



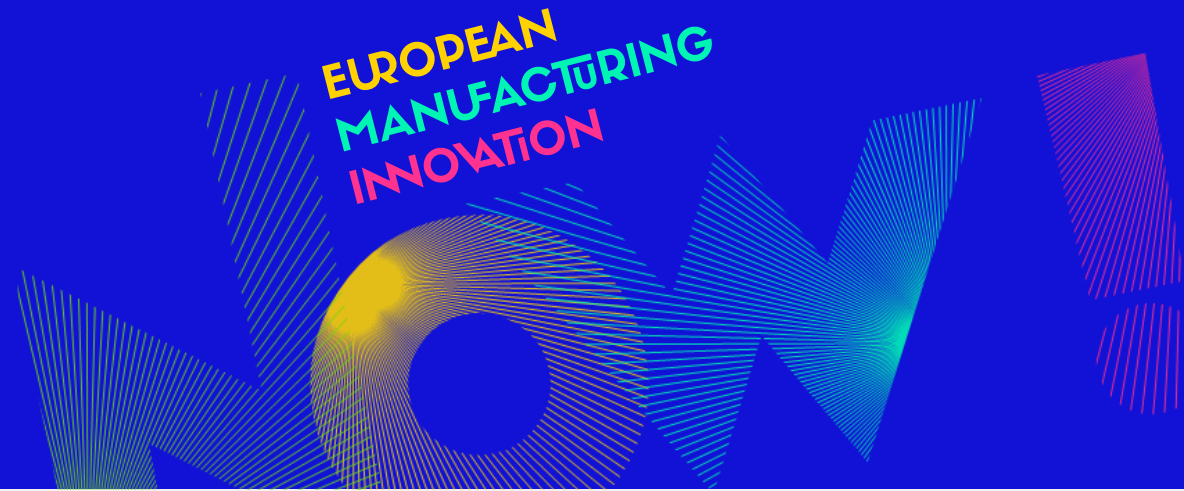
Additive Enterprises Cloud Manufacturing and Networking

Activity Acronym: ACloud

Activity ID: 20134

Area Name: EIT Innovation

Duration: 12 months



- The commercialization of AM and the increased demand for 3D printed products due to customization and ease of production of complex products led to significant increase of AM products and material waste.
- The absence of deep understanding of the process and the way that process parameters affect the final product resulted in faulty products.
- The need for optimization in Additive Manufacturing production, in terms of energy, time and material savings was the main source of inspiration for the ACloud project.
- The challenge is to identify what kind of information is significant for SMEs in order to improve their line process & level operation, including advanced production planning, Enterprises Resource Planning (ERP) and scheduling.



The Proposed Solution

- The proposed solution is a **software platform** that integrates several tools and offers awareness to the producer regarding the state of the machine and the process performance
- Theoretical and empirical process models as well as cloud services are employed to increase process & line level operation, the production planning, ERP and scheduling.
- The model outputs are also used as inputs to the algorithms that execute the Production and ERP scheduling, based on the machine availability, the raw material availability, the predicted duration of the process and the product requirements
- This platform contributes towards flexibility and cost savings in the AM industrial world, primarily SMEs, by indicating the optimized values for the process parameters in terms of energy and time savings as well as product quality
- The utilization of this platform in the production line also ensures the secure storage of production data in cloud in order for them to be available for future post processing.

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PROCESS/PRODUCT

- Better understanding of the process mechanism
- Create products with the desired quality
- Develop theoretical and empirical process models
- Improve process performance and efficiency
- Process monitoring and data post processing
- Identify the limits of the equipment
- Prevent failure due to wrong process parameters



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PRODUCTION

- Minimize the “try and error” testing processes
- Reduce material waste
- Minimize the idling time for a machine
- Maintenance scheduling
- Increase the production rate in an efficient way
- ERP and Production planning based on accurate models that predict the build time and the required mass
- Secure storage of data in the Cloud and accessibility from any device
- Increase the production line flexibility

Manufacturing matters!

The manufacturing industry is a global base for **prosperity** and key to Europe's **economic, social and environmental** sustainability. Manufacturing is a main driver of **industrial innovation, job creation** and growth for the European society



Over **2.1 million** manufacturing enterprises



32 million jobs
(16% of the total EU working population)



Approx. **13 million** jobs in the growing high-tech manufacturing industry¹



16.1% of the share of EU-28 GDP² (2016)



Total turnover of EUR **7.11** trillion³