

A new management approach based on Additive Manufacturing technologies and Industry 4.0 requirements

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ABSTRACT

Nowadays, it is necessary to formulate and implement a development strategy in manufacturing enterprises, in line with the assumptions of the Industry 4.0 concept. In this context, a gap in the research has been observed in effective management methods, in order to gain a competitive advantage through the implementation and use of Additive Manufacturing (AM) technologies. The main purpose of the study is to build a new approach to management, based on the implementation of new AM technologies and good practice. This paper uses the detailed literature studies and results from the empirical research of some 250 Polish manufacturing enterprises; this material contains a sample thereof, processed into a new approach. The major contributions of the work are as follows: (1) identification of current management areas in which manufacturing companies focus their activities, in the context of Industry 4.0, (2) the establishment of the correlation between gaining a competitive advantage and implementing AM technologies in the context of Industry 4.0, (3) Defining the so-called AM4.0CARD as a new management approach, based on AM technologies and the requirements of Industry 4.0. Managers of manufacturing enterprises, thanks to the use of the proposed approach, may take a strategic decision, regarding the implementation of AM technologies, due to the possibility of forecasting the impact of such an investment on the improvement of the company's competitive advantage.

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