Advanced Manufacturing in Central Europe

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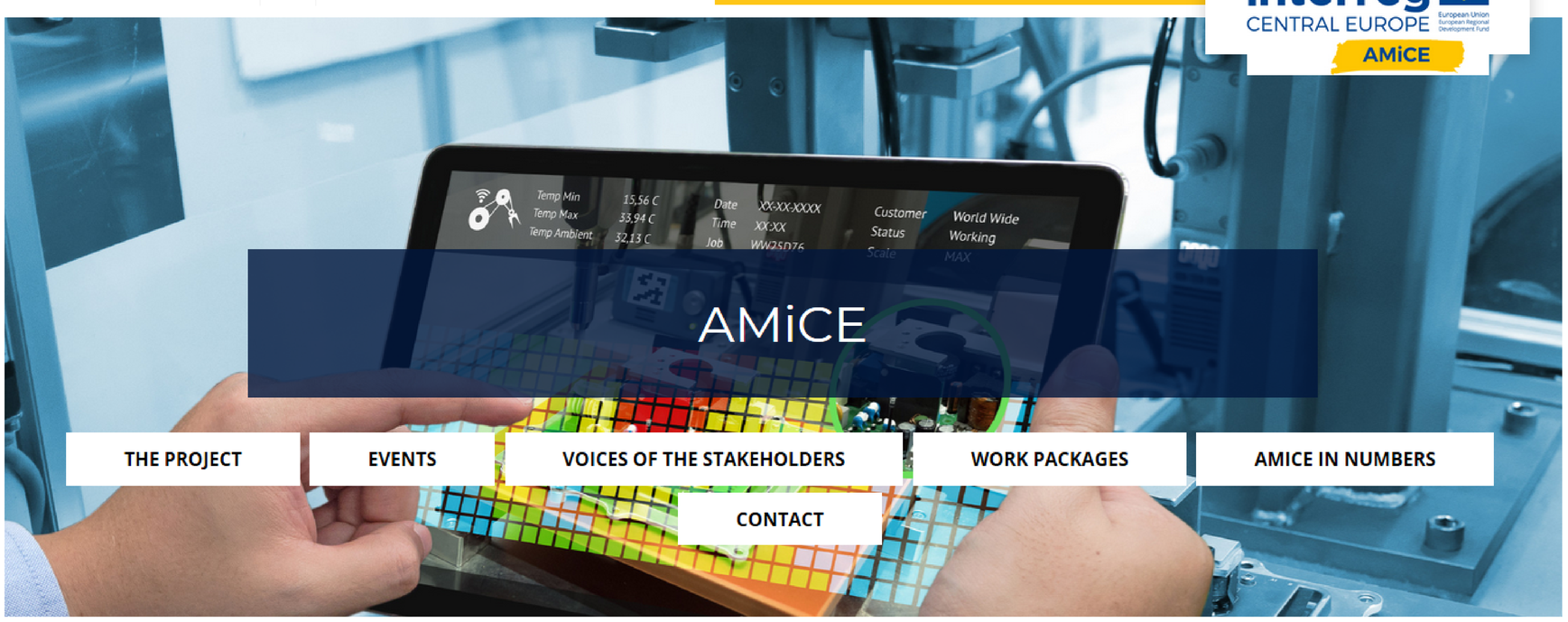


Advanced manufacturing technologies are a key driver of competitiveness in many industries, which contributes to keeping skills and jobs in central Europe. The AMiCE project will tackle three major challenges faced by SMEs when adopting advanced manufacturing technologies: access to knowledge; promotion of investments; and competitiveness of these projects. AMiCE will promote advanced manufacturing technologies especially focusing on 3D printing in conjunction with circular economy paradigm. The rise of 3D printing and fragmentation of required knowledge across the area, demand transnational cooperation that will allow replication of best practices in different sites. The project will connect five innovation hubs that prioritize advanced manufacturing in their regional strategies. A tandem of partners including a business support institution and a leading university represents each country level innovation hub. AMiCE will also develop a knowledge platform and a network of shared demonstrators and pilot lines highlighting proven benefits of 3D printing to new end-users. It will also set up a training and advisory program to support the development of concepts and projects conceived by SMEs.

Benefits of additive manufacturing for SMEs

Benefit

Today, additive manufacturing is considered as the key technology for the production of high-performance and mobile components. It can shortening development processes and making production more flexible.

As a network partner, we offer you **expert contacts** as well as machine and training databases to give you a broad base in this technology. [1]

To read a customized article for RTOs please open: Benefits of additive manufacturing for RTOs

To read a customized article for Policy please open: Benefits of additive manufacturing in Policy

Fused Deposition Modeling (FDM)
- Starting material are fusible plastics (filament)
- Plastic wire melted with hotend and applied in layers

Selective Laser Sintering (SLS)
- Starting material are powdered plastics
- Powder is heated under pressure and laser melts layer by layer

Stereolithography (SLA)
- Starting material is polymeric liquid resin (resin)
- Laser precisely illuminates the resin and hardens layer by layer

Laser Beam Melting (LBM)
- Starting material is metal powder
- Laser selectively melts the metal powder layer by layer

Benefits of circular economy for SMEs

Benefits:

Circular economy can be designed directly into the open business model and ideas of consumers can be more involved into the production processes. Additionally new profit opportunities can come from playing in **new markets** and **cutting costs** off with waste and energy reductions.

The closed-loop economy is based on the **Cradle to Cradle** principle, which describe the technical or biological cycle and how products can be recycled indefinitely. Based on this model, resource-efficient companies can appear dynamic, competitive and responsible in their environmental commitment.

