ADDITIVE MANUFACTURING

A key enabling technology for Europe’s industry

Horizon 2020, the European Union’s €80 billion Research and Innovation Programme (2014 to 2020), provides funding for projects in the area of four Key Enabling Technologies (KETs):
- Nanotechnologies,
- Advanced Materials,
- Biotechnology
- Advanced Manufacturing and Processing.

These KETs have a broad industrial base in Europe, including SMEs and start-ups and they drive innovation to solve societal challenges. Many new goods and services build on KETs, which also underpin more efficient and sustainable production processes in industry. They drive the economy and contribute to new job creation.

In the Horizon 2020 “NMBP 2018 work programme”, the Transforming European Industry part is dedicated to the integration of digitisation and other enabling technologies – such as additive manufacturing – to transform European manufacturing from a cost-based to a high-value-added competitive industry.

EU funded research to increase potential of metal additive manufacturing in Europe

Metalworking industries increasingly rely on additive manufacturing for the production of high added-value final parts and products. However, high costs and unpredictable defects are hampering the complete deployment and full adoption of this technology. Two very interesting projects – MANUELA and INTEGRADDE - have recently been launched under the topic “Factories of the Future – Pilot lines for metal additive manufacturing”, to address this challenge and ensure that Europe successfully makes the transition towards lower energy consumption and more efficient production.

MANUELA – Additive Manufacturing using Metal Pilot Line

Metal additive manufacturing makes the production of high added-value components possible at levels that cannot be reached with conventional manufacturing technique. Still, the AM-based manufacturing sequence implies a huge number of critical steps compared to conventional production sequences. Key competencies related to these steps are still not fully implemented at industrial level or they are dispersed geographically with poor connection between different steps. MANUELA aims at deploying an open-access pilot line facility, covering
the whole production sequence, to show full potential of metal AM for industrial AM production. MANUELA relies on a consortium composed of industrial end users, suppliers (material/powder, AM hardware, quality monitoring system, software, automation and post-AM treatment) as well as top research institutes in powder bed metal-AM, covering full range of AM technology chain for pilot line deployment. The deployed pilot line will be validated for use cases, covering wide span of applications including automotive, aerospace, energy and medical.

**EU contribution**: EUR 12.448.116

**INTEGRADDE – Intelligent data-driven pipeline for the manufacturing of certified metal parts through direct energy deposition processes**

INTEGRADDE aims to develop an end-to-end Digital Manufacturing solution, enabling a cybersecured bidirectional dataflow for a seamless integration across the entire AM chain.

The goal is to develop a new manufacturing methodology capable of ensuring the manufacturability, reliability and quality of a target metal component from initial product design via Direct Energy Deposition technologies, implementing a zero defect manufacturing approach and ensuring robustness, stability and repeatability of the process.

INTEGRADDE will implement a twofold deployment approach for the pilot lines: both in application-driven at five industrial end-users (steel, tooling, aeronautics, and construction) and open-pilot networks at RTOs already owning AM infrastructure. This will allow a continuous validation and deployment of specific developments towards industrialisation, boosting definitive uptake of AM in EU metalworking sector.

**EU contribution**: EUR 12,716,173.51


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<tr>
<td>Submission deadline: 22 February 2018</td>
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<tr>
<td>Number of submitted proposals: 19</td>
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<td>Number of funded proposals: 2</td>
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<td>Total EU funding: EUR</td>
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Link to download information on **Key Enabling Technologies in Research & Innovation**: [http://ec.europa.eu/research/industrial_technologies/index_en.cfm](http://ec.europa.eu/research/industrial_technologies/index_en.cfm)