AI-PROFICIENT
artificial intelligence for proficient operations 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

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

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

03 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

Université de Lorraine · Continental The Future in Motion · Tekniker · INEOS · TENFORCE · VTT · ENOS · Ibermática · Institut Mihajlo Pupin · ATC Athens Technology Center

Contact Us

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