



IMPLEMENTATION OF LEAN AND CHALLENGES IN SME'S

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Abstract

This Paper determines the critical factors for successful implementation of Lean concept in Indian SMEs. For this, various SME industries have taken into consideration for data collection, where some concepts of Lean have already been implemented and the problems faced by them during implementation, also the SMEs those who are interested to apply Lean, the Procedure for that is described in this Paper. Lean manufacturing also known as Toyota Production Systems was first introduced by Toyota which is a Value additive Process by eliminating all wastes by Proper Process Management. Now days, almost all sectors industries Particularly SMEs are trying implement Lean in their Organization. This Paper tries to solve some common Problems faced by them during the implementation stage.

Keywords: Lean, SMEs, 5S, Visual Management, Pokayoke, Hoshin Planning, Just-In-Time, Nemawashi

I. INTRODUCTION

Globalization and new technologies are having great impacts on the manufacturing. Industry in Present era. This leading to evolve of new SMES to the market, creating tough competition for all. But the newly entering industries were facing some problems such as their suppliers were bargaining high for the raw materials along with the customers for buying the products. Now days, there are lots of substitutes present for the same product in the market. So, this leads to decline of SMEs. In order to make the SMEs more competitive and profit earning organization, the Lean manufacturing concept can be adopted. As lean reduces the cost of the production along with increasing the quality hence improves profit. Lean manufacturing is mainly adopted by organizations in order to reduce wastes and improve the quality of products. Ideally, organizations have come to realization that when costs of reduction are reduced through reduction of wastes, profits improves since there is an improvement of quality and market share.



What is Lean Manufacturing?

- A new way of Thinking about Production Process
- Change in the Mindset about purpose of organization, process to be followed for production and people skill
- Change in the way of functioning by introducing involvement of all and Kaizen circle like things.
- Change in the Culture of organization
- Introducing Just-in-Time

Lean Concept modified the earlier equation of manufacturing which was;
Production Cost+ Profit Margin= Selling Cost,
The Modified Equation is

$$\text{Selling cost (Fixed) - Production cost= Profit}$$

This means, if we can reduce the production cost by improving our process of production, then we will have increased profit margin. Goal of any SME is mainly to maintain customer value, to have process perfection, having people competence and maintaining Organizational culture. The systematic implementation of Lean Manufacturing in SMEs will yield huge benefits such as quality improvement, cycle time reduction and good customer responsiveness. The best practices which can be implemented are use of Kanban card for information sharing between supplier and customer, Pokayoke to prevent errors, Total Predictive maintenance to improve the Overall efficiency, visual Management, Total quality management, training of employees, introducing Kaizen Circle in Organization for problem solving, 5S for better work environment and standardization to reduce cycle time and to improve throughput.

Traditional approach to Improvement is whenever we face a problem, we try to solve locally as an isolated island and feel that we have solved the problem. But in reality there is no sustainable benefit of the solution. The Lean approach to Improvement is With the Lean Kaizen approach you work step-by-step on a well-connected value creating chain (value stream) with a clearly defined target aligned with the vision of company. Lean approach makes sustainable improvement which enhances customer value and reduces cost. It is a unique 5 step problem solving process. Creating the value by eliminating all the wastes by the application of 5S, and visual management like techniques is the first step of lean manufacturing.

II. OBJECTIVES OF THE STUDY

The main objectives are:

- To determine the operational activities of SMEs
- To investigate the dimensions of lean manufacturing applications within SMEs and
- To find out the critical factors that determines its successful application within SMEs.



III. RESEARCH METHODOLOGY

Questionnaire survey research design was used in this study whereby data were investigated, recorded and analysed on the awareness of employees in the managerial level basing on the concept of lean manufacturing and its application. Various Indian SMEs have been listed first. Then they are divided into two groups. One group the SMEs already have applied lean in their company and another group of SMEs trying to apply lean in their organization. and then i created a Google doc file with the following questions and sent them to various SMEs to find out different kinds of data like management type, annual turnover, volume of production, area lean applied, duration in days, ROI and many other factors. The required data were as follows

- Type of management system the company has
- Annual turnover of the Industry
- Throughput rate
- Areas where lean applied/ want to apply
- The time period for which it is applied
- Return on investment
- The reduction in lead time due to apply of Lean
- Number of employees involved during the period

The questionnaire was containing the following questions.

- How your company is managed?
- What are the major driving forces of your company?
- What as per you is lean manufacturing?
- What has motivated you to apply lean in your company?
- To what extent has lean manufacturing been implemented in your organization?
- What were the criteria for choosing that specific area?
- Number of people involved in the process of applying lean.
- Type of training you provide to your staff
- The difficulties faced during training and how you overcome those?
- Details of the costs involved in the implementation of lean manufacturing?



What lean issues do you struggle most with (select up to 3):

- "A" - Lack of adequate knowledge about Lean
- "B" - Lack of support from management to apply it
- "C" - Methods like 5S and visual management.
- "D" - Material supply and lean logistics.
- "E" - Topics like OEE, machine availability, performance.
- "F" - Topics like Production Leveling or Heijunka box.
- "G"- Problems in giving Trainings to the employees.
- "H" - Others: Please write a short description of the issue.

