process-aware discovery towards autonomous Digital Twins generation. This is done by adopting an

International Data Space (IDS)-based common data space, which enables the automated process of creating digital twins, thus making it more efficient and cost-effective. Additionally, AUTO-TWIN integrates novel hardware technologies into the digital thread, which is a key component of creating digital twins, to create smart Green Gateways.





**Battery Cloud Platform |  
State-of-Health**

focuses on monitoring the performance of the car battery, including its overall health, in real-time through the cloud platform. This data will be used to optimize the refurbishment process of the battery when it is brought back to the Libattion facility.

**PET Endless Recycling**

focuses on the automated digitalization of the recycling process chain. The data collected from these processes will be used to generate and operate a digital twin able to identify systems improvement actions in terms of efficiency and sustainability.

**Sterilization Process |  
Health Sector**

focuses on the sterilization process in hospitals. The data collected from the process will help to optimize items flow, costs, and deliveries thanks to decisions supported by digital twin.

# Use Cases

# Consortium

## Italy

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**POLITECNICO**  
MILANO 1863



**ERREQUADRO**  
Research over Research

## Greece

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## Spain

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## Turkey

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**KOÇ ÜNİVERSİTESİ**

## Lithuania

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## Netherlands

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## Switzerland

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## Israel

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Auto-Twin | G.A. number: 101092021

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