ABSTRACT

Increasing demand in global markets while leading to manufacturing of high variety of products makes it essential for reducing cost in manufacturing, lesser lead time and perfect quality. This makes it necessary for manufacturing industries to adopt lean concepts. Lean philosophy is universal and can be applied to manufacturing, design, quality control, administration, order taking, accounts receivable or any activity that needs to be improved. Lean has been recognized as one of the key approaches not only in enhancing the productivity but also gaining competitive advantage.

Recently lean manufacturing is also being implemented in many SMEs in India. However lots of other SMEs are wary of its effectiveness in improving the performance of the firms. The Indian government is also helping these SMEs financially for Lean implementation. Under this scenario it is imperative to demonstrate the benefits of lean manufacturing implementation and document them so that the Indian SMEs are convinced of the advantages.

For the successful implementation of lean manufacturing we may have to prepare the team for the change, be very clear about the goal and see that all understand the advantages that will accrue while implementing. All employees should be trained and proper assistance provided in removing of any obstacles that is observed and ensured that everybody is involved. This research attempts to implement various proven lean tools in selected SMEs representing major industrial sectors such as CNC machine shop, foundry, pump manufacturing industry, engineering industry, etc. which comprises the major chunk of SMEs in India. In this research various lean tools were implemented in about twelve SMEs in a systematic manner and their results were recorded. The results had led to very important learning’s which could be adopted for implementation in other SMEs. There were three projects implemented in individual unit’s viz. a foundry, CNC machine shop, pump manufacturing unit which were all related to mechanical engineering field.
Then a group of nine units was selected for implementing lean tools. This group comprised of units manufacturing auto components for a large industry.

The results of all these four projects implemented in twelve units were recorded and studied for developing a framework for implementing lean manufacturing. The documents of the results show that if the lean manufacturing implementation is done in a systematic manner the results would be many folds.

From the results a framework is suggested which may be repeated after every cycle and in every section of the organisation. This is a general framework and the tools selection has to be done appropriately with respect to the nature of the organisation.

**Keywords:** Lean Manufacturing, TPM, Six Sigma, Value Stream Mapping, TAKT time