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Research article

Potential of the Application of Additive Manufacturing Technology in European SMEs

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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

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