Implementation of Overall Equipment Effectiveness (OEE) in Garment Manufacturing Industry

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Abstract

Nowadays, economic condition and consumer demand are changing rapidly in terms of product quality, minimum lead time, and consistent product at a lower price. Accomplish all these demands of the consumer have been a challenge to the industry. These changing demand can only be fulfilled by the effective applications of scientific methodologies like Lean manufacturing. The idea behind the lean manufacturing is that to maximize the customer value and reducing the waste. There are different tools of lean manufacturing those are used to remove non value-added activities (waste) from the system and encourage value-added activities. The Overall Equipment Effectiveness (OEE) is also a performance measurement tool of lean that helps to recognize and reduce the bottleneck operations, quality loses and etc. OEE has been implemented in different industries, however, there is a need to implement this useful lean tool in the textile and clothing industry as well.

This study implemented OEE in garment manufacturing unit for making a process smooth, consistent, and rejection free. For this purpose, a T-shirt manufacturing unit of a garment industry was selected and methodology was defined to implement OEE in the selected manufacturing unit. At first stage, the baseline study was conducted to measure the current value of OEE that revealed that the value of OEE factors i.e. availability, performance, and quality is 82.13%, 82.24%, and 57.96% respectively. While the overall value of OEE is 39.15%. These values were compared with world-class values of OEE that helped to highlight the deficiency areas which create waste or loss of resources. The route cause analysis was carried out to remove or mitigate the effect of potential problems to improve the values of OEE factors and ultimately the overall values of OEE. This process was carried out in three stages. After continuous improvement, the values of availability, performance, and quality improved to 88.64%, 87.44%, and 84% while the overall value of OEE improved to 65.11% which is far away from the world-class value i.e. 85% however, it is above the industry average value of OEE.

The successful implementation of OEE indicated that the quality and productivity can be monitored and improved by looking at the values of availability, performance, and quality. This study has been conducted at the macro level by taking the complete manufacturing line however, the further study should be conducted at the micro level by implementing OEE on individual operator/operation.

Keywords

Lean Manufacturing, Overall Equipment Effectiveness, Downtime, Process Performance, Product Quality.

Biographies

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