ITEA 3

Project Profile

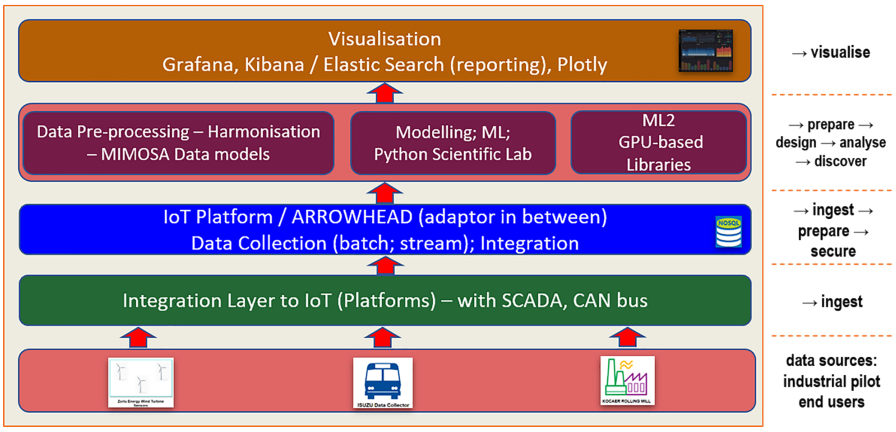
# SMART-PDM

## Harnessing the power of predictive maintenance

**The ITEA project SMART-PDM envisions a transformation in the way we view maintenance. For manufacturing businesses, predictive diagnostics and prognostics will provide feedback on the state of equipment and allow this to become a proactive, cost-saving measure.**

### ADDRESSING THE CHALLENGE

Maintenance is considered a reactive cost factor: when a component breaks down, it needs to be fixed. This approach has negative impacts on businesses with unpredictable degradation times and an inconsistent availability of spare parts. In addition to the financial costs, time is wasted during the repair process itself. To boost efficiency and savings within the manufacturing domain (which accounts for 15.96% of the EU's GDP), predictive maintenance (PdM) approaches and new business models must become technologically available and accepted by industry.




*SMART-PDM's Conceptual Solution Design*

### PROPOSED SOLUTIONS

Using automated sensors, the SMART-PDM project will acquire manufacturing data to provide diagnosis and prognosis information on the status of equipment. Through a consortium of SMEs, large enterprises and RTOs across five countries, a new philosophy will be developed in which various solutions compete to improve Overall Equipment Effectiveness (OEE). This metric accounts for the availability, performance and quality of machines in a production system. In regard to financial feasibility, the costs of acquiring attributes and target predictions for quality will be mapped out in monetary terms, allowing businesses to understand which processes and equipment are worth monitoring. By combining machine learning and optimisation techniques, state estimation and quality simulations can be carried out on the basis of inferred states. This kind of self-developing diagnostics and prognostics will allow machines or processes to keep themselves in good condition, provide precise feedback on failures and give instructions on how to maintain or repair them.

### PROJECTED RESULTS AND IMPACT

The aim of SMART-PDM is to develop an automatic condition-based approach that increases OEE from 60% to 80% within European industry. For businesses that take up PdM, this will mean savings on the costs of maintenance, waste and components, as well as improvements to overall quality and throughput.

Additionally, the advancements validated by demonstrators will help to enhance the knowledge and toolsets of partners, resulting in new revenue models. As only 11% of companies currently have a mature PdM system in place, there is ample room to grow; SMART-PDM therefore offers businesses of all sizes the opportunity to tap into a market estimated to be worth USD 4.9 billion by 2021.

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**Project start**
December 2018

**Project end**
December 2021

**Project leader**
Barış Bulut, Enforma

**Project email**
baris@enforma-tr.com

**Project website**
http://smart-pdm.eu/

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