

Proceedings of the 2<sup>nd</sup> Annual World Conference  
of the Society for Industrial And Systems Engineering  
Las Vegas, NV, USA  
November 5-7, 2013

## Resource Efficiency and Productivity Optimization of Manufacturing Equipment

F Kübler<sup>1</sup>, M Hamacher<sup>1</sup>, R Steinhilper<sup>1</sup>, and P Golinska<sup>2</sup>

<sup>1</sup>Fraunhofer-Project Group Process Innovation at the Chair for Manufacturing and Remanufacturing Technology  
University of Bayreuth, Germany

<sup>2</sup>Chair of Operations Management and Logistics Poznan University of Technology, Poland

Corresponding author's Email: [Frank.kuebler@ipa.fraunhofer.de](mailto:Frank.kuebler@ipa.fraunhofer.de)

**Author Note:** This paper is based on work funded by the German Federal Ministry of Education and Research (BMBF) as part of the research project "Sustainability In Remanufacturing Operations" (01RS1204A) and managed by the Project Management Agency of the German Aerospace Center (PT-DLR). The authors are responsible for the content of this publication.

**Abstract:** Manufacturing companies are facing the task to adapt their existing manufacturing equipment to new challenges. In addition to the traditional objective of increasing equipment productivity, a new focus is the improvement of the resource efficiency situation. This refers to the strongly increasing energy costs. To identify target-oriented optimization measures, manufacturing companies often lack fundamental and objective assessments of the actual situation of their equipment to reveal production and resource efficiency related optimization potentials. This contribution presents a procedure for real data based assessment of manufacturing equipment. Based upon the resulting information of the procedure, productivity ratios and resource consumptions can be determined up to individual equipment components. This creates the required transparency to derive customized production and resource efficiency optimization measures.

*Keywords:* Resource Efficiency, Productivity, OEE