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Cedrat Technologies (FR)

Tagueri (DE)

Aeromec (ES)

Gamax (HU)

ActiveEon (FR)

Diad Group (IT)

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MC-SUITE

ICT Powered Machining Software Suite

H2020-FoF-2015

Project objectives

The aim of the project is to develop the MC-SUITE application based on six different modules ready to reduce the distance between the virtual and the manufacturing process.

MC-Virtual: obtains the final path of the tool and the quality of the real part, the cutting force and process stability, overcoming the limits of the actual Computer Aided Manufacturing software.

MC-Optim: optimizes the milling process considering multiple objectives including productivity, quality and energy consumption.

MC-CyPhy: includes three different embedded cyber physical systems connected to the virtual model and to the monitoring system for increasing the productivity.

MC-Monitor: is a cloud based system able to store heterogeneous data including signal coming from internal sensors of the machine, from embedded system and operator authored data.

MC-Analytics: is a platform to treat the information of the cloud for process & machine analyses and productivity improvement.

MC-Bridge: compares the results of the virtual model with the real ones obtained from the monitoring system. This way on-line and off-line optimizations are performed both on the simulations and on the machining pro-
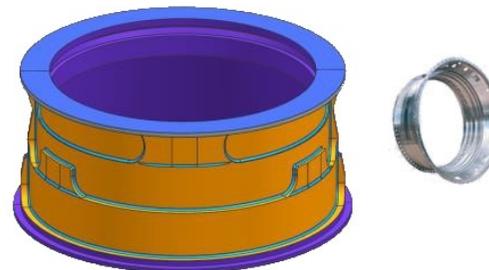
Target Sectors

Manufacturing

Automotive

Aerospace

Topics

Models to predict the surface **quality**

Vibrations   **Physical** models

High **performance** computing

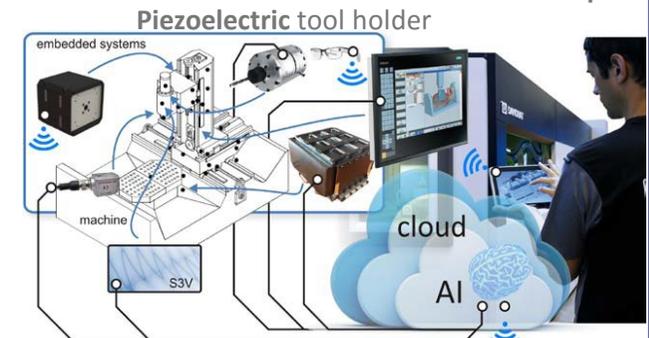Surface **roughness**   cutting **force**, **power**

advanced **visualization** tools   **energy consumption**

Multiobjective optimization methods

Smart and **embedded** systems

Active **damper**

Piezoelectric tool holder

Smart **spindle speed** variation manager

Cloud based monitoring   **Crypted** data

Big Data   **Auto-Scaling**   Data **mining**

Data exploitation

machine **learning** algorithms

Map-Reduce

Mathematical and **heuristic** models

on-line and **off**-line working modes

Reference pattern   **Expert system**

Fast reaction and adaptation

HPC   **Cloud computing**

Productivity increase