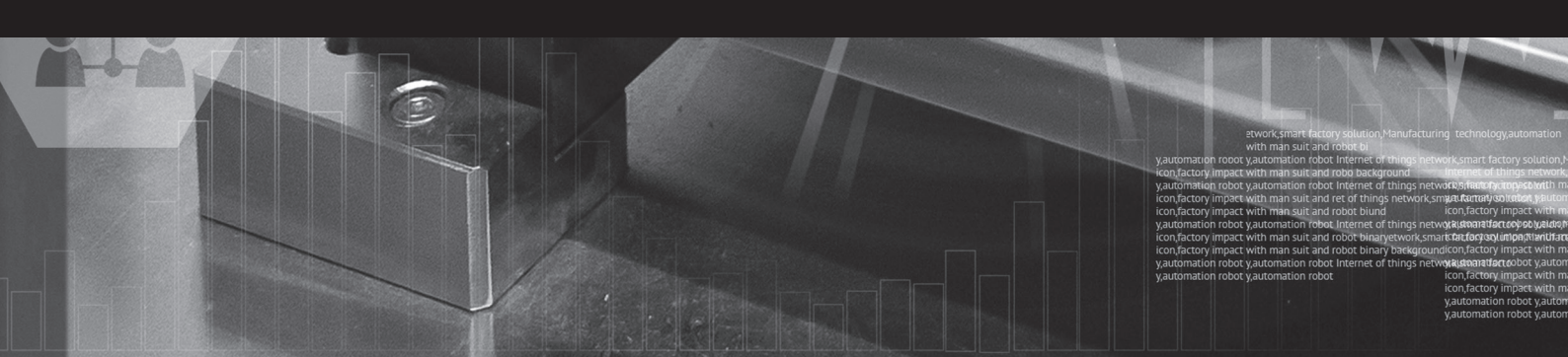
smart prod ACTIVE

A completely new ICT platform based on innovative Control and Quality model prediction in production line



Motivation

The Digital Transformation and Manufacturing Engineering are innovative elements of the **Industry 4.0** strategy and application of **Enabling Technologies** with particular reference to “Simulation and process optimization of **interconnected machines**” and “**Big data analytics** to optimize products and production processes”.

The **Cognitive manufacturing** is an emerging frontier of engineering science that integrates domain knowledge from industrial and systems engineering, manufacturing process science, computer learning (or machine learning), information technology, adaptive control theory, biologically-inspired system design and environmentally cognizant design and sustainability.

Benefits

Control the all the stages of complex production processes with different devices

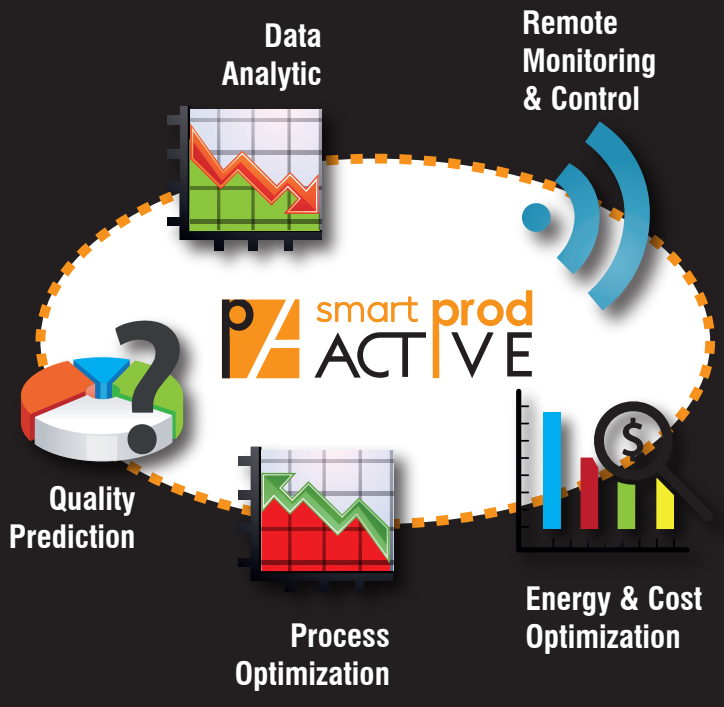
- Enhance stability and quality reproducibility
- Application to the existing traditional production lines

Improve the production efficiency (OEE)

- Accelerate the fine-tuning process (Optimization)
- Real-time adjustment of the process parameters (no stops, reduced cycle time...)

Improve process knowledge from the data (Learning from data)

- Deeper Quality correlation with process parameters
- Re-use the knowledge to flexible production predicting the quality and maintenance






What is smart ProdACTIVE

- SMART and Fully integrated remote control of multi-stages existing or new PRODUCTION line
- Centralized PRODUCTION and Flexible data acquisition system interconnecting the Intelligent Sensors Network (CPS in production line) and Devices based on OPC UA protocol and IoT technologies
- Deeper knowledge of PRODUCTION process based on advanced data analytic and auto-trained correlation models supporting the appropriate re-actions to adjust the process set-up and/or mechanism
- SMART Process data management: Traceability and statistical elaboration of Efficiency, Quality and Cost (real-time visualization of elaborated data, including safety messages and statistic production diagrams)
- Flexibility in PRODUCTION: re-use of Quality predictive model to re-start the production for small or large volume
- SMART Scalability to multi-production line in different sites and customized for multiple users' interfaces as machine operator, production manager, quality manager and plant director

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- ACTIVE Real-time 100% quality prediction in view of Scrap reduction oriented to Zero Defect Manufacturing
- Re-ACTIVE process Cognitive optimization to support the decision making with proper reactions in real-time
- SMART web-service interface with MES or ERP

Impacts

The final impacts oriented to Sustainability and Profit are referred to **Quality**, **Energy** consumption, **Time** to market and **Cost**.

SCRAP RATE

The involved Factory is expecting for a 40% reduction in scrap rate

PRODUCTION

Flexibility, stability and efficiency is reducing by 10% the no-quality-cost

QUALITY CONTROL

In good exploitation scenario the cost of quality control can decrease of 40%

ENERGY

energy consumption will be reduced by 5-10%, due to scrap reduction and more production efficiency

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About EnginSoft

EnginSoft is a multinational company active in the field of Simulation-Based Engineering and Sciences. Founded in 1984, over the years EnginSoft has become the partner of choice to support companies in design and manufacturing process innovation, thanks to the extensive skills of highly qualified staff.

As far as data analysis and artificial intelligence algorithm implementation is concerned, EnginSoft boasts a twenty years' experience in the application of the Optimization techniques in Product design and verification and Manufacturing.

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