



KES-SDM 2017
The Industrial Session
26-27-28 April 2017
University of Bologna

KESInternational



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Patronage



Associazione Italiana Tecnologia Meccanica
Piazzale V. Tecchio, 80 - 80125 - Napoli - Italia
www.aitem.org



**Società Scientifica Italiana di Progettazione Meccanica e Costruzione
di Macchine**

Via A. Rendano 18 - 00199 - Roma – Italia
www.aiasnet.it



KES-SDM 2017
The Industrial Session
26-27-28 April 2017
University of Bologna

KESInternational

Sponsor: Enginsoft

www.enginsoft.it

Speech Title: Smart Factory
Competitiveness based on real time
monitoring and quality predictive
model applied to Multi-Stages
Production Lines

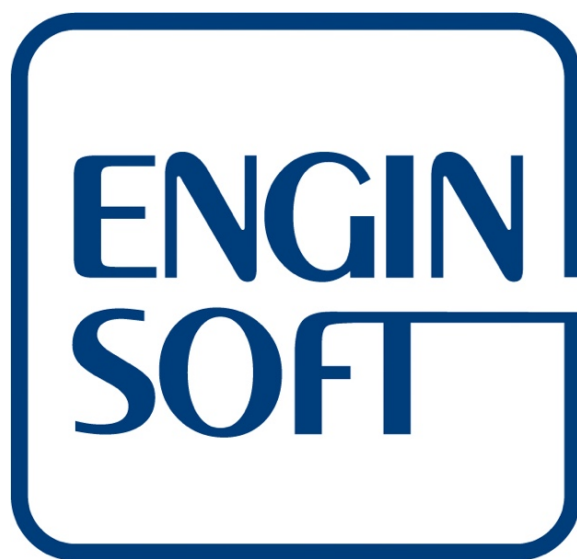
Author: Nicola Gramegna

Abstract: The Industry 4.0 is the industrial revolution based on Cyber-Physical-Systems (CPS) in the context of Factory of Future. The digital innovation is not an exclusivity of new and advanced technology and production processes. The traditional production processes and plants are evolving following this digitalization combining the long experience and the new fast methods to improve the production efficiency, to accelerate the fine-tuning and real-time adjustment of the process parameters oriented to the zero defect quality.

Manufacturing current trends show an improvement in demand for light products considering the material substitution for complex structural parts, the design and technology innovation as well as the evolution in smart production. Due to the high number of process variables involved and to the non-synchronisation of all process parameters in a unique and integrated process control unit, High Pressure Die Casting (HPDC), as well as plastic injection moulding (PIM), is one of the most “defect-generating” and “energy-consumption” processes in EU industry showing less flexibility to any changes in products and in process evolution. In both, sustainability issue imposes that the production cell are able to efficiently and ecologically support the production with higher quality, faster delivery times, and shorter times between successive generations of products.

The platform is the result of FP7- MUSIC project (funded in the frame of the Call FoF-ICT-2011.7.1 Smart Factories: Energy-aware, agile manufacturing and Customization) giving a new age to the traditional multi-stages production.

The current pilot projects are oriented to Foundry 4.0. The digitalization of foundry plays a key role in competitiveness introducing new integrated platform to Monitor the process by sensors and predict the Quality and the Cost of the casting in real-time.



Sponsor: solidThinking, Weisoft

www.solidthinking.com, www.weisoft.it

solidThinking[®]  **Altair**
Where ideas take shape.[™]

Speech Title: Conscious and Innovative design with solidThinking Evolve and Inspire

Authors: Adel Matar (SolidThinking), Riccardo Bianco (Weisoft)

EVOLVE
solidThinking



SOLIDTHINKING EVOLVE 2017: THE ULTIMATE HYBRID MODELING AND RENDERING SYSTEM. Evolve is a high quality 3D

Hybrid Modeling and Rendering environment that enables industrial designers to evaluate, research and visualize

various designs faster than ever before. Evolve runs on both Mac OS X and Windows.



SOLIDTHINKING INSPIRE 2017.1: GAUGE OPTIMIZATION, MOTION, TOPOGRAPHY OPTIMIZATION, AND MORE!

solidThinking Inspire allows design engineers, product designers and architects to investigate structurally efficient concepts quickly and easily. This can lead to reduced costs, development time, material consumption, and product weight.

SOLIDTHINKING EVOLVE 2017: THE ULTIMATE HYBRID MODELING AND RENDERING SYSTEM

solidThinking Evolve is an all-in-one industrial design tool that allows industrial designers to develop and explore forms faster than ever before. It enables users to capture an initial sketch, explore styling alternatives, and visualize products with best-in-class renderings generated in real time. Evolve provides organic surface modeling and parametric solid controls, and polygonal modeling with NURBS-based surfaces and solids and a unique ConstructionTree history feature. It frees designers from the constraints of engineering-oriented CAD tools, while allowing the export of digital models required by others in the product development process.

SOLIDTHINKING INSPIRE 2017.1: GAUGE OPTIMIZATION, MOTION, TOPOGRAPHY OPTIMIZATION, AND MORE!

solidThinking Inspire enables design engineers, product designers, and architects to create and investigate structurally efficient concepts quickly and easily. Traditional structural simulations allow engineers to check if a design will support the required loads. Inspire enhances this process by generating a new material layout within a package space using the loads as an input. The software is easy to learn and works with existing CAD tools to help design structural parts right the first time, reducing costs, development time, material consumption, and product weight.

Sponsor: 3DSystems

www.3dsystems.com



3D SYSTEMS®

3D | University 3DZ

Speech Title: Metal 3D Printing: software and case history

Author: Francesco Sartor

Abstract. The 3D metal printing offers significant advantages when compared with conventional production processes such as those based on CNC machines or casting. As a main result, Designers can be more focused on the product functionality that previously required long assembly operations. Now, they can create complex geometries that, otherwise, could not be produced.

Often the 3D metal printing allows the designers to delete or simplify phases of the production process, to reduce the number of components and, therefore, also to simplify the supply chain.

Some relevant point of the speech:

- Benefits that arise from the adoption of additive manufacturing technologies will be discussed.
- 3DXpert, the new and innovative 3D metal printing budgeting software will be presented.
- Materials and machinery will be presented.
- 3D Metal printed parts will be exposed.



3DXpert™



Cimatron®