

**Editor:**

WasuPathom-aree,
Chiang Mai University, Thailand

Article history:

Received: February 6, 2020;
Revised: May 12, 2020;
Accepted: May 27, 2020;
Published online: December 9, 2020

Corresponding author:

Erwin Rauch,
E-mail: erwin.rauch@unibz.it

Research article

Potential of the Application of Additive Manufacturing Technology in European SMEs

Erwin Rauch^{1,*}, Marco Unterhofer¹, Wasawat Nakkiew², Adirek Baisukhan²
and Dominik T. Matt^{1,3}

¹ Industrial Engineering and Automation (IEA), Faculty Science and Technology, Free University of Bolzano, Bolzano 39100, Italy

² Department of Industrial Engineering, Chiang Mai University, Chiang Mai 50200, Thailand

³ Innovation Engineering Center (IEC), Fraunhofer Italia Research s.c.a.r.l., Bolzano 39100, Italy

Abstract Production companies are forced to react quickly to increasing individualisation, a trend towards on-demand production and shorter delivery times. The key to deal with the new challenges is the ability to change to low volume production of customised artefacts. New manufacturing strategies and technologies are necessary to meet these specific requirements. The transition from traditional or centralised manufacturing systems to decentralised and distributed manufacturing systems shows a possible way to achieve local on-demand production and customisation of products. To enable economic low volume production, the implementation of additive manufacturing as manufacturing technology is becoming an interesting option for many manufacturing companies like small and medium-sized enterprises. In this work, the authors define key validation criteria for the assessment of the potential of additive manufacturing. Based on these criteria and the NACE classification of industrial sectors, the research team identifies potential industry sectors for additive manufacturing. Using statistical data from EUROSTAT database, the research team finally quantifies the potential of additive manufacturing in European SMEs.

Keywords: Additive Manufacturing, Advanced Manufacturing Technology, Distributed Manufacturing Systems, Industry 4.0, Smart Manufacturing

Funding: The project "SME 4.0 – Industry 4.0 for SMEs" has received funding from the European Union's Horizon 2020 research and innovation program under the Marie Skłodowska-Curie grant agreement No. 734713.

Citation: Rauch, E., Unterhofer, M., Nakkiew, W., Baisukhan, A., and Matt, D.T. 2021. Potential of the application of additive manufacturing technology in European SMEs. CMUJ. Nat. Sci. 20(2): e2021023.