

PROJECT

## Ascent AM

### Adding Simulation to the Corporate ENvironment for Additive Manufacturing

**Funding:** European (Horizon 2020)

**Duration:** Aug 2016 - Jan 2020

**Status:** Complete

**Total project cost:** €699,375

**EU contribution:** €699,375



**Call for proposal:** H2020-CS2-CFP02-2015-01

[CORDIS RCN : 205690](#)

#### Objectives:

The achievement of the Clean Sky 2 (CS 2) objectives, concerning the reduction of CO<sub>2</sub> and fuel burn by up to 30 % as well as the reduction of NO<sub>X</sub> by up to 40 %, is strongly associated with the availability of innovative technologies and adapted structural design. Additive manufacturing (AM) is one of the key enablers and thus inalienable to reach these goals. First simple aero engine parts manufactured by AM-processes, like laser beam melting (LBM) have successfully been introduced into mass production. To use all possible benefits of the technology like e. g. design freedom, cost efficiency and a reduced time to market, first time right production is essential. One major issue are the distortions after production. Employing manufacturing simulation to support process development is a promising approach to realise first time right production. Current simulation models however, fail to calculate distortions within an acceptable time frame and do not respect post-processes such as stress relief annealing. Thus, the goal of this project is to integrate a suitable simulation-based process chain into the tool landscape for AM process preparation that enables a prediction of distortions with high accuracy in reasonable time to generate benefit for AM users. The main focus lies on the metal-based layered manufacturing process of LBM as this is the most widespread approach to generating three-dimensional parts from powder material.

#### Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

**Institute type:** Public institution

**Institute name:** European Commission

**Funding type:** Public (EU)

#### Lead Organisation:

**Technische Universitaet Muenchen**

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**EU Contribution:** €699,375

#### Technologies:

Additive manufacturing  
Additive Manufacturing Laser  
Technologies

**Development phase:** Research/Invention

**STRIA Roadmaps:** Vehicle design and manufacturing

**Transport mode:** Air transport

**Transport sectors:** Passenger transport, Freight transport

**Transport policies:** Other specified

**Geo-spatial type:** Other