

# Improving Operating Performance Indices in Machining Unit of an Automobile Industry using Lean Six Sigma Approach



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**Keywords:** Daily Work Management, Lean, Six Sigma, Value Stream Mapping, SMED, DMAIC

**Abstract:**

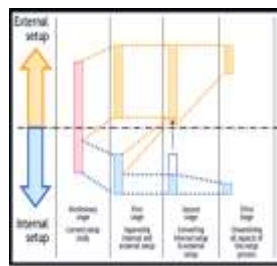
In an era of globalization, manufacturers are now a days facing rigorous global competition. As the price war among competitors is increasing, fuel and raw material prices are going up, it poses serious threat to organizations in the current business environment. Thus, it becomes very important for any organization to channelize their resources towards a common goal. This activity is well performed by the strategic leadership team and manufacturing strategy plays a key role in that. A well planned and implemented manufacturing strategy will help organizations to minimize their lead time, reduce their operating cost, increase the quality and it confirms customer satisfaction. Manufacturing excellence may be measured how well performance is sustained and how the continuous improvement is driven. Understood from the learning of TQM that Daily Work Management (DWM) is the base for sustenance of performance, whereas continuous improvement can be achieved through suitable application of various lean and six sigma tools.

The purpose of this project is to improve the operating performance indices in a machining unit of an automobile industry, thereby reducing the manufacturing cost and improving the delivery performance. The objective of the project is achieved by using DWM, Lean and Six Sigma approach. Problem was defined by selecting the critical issues of operating performance indices in the define phase. Data was collected and analyzed to determine the current performance in the measure phase. Root causes of ineffectiveness of DWM and process wastes were identified in the analysis phase through VSM. Solutions were identified and implemented in the action phase. Various documents were updated to control the process and to sustain the improvements during the control phase.

The main results of the project are that the production hit rate achievement of the crank case RH line has been increased from 225 no's to 310 no's mean /shift. Quality performance such as customer complaint reduced from 875 avg. in ppm to 550 avg. ppm, process scrap reduced from 10250 avg. in ppm to 5000 avg. in ppm and rework was reduced from 2.75 % to 1.5 %. Because of these achievements customer line stoppage reduced to zero and cell OEE has increased from 68 % to 78%.



**Setup/model changeover loss**



**SMED methodology**



**Changeover process - Before**



**Quick changeover bunk provided**



**Changeover process – After**



**Results**