

Lean Manufacturing Implementation in Fused Plastic Bags Industry

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Abstract : Lean manufacturing is concerned with the implementation of several tools and methodologies that aim for the continuous elimination of wastes throughout manufacturing process flow in the production system. This research addresses the implementation of lean principles and tools in a small-medium industry focusing on 'fused' plastic bags production company in Amman, Jordan. In this production operation, the major type of waste to eliminate include material, waiting-transportation, and setup wastes. The primary goal is to identify and implement selected lean strategies to eliminate waste in the manufacturing process flow. A systematic approach was used for the implementation of lean principles and techniques, through the application of Value Stream Mapping analysis. The current state value stream map was constructed to improve the plastic bags manufacturing process through identifying opportunities to eliminate waste and its sources. Also, the future-state value stream map was developed describing improvements in the overall manufacturing process resulting from eliminating wastes. The implementation of VSM, 5S, Kanban, Kaizen, and Reduced lot size methods have provided significant benefits and results. Productivity has increased to 95.4%, delivery schedule attained at 99-100%, reduction in total inventory to 1.4 days and the setup time for the melting process was reduced to about 30 minutes.

Keywords : lean implementation, plastic bags industry, value stream map, process flow

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