Productivity Improvement in Automotive Sub Assembly Line Using Lean Techniques

Student’s Name: K. Naveen
Academic Supervisor(s): B. S. Ajit Kumar
Industrial Supervisor(s): Austin Dias, Volkswagen India Pvt. Limited, Pune

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Abstract:
In the past decades, the organisations were having turbulent times and focused more only on quantity with little concern for quality, delivery and cost. The pressure to achieve efficient use of resources was limited as the organisations could pass on their inefficiencies in the form of price increases to their customers. After globalisation the first whiffs of liberalisation were felt. In the current trend the past practices has been changed completely, and presently if organisation has to sustain and to grow in this competitive market they must continually improve quality and reduce cost by finding high cost / inefficient operations Non-Value Added (NVA), rework & rejections and timely delivery to become order winners / market qualifiers.

In the current project work, the existing process details are represented with the help of value stream mapping. After the problem area identification, through cause & effect diagram, the problem recurrence causes were identified, and to identify the root causes for the problem recurrence causes, 5 why analysis tool was used. Taking final Why as root cause, action plan was proposed through value engineering techniques and implemented the same. Validations were monitored and improvements were observed in the current production efficiency.

The value engineering improvement techniques at polo inner tail gate sub-assembly line has reduced NVA by 20.48%, hidden waste by 5.99% and improved value added by 26.44%. Through these reductions and increments, the impact was on cycle time reduction which in turn improved the productivity. The productivity improved from 12 Jobs Per Hour to 19 Jobs Per Hour. Overall the working cell production efficiency increased 32.60%. If the recommended idea is implemented then production efficiency will be further improved, having productivity of 20 Jobs Per Hour similar to other 3 model output, and will meet matching line requirement of 20 Jobs Per Hour.