

Applications of Lean Manufacturing in a manufacturing company in South Africa

Mpho Karen Masemola, Bheki Makhanya and Hannelie Nel

Department of Engineering Management

University of Johannesburg

Johannesburg, South Africa

Bsm3174@yahoo.com; hannelien@uj.ac.za

Abstract

Manufacturing is one of the most important sectors in the South African economy. The paper examines the use of Lean Manufacturing tools in the context of South African manufacturing. To gain an in-depth understanding of the application of Lean manufacturing tools in South Africa, the research used a case study as the research method. Questionnaires and operational data were used to determine the type of waste generated by the case study company, as well as the most used Lean manufacturing tools for waste management. The study findings identified defects, inventory, transportation, waiting, and unused people's ideas as all have an impact on the company's performance. Transportation, defects, and inventory wastes were found to have a high main interaction effect with the paint line, anti-intrusion box line and bogie fitting line as some of the highly affected areas. The research also found 5S, Standard Work, and Kanban as the most used lean manufacturing tools. The findings of the study can help the case study company's leaders to identify performance gaps and improve lean manufacturing implementation.

Keywords

Lean manufacturing tools, Manufacturing, Quality management, Type of wastes,

Biographies

Mpho Masemola is a master's candidate in the postgraduate school of Engineering Management at the University of Johannesburg. She has more than 10 years of experience in various roles in Continuous improvement and ERP systems across different manufacturing sectors. She holds a Bachelor of Technology degree in Operations Management from the University of Johannesburg.

Dr Bheki B. S. Makhanya is a research associate in the Postgraduate School of Engineering Management at the University of Johannesburg. He holds a PhD in engineering management from the University of Johannesburg. His research interest includes the cost of quality; total quality management, reliability improvement and risk management.

Dr Hannelie Nel is a Senior Lecturer in the Postgraduate School of Engineering Management at the University of Johannesburg. She holds a DEng in Engineering Management, an MSc in Industrial Engineering, and a BEng in Chemical Engineering. She has twenty years of experience in both industry and academia and her work entails business and education strategy development; the design, implementation and cost of risk and quality management systems; and gender advancement in engineering