CAPP-4-SMEs

Collaborative and Adaptive Process Planning for Sustainable Manufacturing Environments

1st newsletter **February 2013**

THE BEGINNING

CAPP-4-SMEs started in December 2012 and will continue for three years. The main purpose of the project is to enhance the competitiveness of European companies in a sustainable manufacturing environment. This will be achieved by utilizing innovative knowledge-based Computer Aided Process Planning (CAPP), which is a key enabler to minimise cost, improve adaptability, responsiveness, robustness, and sustainability of manufacturing processes.

IN ESSENCE...

What:

Generate adaptive process plans for SMEs

When:

Based on real time machine availability

How:

To apply event-driven function blocks with smart embedded algorithms

Where:

To provide services in a Cloud manufacturing environment via the Internet

Who:

To enpower SMEs who do not have the luxury to host everything themselves

EXPECTED IMPACT

»Knowledge-based process planning will be realised by in-process simulation and on-board optimisation to facilitate SMEs to reduce cycle times and achieve high productivity

»In-process monitoring and simulation services will be first-time-right in terms of accuracy and reliability for new production processes.

»Event-driven function block technology will be applied to achieve real-time responsiveness, adaptability and therefore process robustness.

»Cloud manufacturing will be an integret solution to facilitate modular and configurable process planning services to increase robustness of existing processes. Such as pay-as-you-go services and options can be picked from the Cloud when necessary or applicable.

Start-up meeting at KTH in Stockholm

ABOUT CAPP-4-SMEs

CAPP-4-SMEs is supported by the European Union Seventh Framework Programme [FP7/2007-2013] under grant agreement n° 314024. The project is financed within the theme "Knowledge-based tools and approaches for process planning and integrated process simulation at factory level" [FoF.NMP.2012-6].

The CAPP-4-SMEs Consortium is comprised of eleven partners (four universities, six SMEs, and one multi-national manufacturing company) from five European countries (Sweden, UK, Greece, Germany and Spain).

Coordinator

KTH Vetenskap och Konst

Partners

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Cameco AB Sandviken

Coventry University

Cranfield University

FORMTEC Engineering Services

InConTec

LMS Laboratory for Manufacturing Systems & Automation University of Patras

PowerKut Ltd "Engineering Excellence"

PRODINTEC Fábrica de Futuro

SANDVIK Coromant

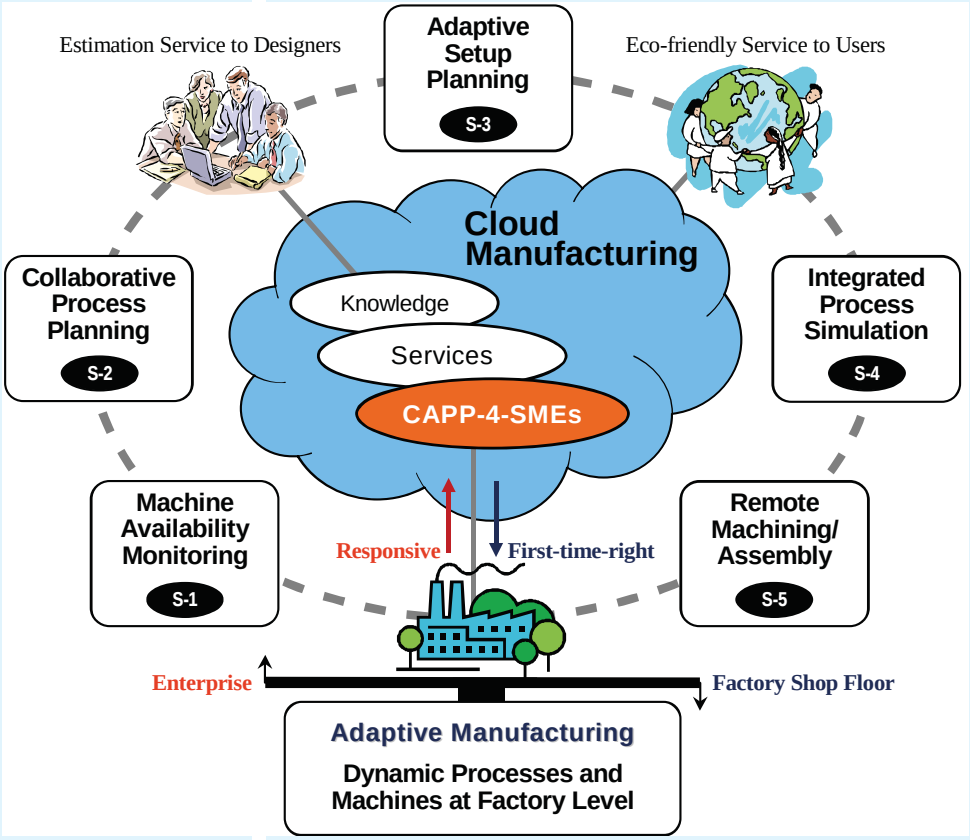
wp8-capp4smes@kth.se
www.CAPP-4-SMEs.eu

SEVENTH FRAMEWORK PROGRAMME

OBJEKTIVE

The figure to the right illustrates CAPP-4-SMEs as a whole, and how the project relates to some of the key concepts in future manufacturing. The objectives that will lead us there are to:

» develop a series of innovative and adaptive process planning services to support SMEs to simulate, evaluate, plan and optimise their manufacturing processes and execution systems in collaborative value chains. This will increase efficiency, cost-effectiveness, robustness, sustainability, smartness, and user intervene-friendliness during process planning.



» develope a knowledge-based and efficient simulation service to support multi-criteria manufacturability evaluation from the beginning of product lifecycle. This enables SMEs to achieve first-time-right in terms of accuracy and reliability for customised product processes as well as improved overall energy profiles to comply with tougher eco-regulations.

» apply event-driven function block technology for on-board adaptive process control functions at machine level. The purpose is to achieve real-time responsiveness, adaptability and overall resource effectiveness.

» introduce a monitoring service for up-to-date machine availability and utilisation to ensure that decision making for planning and optimisation becomes resource-aware and well informed.

» adopt cloud and service-oriented computing approaches as a service platform to support SMEs to move away from developing and maintaining resource-intensive and standalone CAPP systems and migrate to portable CAPP services accessible and configurable over the Internet.

WORKPACKAGES

CAPP-4-SMEs is divided into eight workpackages. Each and every workpackage pays a crucial role in realizing the goals and objectives, and in the long run also the future impacts from the project.

WP1	Cloud Manufacturing Services Platform
WP2	Machine Availability Monitoring
WP3	Collaborative Process Planning
WP4	Adaptive Setup Planning
WP5	Integrated Process Simulation
WP6	Job-Shop Machining Demonstrator
WP7	Dissemination & Exploitation
WP8	Project Management (Admin. & Financial)

All workpackages, except WP8, involve almost all project partners, which brings the required knowledge together throughout the project.

wp8-capp4smes@kth.se
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