



MULTI-layers control&cognitive System to drive metal and plastic production line for Injected Components

MUSIC Control & Cognitive System Functional Specifications

The Control & Cognitive (C&C) system analyses data gathered by a heterogeneous network of sensors installed on one or more machines for high pressure die casting of light alloys (HDPC) or plastic injection molding (PIM) and produces a set of output data that are used to monitor and optimize the manufacturing process.

The term "optimization" means:

- to improve production quality;
- to minimize energy consumption;
- to reduce total costs.

It is possible to distinguish between:

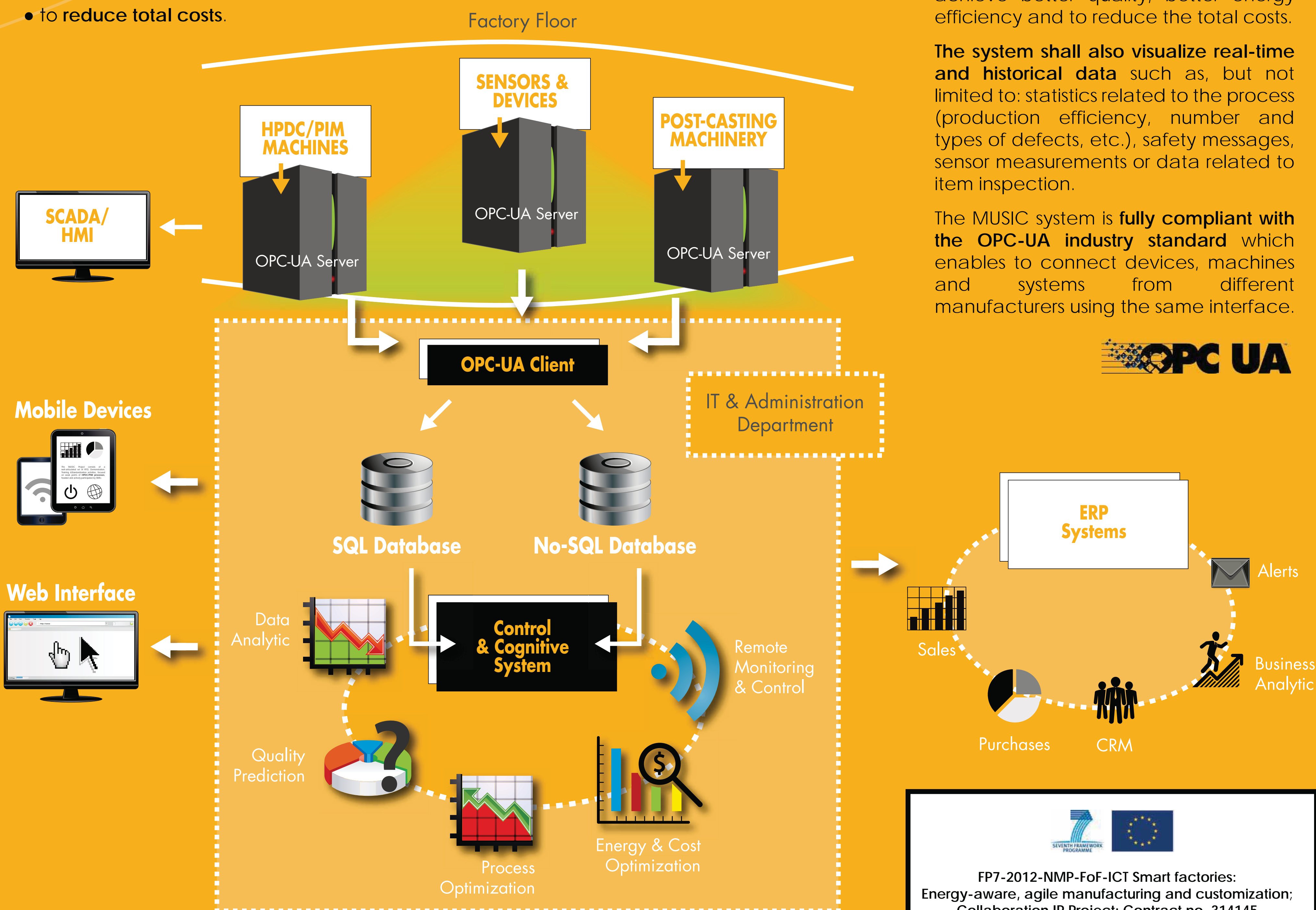
- a set of control parameters that are fed to the die casting machines to control the process;
- a set of measurements that are collected from the sensors;
- a set of quality parameters that are used to monitor the quality of the process.

The system is capable of reacting in real-time to variable process conditions, describing and predicting the behavior of the process in terms of output quality for any combination of control parameters and sensor measurements.

The system eventually proposes a set of suitable solutions for optimizing the manufacturing process, that is, tuning the control parameters in order to achieve better quality, better energy efficiency and to reduce the total costs.

The system shall also visualize real-time and historical data such as, but not limited to: statistics related to the process (production efficiency, number and types of defects, etc.), safety messages, sensor measurements or data related to item inspection.

The MUSIC system is fully compliant with the OPC-UA industry standard which enables to connect devices, machines and systems from different manufacturers using the same interface.



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Starting date: 1st September 2012

Duration: 48 months

Total Person Months: 936

Total costs: 9.302.070,00 €

EC funding: 6.135.000,00 €

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