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Abstract

Purpose – To increase productivity in an automotive assembly plant to satisfy customer demand and also develop best practices for productivity improvement for robotic welding operation lines. **Design/methodology/approach** – Principles of lean manufacturing and constrained management have been applied to increase the plant's output in order. Constrained management was used to identify bottlenecks in the plant that limits the throughput and lean manufacturing helped to identify waste (*muda*) in the constrained production areas. Analytical tools such as matrices are used for mapping sequence of robotics movements to identify interference and desired path for welding line. **Findings** – Results of applying constrained management and lean manufacturing in tandem have revealed the plant's overall bottlenecks and means of increasing the throughput. **Research limitations/implications** – The research findings are from an automotive assembly plant in a mass production industry, and the results may not be applicable to other types of industry. **Practical implications** – A very useful best practice for the productivity improvement that is easy to use by plants' management to help them identify and manage bottlenecks, and to eliminate waste from the production system. **Originality/value** – This paper offers practical and easy-to-use productivity improvement tools based on lean and constrained management principles to help manufacturing managers to make their operations more productive.

Keywords

Lean production

Manufacturing systems

Productivity rate

Robotics

Automotive industry

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nominal cost, so lean is the latest tool to achieve. The objective of this paper is to study different lean concepts under various lean strategies. 1 "Best Practices for the Intersection of Lean Manufacturing and MES," Ralph Rio, ARC Advisory Group, November 2007. Using Lean principles such as Continuous Improvement, SME says companies can identify what is valuable, eliminate waste and embed learning cycles that can be used every day. This emphasis on sustainability contributes to Lean by improving overall organizational performance and efficiency. MES supports the application of Lean best practices while adding value to Lean initiatives, encompassing processes that span across multiple areas of operations. 8 Identifying lean practices that organizations already use is an effective initial step to assess the level of integration of the lean approach in organizations. Some authors go further by evaluating the level of maturity regarding actual use of lean practices. 30 Among the intended operational results, 'ongoing improvements in processes and products', 'an increase in overall equipment effectiveness', 'waste reduction' (including the reduction of useless steps in the workshops at Company B), 'improvements in the quality of service' (service rate) and 'customer satisfaction' were the most cited by the three companies.