

Work Package 3

Modular and Self-Optimizing Quality Control

Deliverable D3.1 Summary

**Definition of quality control functions and
specifications for the case study**

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Summary

The Deliverable D3.1 is the first output of WP3-“Modular and self-optimizing quality control”. The overall objective of the WP3 is to develop quality control agents which perform the functions of product testing and quality control (measurement, diagnosis and classification), designed to implement adaptive procedures at the level of measurement system and to be integrated into the multi-agent architecture so to support adaptation at the level of manufacturing system and/or product.

The specific objective of D3.1-“Definition of quality control functions and specifications for the case study” is to define which quality control systems will be the main object of activities during the project, to describe their main characteristics in terms of desired performance and to highlight the mechanisms that will allow to have these systems operating in the Multi Agent Systems (MAS).

A fundamental preliminary step for this selection is an in depth analysis of the production cycle and of mechanisms of data gathering and sharing along the washing machine production line, taken as reference in the GRACE project. This detailed overview will be used as reference document for the development of the GRACE project all over the different work packages.

The main concepts of optimization applied to quality control systems, which are a combination of measurement systems and post-processing algorithms for signal diagnosis are recalled. The issue of measurement uncertainty, which is the main concern when dealing with measurement systems, and of “learning from experience”, which is fundamental to guarantee flexibility, is also highlighted. The level of confidence on the output of a quality control station is strongly correlated to the measurement uncertainty, which therefore is a quantity to be known and possibly minimized. Optimization will therefore imply an estimate of measurement uncertainty and its management in order to achieve the required level of confidence on the output from the quality control system.

The deliverable also describes the quality control systems that are candidate for the future development in GRACE project, in WP3. For each of them it will be highlighted the specific function, its general architecture, its main characteristics and the possible flow of information to other processes in the production line.



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