Reduction of Manufacturing Lead Time of Half Shaft Assembly using Lean Techniques

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Abstract:

As the effort of today's industries to continuously move towards lean production, pull production system has been developed as one possible solution of lean. It is popularly known in the industry world, and is indeed a proven technique to achieve substantial savings on inventory, production cost incurred by manufactures all over the world. However, a careful understanding of pull production systems is required to make it suitable to a particular production setup. It is necessary to develop a proper way to implement pull production systems.

This study is based on a real life scenario in a leading automotive components manufacturing company. The production system is studied in detail as regard to its production characteristic. A theoretical review is first made as research foundation. A careful analysis study within the company was conducted with all the existing constrains to figure out improvement opportunities. Eventually, from the applicability point of view, proposals of future pull production system implementation have been developed. The objective of the proposals is to minimize the identified weaknesses of the current system, including long lead time, low flexibility and unconnected flow. Project started with defining aim and objectives. Literature review was carried out on lean tools and techniques. M/s Nexteer, Bangalore where this project was done has code of w201 for half shaft for a specific customer. W201 half shaft line has been studied for understanding areas for improvement. Data of w201 half shaft line has been collected and analysed by using value stream mapping, muda analysis, time study, process mapping, cause and effect diagram and why-why analysis. The areas for improvement have been identified to achieve the target of reducing the lead time by 20%. The lead time has reduced to 6.9 days from 10.6 days that is 30% reduction in lead time. Besides the reduction in lead time, there were some other benefits like reduction in WIP, improved value added ratio, easier material handling, improved flow and improved morale.
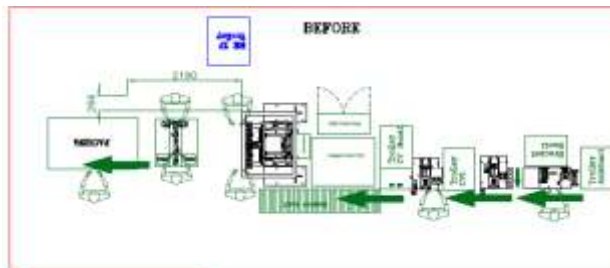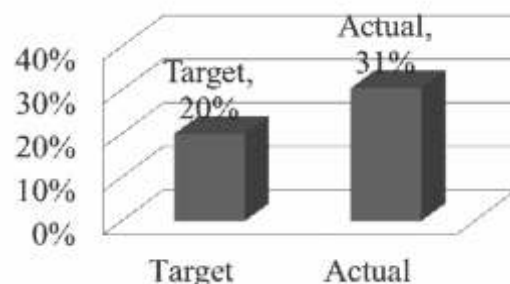
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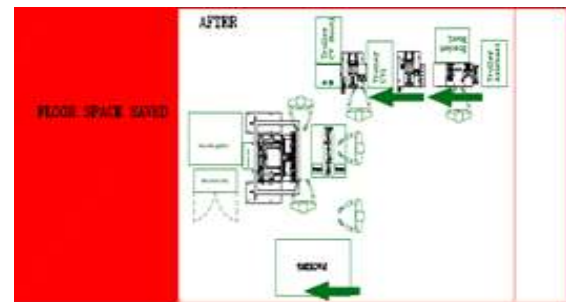
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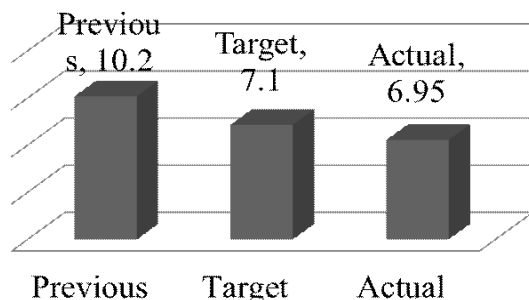
Lead time comparison

Targeted and actual reduction in lead time