This forms a solid fundament for competitions and grant applications where the **AMiCE Alliance** and its experts are available to **provide advice and practical support**. [1]

Examples how additive manufacturing can support the circular economy?

- Design freedom, optimization of part geometry, reduction of parts and weight
- Reduce waste, increase efficiency, reduce inventory and improve reusability
- Reduction of transport requirements, shorter and less complex supply chains
- Improvement of production performance, extension of product life, reduction of resources
- spare parts on request, repair or reproduction of damaged parts, recycling of waste

€ Financial Support

Find a suitable support program and get support from your local expert

- Support Programs

Hands On

Test your idea in regional and interregional labs and improve your skills

- Pilot Lines & Demonstrators
- Education & Training

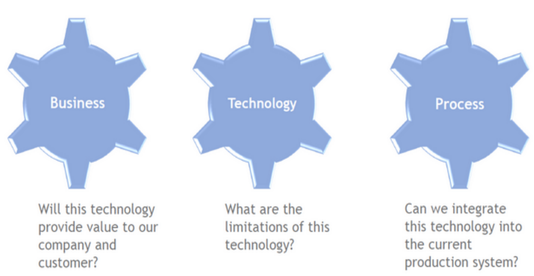
Regional Players

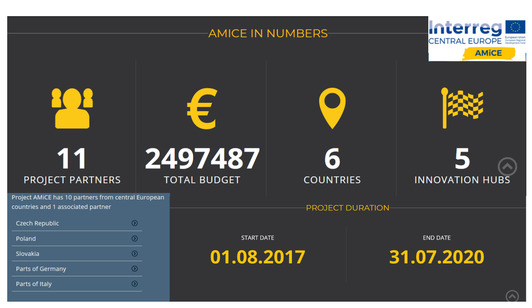
Learn from the best in your region and in central europe

- Expert Interviews
- Success Stories

Challenges regarding additive manufacturing

There are 3 major challenges that SMEs perceive when thinking about adopting AM technology.

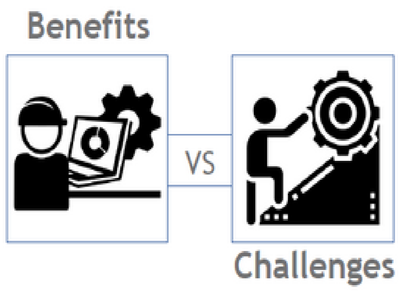




Challenges of circular economy

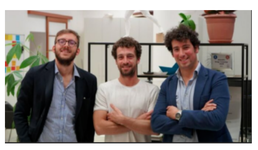
- Transition to **new business models** requires drastic rethinking
- High **coordination** effort to integrate **actors across all stages** of the value chain
- **Complexity of products**, materials and its content
- Processing technologies for end-of-life products are still in maturing phase
- **Lack of specific legislation**, i.e. focus on waste and environmental legislation without any link between product and economic legislation
- Limited **awareness**, interest and **knowledge**
- **Consumer behaviour** and the product as a status symbol

Benefits vs challenges ©

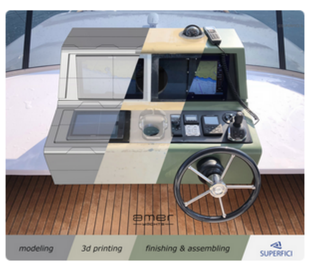


University of Genoa Pilot Lines: Case studies in the Project and follow up for 2020-2030

SAIEM - Savona High Speed Train 3D printing Project & Maintainance



Superfici - La Spezia 3D printed Yacht Cockpit



Superfici-Yacht Cockpit ©

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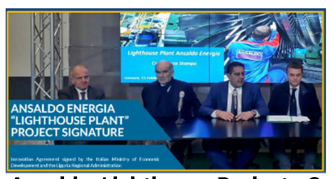
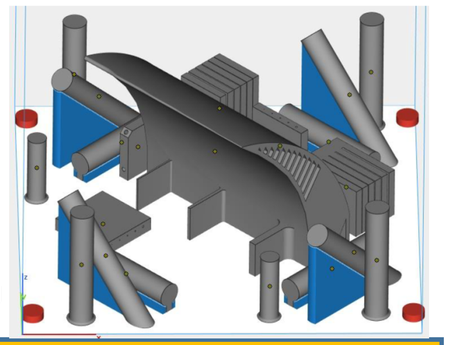


Ansaldo Lighthouse Project - Genova

GeAM - Genova Advanced Manufacturing (Italian Institute of Welding + Unige)

High Temperature Metal Alloys 3D printing for Turbine Blade Repairing



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ULT AG Löbau, Oldtimerparts GbR Leipzig, IHD Institute for Wood Technology Dresden, Imperial College Business School,
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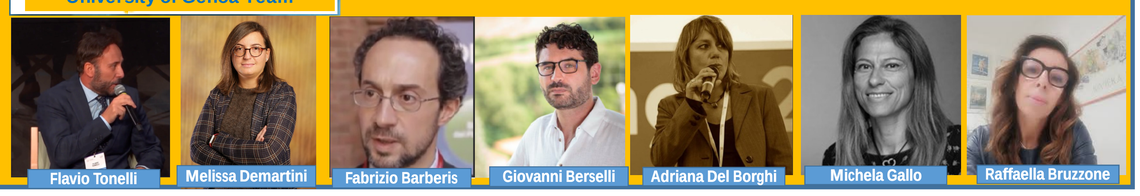

https://www.interreg-central.eu/Content.Node/AMiCE