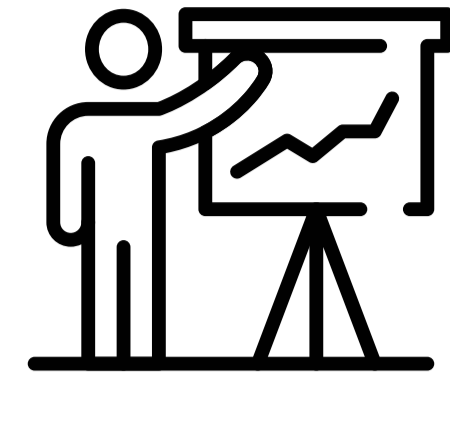


**AI-PROFICIENT**  
Artificial Intelligence  
for improved production efficiency,  
quality and maintenance

# Using advanced AI technologies to improve manufacturing

## What is the project about?

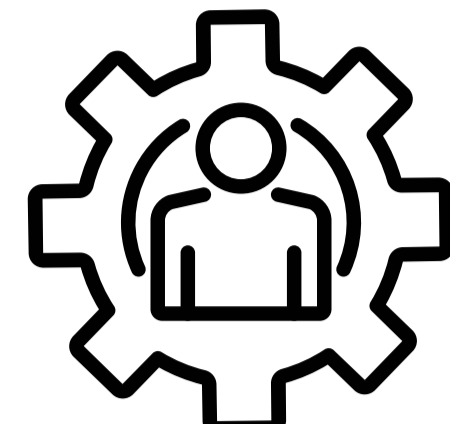
Improving manufacturing processes by combining human knowledge with AI capabilities



Production efficiency



Quality

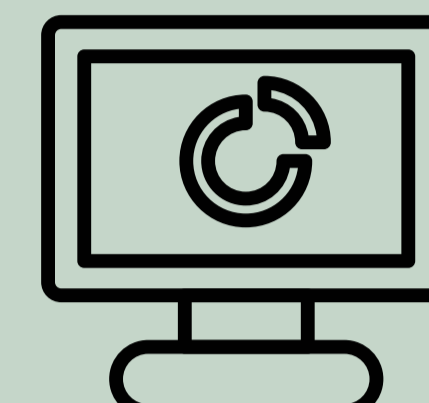


Maintenance

Proposing an evolution from hierarchical and reactive decision making for **plant automation**, towards **self-learning** and **proactive control strategies**

## Objectives

Creating a platform that will enable **agile production processes** and **improved operation planning and execution**



**Piloting a solution in 3 production plants** of different manufacturing domains, under alternative use case scenarios



Identifying **the effective means for human-machine collaboration**, while respecting **safety and security requirements** and respective **ethical principles**



## Goals

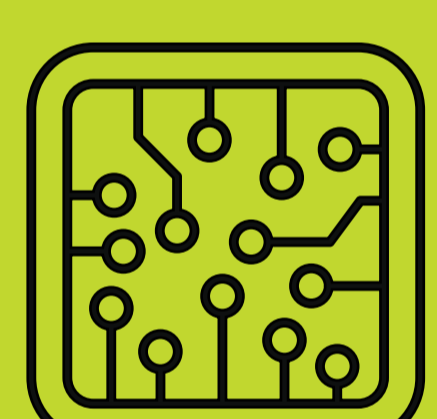


Increasing the **positive impact of AI technology** on the manufacturing process as a whole

Humans assuming **human-on-the-loop** and **human-in-command** roles

Enabling **AI decision-making explainability** and **transparency** & **reinforcement** mechanisms based on human knowledge

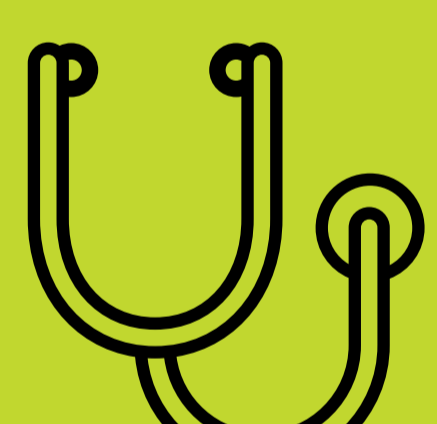
## Enabling technologies and concepts of AI-PROFICIENT solution



