OPTIMAI

Optimizing Manufacturing Processes through Artificial Intelligence and Virtualization

OPTIMAI aims to create a new European industry ecosystem focused on innovative solutions to optimize production, reduce defects and improve quality to safeguard European industry for generations to come

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OPTIMAI PROJECT PARTNERS

Carr Communications
carrcommunications.ie

Trilateral Research Ltd
trilateralresearch.com

Visual Components OY
visualcomponents.com

EVT GmbH
evt-web.com

Engineering S.p.A
eng.it

Microchip Technology Caldicot Ltd
microchip.com

Televés SA
televes.com

Unimetrik SA
unimetrik.es

Youbiquo SRL
youbiquo.eu

University of Thessaly
energy.uth.gr

Universitat Politècnica de València
upv.es

Centre for Research and Technology Hellas
certh.gr

Universitat Autònoma de Barcelona
idt.uab.cat

Kleeman
kleemanlifts.com

FORTH
forth.gr

Future Intelligence
f-in.eu

The OPTIMAI Project Aim

OPTIMAI aims to create a new European industry ecosystem focused on innovative solutions to optimise production, reduce defects and improve quality to safeguard European industry for generations to come.

The OPTIMAI Results

OPTIMAI will result in a toolkit of smart technologies designed to optimise production processes in industry.

These technologies include:

- Decision support Framework for zero-defect manufacturing, optimal production planning and rapid efficient reconfiguration of industrial equipment.
- Adaptive multi-sensorial network and fog computing framework.
- Blockchain-enabled ecosystem.
- AI methodologies for defect detection and prediction.
- Digital Twins, Augmented reality interface and visual analytics.
- Intelligent Marketplace for profiling, indexing and repurposing of defective parts.

The OPTIMAI Pilots

The OPTIMAI Pilot studies play a key role in demonstrating how European Manufacturing processes can be optimised through the use of AI and digital twinning technology. The pilots form the cornerstone of the empirical work of the project.

To maximise the impact of OPTIMAI on European industry, the project team is developing solutions that can be applied to a wide range of industrial settings. These solutions will be tested and validated in three selected pilots that cover a number of industrial domains:

- **Kleemann:** Manufacturing of lifts (Greece)
- **Televés:** Manufacturing of antennas (Spain)
- **Microchip Technology Caldicot Ltd:** Assembly of microelectronics (UK)

Each pilot includes three different use cases:

1. Zero defect quality inspection:
   Focuses on detecting defects, analysing their causes and predicting emerging deficiencies.

2. Production line setup-calibration:
   Focuses on an automated quality control loop between inspection and machine setup and a context aware interaction environment for operator and production equipment.

3. Production planning:
   Focuses on virtualising the production line to enable cheap, fast and efficient production planning.

Technical enquiries:
Dr Nikolaos Dimitriou, CERTH / ITI,
OPTIMAI Project Coordinator - email: nikdim@iti.gr

Media enquiries:
Carr Communications
email: linda@carrcommunications.ie