

## Design and Development of Pull Production System for an Automotive Manufacturing Plant



**K. Sankara Padbhanaban**

ksanrajesh@gmail.com  
Ph. No: 0 99943 43497

**Student's Name**    **K. Sankara Padbhanaban**    **EMM (FT-2012)**

**Academic Supervisor(s)**    B. S. Ajit kumar

**Industrial Supervisor(s)**    J. Thangarajan, TVS Motors, Hosur

**Keywords:** Pull Production System, Heijunka, Levelling, Sequence Adherence, Simulation

**Abstract:**

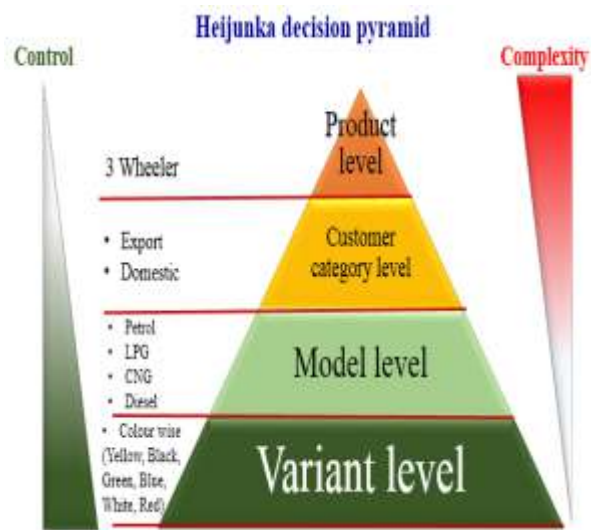
In modern day business, the companies are valued by their ability to deliver a product at the right price with right quality at the right time. This drive them to become leaner, so that, they can be swift in their response to the ever expanding needs of the market. Quality and delivery, which were the order winners a decade back, have become a market qualifier in present scenario. Hence, companies are focusing more into their manufacturing process to thrash lead times by shortening batch sizes, expediting manufacturing processes and installing controls to enhance quality. At the same time, it becomes very essential for organisations, to have a right mix in their daily production, so as to make the products available at the pull of customers'.

This project is aimed at design and development of pull production system for an automotive manufacturing company, who are in the business of manufacturing and sales of three wheelers. The purpose of implementing pull production system is to improve the sequence adherence of the manufacturing process from 43% to 75% and delivery service level of the products from 87% to 95%. A unique nine step methodology was developed to implement a pull production system using Heijunka concept. A V – mapping was carried out to understand the current state of the manufacturing process and kaizens were implemented based on detailed analysis. Kaizens are implemented through lean concepts like Kanban, visual controls and work place improvements. Levelling of the production planning is implemented using Heijunka decision pyramid which is one of the key development of the project.

The implementation of the project fulfils the aim of improving sequence adherence and delivery service levels. The sequence adherence improved by 31% and the delivery improved by 8%. It also, benefited in increasing the sets/man/hour of paint shop from 18 to 21. In a nut shell, the project gains benefit in the PQCDMS targets of the plant by synchronising the manufacturing units of the entire plant..



**Methodology to implement Heijunka production system**



**Heijunka decision pyramid**