**Smart components** for embedded AI at system edge



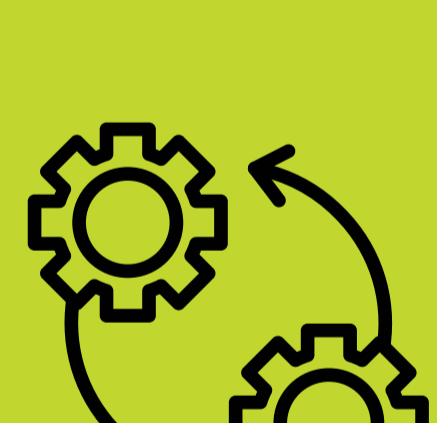
**IoT** for **smart component integration** and **interoperability**



**AI prognostics** for system degradation and health state assessment



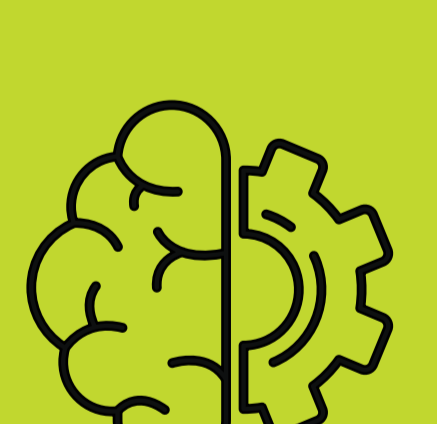
**AI enabled decision-making** for quality assurance



**Semantic lifting** and **model agnostic techniques** for XAI



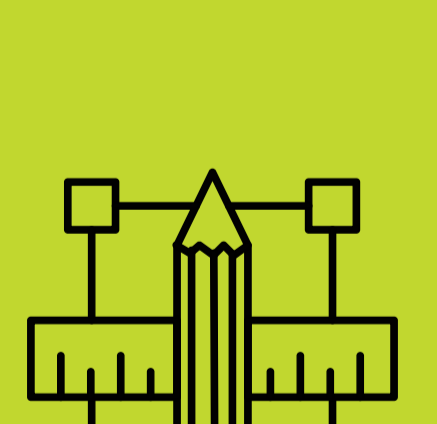
**Hybrid digital twins** and **process modelling**



Generative **optimisation of production processes** (human in the loop)



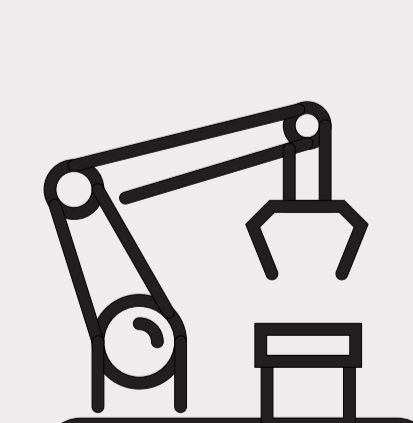
**Role-specific visualization** for transparent AI decision support



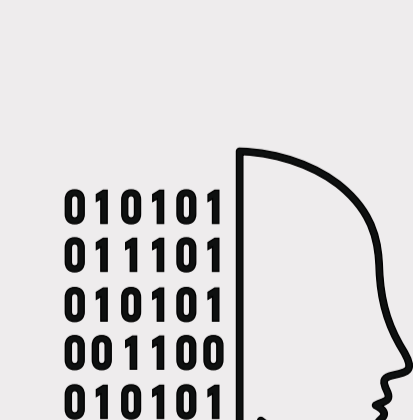
**"Ethics by design"** approach

## Expected Impact

**Agile production processes** and **improved quality** of products and processes



Humans working together with AI systems in **optimal complementarity**



## Partners



## Contact Us



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