The above questions were significant for enabling the retrieval of the relevant and accurate information on lean manufacturing utilization within these companies. For example, by asking questions about a company's major business drivers, a company view and the concept of lean manufacturing and where lean has been implemented, and at whatever cost; First and foremost, it could be verified instantly based on information provided as to whether such a firm understood and was actually practicing lean or not. This was significant for the retrieval of information on the factors that are critical to lean implementation due to the following. By knowing about the management type of such a company, it was found to be useful in determining its motives to adopt the lean concept. The study wanted to find out relationships between lean adoption and the management style in these SMEs. Again it wanted to determine as to whether the type of management style actually influenced or deterred the absorption of the lean concept.

Around 100 SMEs have been mailed and from 56 SMEs i got the reply, out of which a few are named here.

- Surindra auto industries
- Ultra aluminium pvt Ltd.
- Arista auto electric P. Ltd
- Khanna industries
- Preci-tech India
- Raja gears pvt. Ltd

Surindra auto industries:

This company produces trailer suspension parts, tractor linkage parts and other automobile spare parts. They have a total of 100 employees in the company and they were facing problems in applying 5S in their organization. The fact sheet is given below.



Factsheet

Year of Establishment	: 1988
Nature of Business	: Manufacturer, Exporter, Trader
Total Number of Employees	: 51 to 100 People
Primary Competitive Advantage	: Good Financial Position Large Product Line & TQM Large Production Capacity Provide Customized Solutions

IV. RESULTS FROM SURVEY

What is preventing Growth of SME?

This is the Part 1 of the study, the SMEs who wanted to apply Lean in their Organization. The Problems what I found out is as follows.

SMEs are full of Waste!

- Lack of proper Inventory Control
- High rate of defects
- Workplace is not properly organized.
- Process performance is not being monitored.
- No awareness of concept of Elimination of Waste
- No formal training system on Lean
- No scientific production planning
- No preventive maintenance and Total Predictive Maintenance
- Demand is more than Supply.

Now, The SMEs where some of the concepts of Lean have been applied, the Problems faced by the SMEs is listed as below.



Problems faced during Lean Implementation

- High expectations with limited time and investment
- Lack of commitment from the management itself
- Lack of Proper people to Lead the teams
- Team members not taking seriously training programs indicating poor Organizational Culture
- Team members not devoting time on kaizen projects and Kaizen circle activities.
- Heavily dependent on Lean Consultant only.

From telephonic interviews and surveys from various SMEs i found that maximum SMEs were unaware of lean concepts properly and those who had partially applied some of the concepts of lean were also struggling to continue with that. The major problems were lack of proper management commitment and funding, lack of proper skills. For example, the surindra auto industries which produces trailer parts like container lock handle type, twist lock, king pin assembly etc are facing problems in applying 5S in their workshop which consists of 56 employees. They are unable to sort out the things properly and also unable to maintain the work environment clean always which requires a systematic planning. Although lean manufacturing is becoming a popular technique for productivity improvement, SMEs are still not certain of the cost of its implementation and the likely tangible and intangible benefits they may achieve. Most of these companies fear that implementing lean manufacturing is costly and time consuming.

Proper Leadership is required in order to apply lean in the company successfully. As this will be helpful to create a strong vision and mission policy for the company with a flexible organizational structure. Good leadership helps in effective skills and knowledge enhancement amongst its workforce. This wholly depends on the management system.

Financial position is a key factor in determination of any successful company. From The study, it is shown that SMEs are financially weak and poor financing arrangements. Financial inadequacy is thus a major hindrance to the adoption and implementation of lean concept within SMEs.

Organizational culture is an essential platform for the Implementation of lean manufacturing. High-performing companies are those with a culture of sustainable and proactive improvement. The investigation has clearly indicated that it is highly desirable to have some degree of communication skills, long-term focus and strategic team while intending to implement any new initiative. Adequate technical Skills and expertise on Lean has a great effect on SMEs strategic framework. Presently SMEs employing people with low skills levels, not focusing on skill enhancement.

Recommendations for Improvements and implementation of Lean in SMEs:

- 5S should be implemented in the work place. Proper attention should be given for proper Red tagging of products.



- Standardized Work is one of the key tools of Lean, which provides a basis for improvement. Takt time should be calculated and care should be taken to determine proper work sequence and to find the in process stock.
- Nemawashi, catchball techniques must be implemented along with Plan-Do-Check-Act cycle.
- Lean Consultants should be formally trained and duly certified by a national accreditation agency like QCI or any other competent body
- Lean awareness campaign should be launched at national level

Lean Promotion Initiatives in association with QCI, CISME & Other agencies also will be useful. Conducting Lean Training & Certification programs through QCI, Conducting country-wide Lean Awareness programs for SMEs through Confederation of Indian Small & Medium Enterprises (CISME), Lean is "Doing the same things, but differently."

V. CONCLUSION

This paper has described the key factors for successful implementation of lean manufacturing within SMEs. The study reveals that due to lack of adequate funding many SMEs not able to hire an ideal management team, so they suffer from lack of proper leadership and planning. The funding and leadership deficiencies inhibit other productivity initiatives such as workforce training, improvement in knowledge, skills and cultural awareness. Among the lean practices that require least financial investment are 5S, visual control & display, standardization of operation, Statistical Process Control (SPC) and Kaizen circle. so, SMEs should apply these practices first and then followed with other practices such as kanban card, pokayoke. These can be implemented once the production flow is efficiently run, with minimum machine breakdown and quality issues. These steps if will be taken could help SMEs to improve their performance gradually.

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