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# Tactical manufacturing capacity planning based on discrete event simulation and throughput accounting: A case study of medium sized production enterprise

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**ABSTRACT**

The article presents the application of the original methodology to support tactical capacity planning in a medium-sized manufacturing company. Its essence is to support medium-term decisions regarding the development of the production system through economic assessment of potential change scenarios. It has been assumed that the developed methodology should be adapted to small and medium-sized enterprises (SMEs). Due to their flexibility, they usually have limited time for decision-making, and due to limited financial resources, they rely on internal competencies. The proposed approach that does not require mastery of mathematical modelling but allows streamlining capacity planning decisions. It uses the reasoning of throughput accounting (TA) supported by data obtained based on discrete event simulation (DES). Using these related tools in the design and analysis of change scenarios, make it possible for SME managers to make a rational decision regarding the development of the production system. Case studies conducted in a roof window manufacturing company showed the methodology. The application example presented in the article includes seven change scenarios analyzed based on computer simulations by the software Tecnomatix Plant Simulation. The implementation of the approach under real conditions has shown that a rational decision-making process is possible over time scale and with the resources available to SMEs for this type of decision.

**ARTICLE INFO**

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