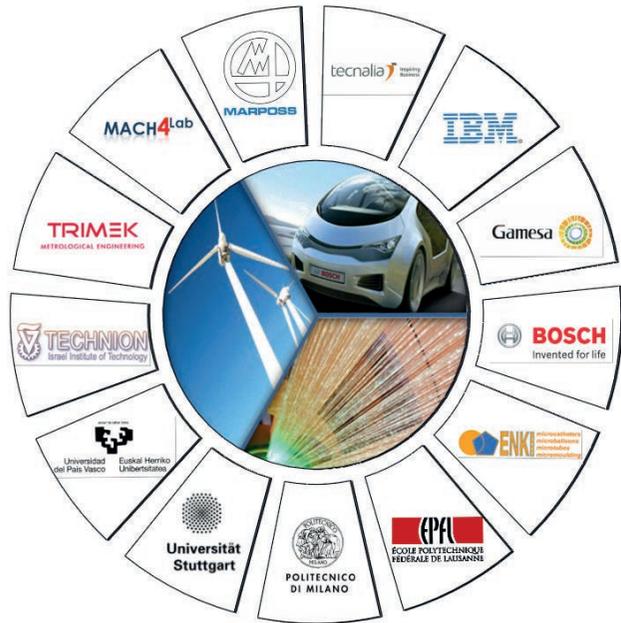




Innovative Proactive Quality Control System
for in-process multi-stage defect reduction
November 2011 – October 2014



PROJECT GOALS

- > This project aims at developing an innovative Quality Control System that will drastically change the current concept of End-of-Line quality control, going beyond currently established methodologies such as Six-sigma and SPC.
- > This Quality Control System will prevent the generation of defects within the process at single stage and the propagation of defects between processes at multi-stage system level.
- > This Quality Control System will be proactive, offering three different solution strategies to avoid End-of-Line defects:
 - The elimination of the predicted defect through adjustment of process characteristics by proactively intervening on the inputs to the process.
 - The on-line reworking of the product in order to eliminate the defect.
 - The online workpiece repair through defect elimination at consecutive process stages.



EUROPEAN COMMISSION • FP7

The MuProD Project is funded by the European Commission within the 7th Framework Programme in the NMP Priority.

The project is being developed for call no: **FoF.NMP.2011-5: Towards zero-defect manufacturing**

• This call expects the following impacts:

Development of innovative solutions for zero-defect manufacturing is of strategic relevance for Europe, especially in the domains of parts manufacturing with conventional technologies such as machining, cutting, forming and coating.

The reduction of losses by extensive quality control and the increase of efficiency in manufacturing are expected in many industries, in particular in the traditional sectors.

Continuous performance monitoring of different process stages to master propagation of defects within or between processes and increase the robustness of processes.

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► For more information,
visit the project website:



<http://www.muprod.eu>

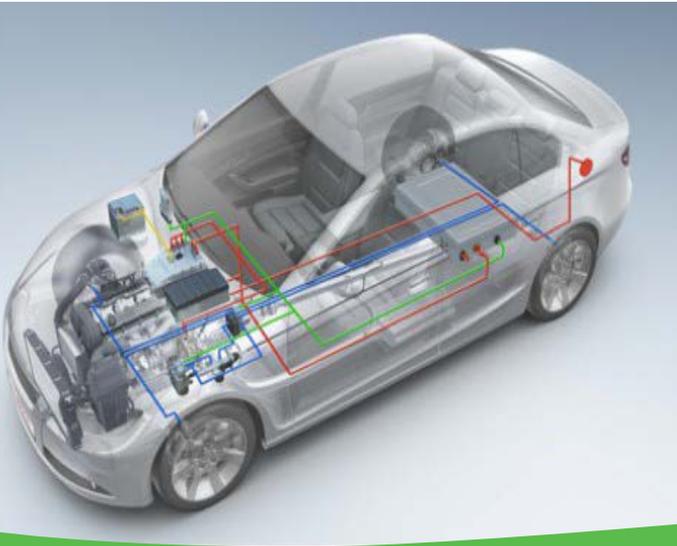
▼ AUTOMOTIVE INDUSTRY (Robert Bosch GmbH)

Assembly chain of electrical drive for sustainable mobility

Cars are one of the most important products in Europe. Due to the imminent shortage of petrol as well as efforts to achieve a healthy environment, the change from combustion engines to electrical drives has begun.

Perfect methods for manufacturing combustion engines cannot be directly transferred to electrical drives. Every new process must be checked for deflections to avoid defective parts.

The state-of-the-art “End-Of-Line” testing is a complex and expensive method in which the main functionality is tested only after all manufacturing tests are complete.



▼ CUSTOMIZED MEDICINE INDUSTRY (ENKI SRL)

Production of unique customized micro-intravascular catheters for aging society

Micro-intravascular catheters are used in a variety of medical applications. Micro tube diameter of up to 200 μm enables using such catheters in smaller and smaller arteries, increasing the number of curable diseases, and ultimately saving lives.

Currently, micro-catheter production is challenging and expensive, with a defect rate of 80% due to the lack of proper inspection systems and effective proactive process control procedures.



▲ GREEN ENERGY INDUSTRY (Gamesa SA)

Precise large-part machining of gearbox components for windmill-building industry

Growing energy demands and the search for “green energy” are leading to the manufacture of windmill towers able to produce higher power. The emerging windmill sector is growing and demanding precise machining of large-sized parts. Manufacturing parts from new materials increases defective operations and therefore the number of defective parts.

▲ SCIENCE AND TECHNOLOGY OBJECTIVES

The MuProD Consortium has identified the main Science and Technology Objectives for achieving the concept of Integrative Quality Control Solution System and grouped them in the following areas:

- In-process data gathering sensors and inspection techniques.
- Process/machine models for monitoring and adjustment.
- Adaptive and smart fixturing.
- Integrative solutions for proactive quality control in correlated multi-stage systems.
- New process-chain-oriented workpiece repair solutions for zero defect propagation.



► For more information, visit the project website: <http://www.muprod.eu>