

Press release:

European “FoFdration” Project aims at the universal information system foundation for sustainable manufacturing in the ‘Factory of the Future’

Geneva – June, 29th. Leading experts from the EU, Switzerland and Korea joined in a cooperative R&D project to achieve a foundation of the information system for manufacturing systems. That universal information system will be based on data exchange standards using an information pipeline to distribute and share necessary information within a manufacturing system, locally or globally, seamlessly by a commonly accepted model and format.

The project FoFdration (Foundation for the Factory of the Future) envisions a ‘Smart Factory’ architecture and implementation which holds promising potential in achieving significant benefits in earlier visibility of manufacturing issues, faster production ramp-up time, faster time-to-volume production and subsequently shorter time-to-market, reduced manufacturing costs and improved product quality as well as sustainability objectives like reduced energy consumption and waste reduction. The project will run for 4 years.

These benefits will be achieved by meeting the following five objectives which jointly compose the foundation of the ‘Factory of the Future’:

- End-to-end digitization of the process (ERP/CAM/NC) -product (CAD/PLM) and resource (machine characterization signature) in the two main IT developments: ‘Digital Manufacturing Repository’ (DMR) as the definition of the product and machine and tool properties and the process characteristic and the ‘Manufacturing Information Pipeline’ (MIP) for efficient data transfer and sharing.
- Development of a ‘Smart Machine Controller’ (SMC) concept including a ‘Supervisory Control and Data Acquisition System’ (SCADA), adaptive process control and monitoring for energy efficient processes.
- Realization of a ‘Smart Manufacturing Optimizer’ (SMO) using the virtual product information from CAD/PLM and the real machine and on-line process information to adapt process control information to achieve optimal process results.
- Extension of MES systems to a ‘Smart Manufacturing Execution System’ (SMES) by supporting resource efficiency and sustainability goals and interfacing with ‘Enterprise Resource Planning’ (ERP) systems
- Compilation of all information into a common dashboard towards the “production-to-enterprise” asset integration and overall sustainability management

In short, the outcome of the above mentioned developments will extend existing information processing systems by adding more information about:

- product data,
- machine tools,
- tools and processes and
- process monitoring information fed back to shop-floor information systems

This will improve:

- Tool path descriptions independent of machines-tools
- Machining process simulation based on product and process information
- In-machine process simulation and validation
- In-machine process verification incorporating product and tool machine tolerances and inspection plans
- In-machine process optimization of feed and speed concerning product and machine information
- Feedback of machine and process information to shop-floor information processing and design
- Integration of process data to manufacturing planning and management

Partners of the FoFdatation project are the esteemed organizations Airbus (F), Artis (D), GF Agie-Charmilles (CH), CADCAMation (CH), Centro Recherche CRF (IT), DELCAM (UK), Fidia (IT), Mecadtron (DE), Paragon (GR), Siemens (DE), Tekniker (ES) and the University partners, Ecole Centrale de Nantes (F), ETH Zurich (CH), EPF Lausanne (CH), Postech (KO) and the University of Patras (GR).

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Factories of the Future is a EUR 1.2 billion program in which the European Commission and industry are collaborating in research to support the development and innovation of new enabling technologies for the EU manufacturing sector. For further information please visit:

http://ec.europa.eu/research/industrial_technologies/lists/factories-of-the-future_en.html

For more information about FoFdatation please contact:

Jean-Bernard Hentz (Project coordinator): Jean-Bernard.Hentz@airbus.com

VanKhai Nguyen (Technical Coordinator): vknguyen@cadcamation.ch

Jan Willem Gunnink (Exploitation Manager): jwg@delcam.com

Rolf Riemenschneider (Project Officer): Rolf.RIEMENSCHNEIDER@ec.europa.eu

Pictures/graphs that can be used:

