A BASIC FRAME WORK FOR SUCCESSFUL IMPLEMENTATION OF LEAN TOOLS IN INDIAN MSME

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ABSTRACT

Many MSMEs are start off as family driven business units. Over the decades they experienced growth in their business but after reaching at certain level they lose their competitiveness and growth stagnates and subsequently starts declining. MSME units in India find it difficult to compete because their quality and delivery standards. As competition is getting tougher in this global market, customers are more demanding in terms of pricing, quality and delivery. Due to lack competitiveness MSMEs are have no choice but to shut down or getting acquired. In such critical conditions adopting Lean Manufacturing tools proves to be the right choice to develop the required competitiveness. The main objective of this study is dedicated in finding the path of approach for successful implementation of lean tools and techniques in Indian MSME which can be used as guidelines while transforming from non-lean state to lean state.
1. INTRODUCTION

Lean Manufacturing combines the best features of both mass production and craft production, the ability to reduce costs per unit and dramatically improve quality while at the same time providing an ever wider range of products and more challenging work. The goal of Lean Manufacturing is to reduce the waste in human effort, inventory, time to market and manufacturing space to become highly responsive to customer demand while producing world-class quality products in the most efficient and economical manner [1].

For most production operations, the added value and non-added value are as follows [2]:

* 5% of activities add value
* 35% are necessary non-value-added activities
* 60% add no value at all.

It shows that the organization no matter the size, large or small, is crucial to eliminate waste, in order to increase the profit or return on investment (ROI).

Lean Management gives a competitive edge as it helps in minimizing / eliminating the wastes across the entire value chain. Lean Manufacturing is a leading manufacturing paradigm being applied in many sectors of the global economy, where improving product quality, reducing production costs, and being “first to market” and quick to respond to customer needs are critical to competitiveness and success. Lean principles and methods focus on creating a continual improvement culture that engages employees in reducing the intensity of time, materials, and capital necessary for meeting a customer’s needs. While Lean Production’s fundamental focus is on the systematic elimination of non-value-added activity and waste from the production process, the implementation of lean principles and methods also results in improved environmental performance. Lean produces an operational and cultural environment that is highly conducive to waste minimization and pollution prevention. Lean Management helps in achieving dramatic results in cost, quality and time by focusing on process performance.

Due to their space limitation and small production scale, small and medium enterprises (SME) are vulnerable to rapid changes. Lean principles are considered as effective improvement approach to eliminate systems waste and inefficiencies. Although much of the academic materials have addressed the lean practices into large, global companies, they can still be adjusted to SMEs.

2. LEAN MANUFACTURING: FAVOR IN MSME

The importance of small manufacturer (MSME) to take part in lean implementation is align with large manufacturer which implementing new management system i.e. lean manufacturing, as to improve their performance. Therefore, it will affect the small and medium enterprises (MSME) that are the suppliers to the large manufacturers. Due to limited resources, MSMEs are impossible to implement all elements or practices at one time. As been published by past researchers and practitioners, lean manufacturing has
been implemented successfully in many large organizations but there is still less documented evidence of its implementation in smaller organizations. The increasing demand for high quality products and highly capable business processes by large organization has left no choice on the MSMEs to consider Lean Manufacturing. The main purpose of this study is to find out the fundamental practices which are relevant to all MSME.

2.1. Definitions of Micro, Small & Medium Enterprises: In accordance with the provision Micro, Small & Medium Enterprises Development (MSMED) Act, 2006 the Micro, Small and Medium Enterprises (MSME) are classified in two Classes

(i) Manufacturing Enterprises- The enterprises engaged in the manufacture or production of goods pertaining to any industry specified in the first schedule to the industries (Development and regulation) Act, 1951). The Manufacturing Enterprise are defined in terms of investment in Plant &Machinery

(ii) Service Enterprises: The enterprises engaged in providing or rendering of services and are defined in terms of investment in equipment is shown in figure 1.

<table>
<thead>
<tr>
<th>MANUFACTURING SECTOR</th>
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<tbody>
<tr>
<td>Enterprises</td>
<td>Investment in plant &amp; Machinery</td>
</tr>
<tr>
<td>Micro Enterprises</td>
<td>Does not exceed 25 lakh rupees</td>
</tr>
<tr>
<td>Small Enterprises</td>
<td>More than 25 lakh rupees but not exceed 5 crore rupees</td>
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<tr>
<td>Medium Enterprises</td>
<td>More than 5 crore rupees but not exceed 10 crore rupees</td>
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<tr>
<th>SERVICE SECTOR</th>
<th>Investment in equipments</th>
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<tbody>
<tr>
<td>Enterprises</td>
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</tr>
<tr>
<td>Micro Enterprises</td>
<td>Does not exceed 10 lakh rupees</td>
</tr>
<tr>
<td>Small Enterprises</td>
<td>More than 10 lakh rupees but not exceed 2 crore rupees</td>
</tr>
<tr>
<td>Medium Enterprises</td>
<td>More than 2 crore rupees but not exceed 5 crore rupees</td>
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Figure 1 Definitions of Micro, Small & Medium Enterprises

The micro, small and medium enterprises (MSME) sector contributes significantly to the manufacturing output, employment and exports of the country. It is estimated that in terms of value, the sector accounts for about 45 per cent of the manufacturing output and 40 per cent of the total exports of the country. The sector is estimated to employ about 59 million persons in over 26 million units throughout the country. Further, this sector has consistently registered a higher growth rate than the rest of the industrial sector. There are over 6000 products ranging from traditional to high-tech items, which are being manufactured by the MSMEs in India. It is well known that the MSME sector provide the maximum opportunities for both self-employment and jobs after agriculture sector. [3]
2.2. The figure 2 represents the MSME proportions in the Indian economy:

![Figure 2](image)

2.3. The figure 3 shows the distribution of MSME in Indian economy:

![Figure 3](image)

2.4. The figure 4 shows the Substantial growth of Indian MSME

![Figure 4](image)
3. **Basic Approach process**: The basic approach process is depicted in figure 6.

3.1. **Identifying the appropriate Tools**

Based on both practical observation and rigorous research regarding the selections of lean tools points the four tools which will enhance the productivity improvement of MSME. These four tools are the basic for any MSME to convert from non-lean state to lean state. The majority of researches thrust on usage of these tools (figure 7) which have an added advantage of low cost incurred in implementing in MSME which have the financial constraints. [4]
3.2. Short listing the MSME

In general, the success of implementation of any particular management practice frequently depends upon organizational characteristics, and not all organizations can or should implement the same set of practices. It describes three organizational context characteristics (figure 8) that may influence the implementation of manufacturing practices. A limited number of empirical studies suggest that implementation or adoption of a manufacturing practice is contingent upon specific organizational characteristics [5].

3.3. Work with each MSME to develop Plan for understanding and rollout

Thrive for management approval for successful implementation of Lean tools and techniques in MSME for the global industry in the 21st century has forced most of the leaders in several sectors to implement more competitive manufacturing systems. Lean manufacturing will be the standard manufacturing mode of the 21st century. There is no alternative to Lean manufacturing and it could be a cost reduction mechanism and if well implemented it will be a guideline to be world-class organization. Theoretically, Lean manufacturing can be applied to all industries. This system comprised of universal management principles which could be implemented anywhere and in any company.

Therefore, MSMEs have been encouraged to apply it. It is now widely recognized that organizations that have mastered Lean manufacturing methods have substantial cost and quality advantages over those who still practicing traditional mass production. Lean
manufacturing combines the best features of both mass production and craft production, the ability to reduce costs per unit and dramatically improve quality while at the same time providing an ever wider range of products and more challenging work. [6].

3.4. Strategies of implementation of lean tools and techniques

3.4.1. Senior Management Involvement: This is key element in the successful implementation of lean environment in a company. Setting achievable goals for their staff, rather than courting failure by setting unrealistic goals, Providing staff with the key tools and skills, whether physical equipment or mental training, to perform their jobs successfully, removing barriers that prevent people from having the power and free flow of ideas required to succeed.

3.4.2 Start with a Partial Implementation of Lean: we have to start the implementation with partial choice of tools for a test of success and to move forward rather than implementing on large scale. The MSMEs are incapable to implement all practices at once. The alternative to MSMEs is to sequentially run the feasible practices which from the easiest or cheapest lean practice. This approach could minimize the financial and employees commitment which should be imposed on lean practices. In addition, the MSMEs could make the feasible practices as a stepping stone to be lean enterprise.

3.4.3. Start Small: Begin with small changes and validate the results for the further progress.

3.4.4. Use an Expert: using the guidance of lean expert

3.4.5. Develop a Plan.

4. Seven Principles of Lean Enterprise Thinking

Based on both practical observation and rigorous research [7], researchers have developed seven principles of a successful lean enterprise transformation to adopt a holistic approach to enterprise transformation

- Identify relevant stakeholders and determine their value propositions
- Focus on enterprise effectiveness before efficiency
- Address internal and external enterprise interdependencies
- Ensure stability and flow within and across the enterprise
- Cultivate leadership to support and drive enterprise behaviours
- Emphasize organizational learning.
5. Lean Implementation Cycle

5.1. The risks involved in implementation

* Resistance from individuals
* Resistance from the organization
* Lack of Resources (Machines, capital, trained people)
* Lack of Management commitment
* Lack of measurement systems
* Lack of adequate infrastructure.
6. Support Requirements for implementation of Lean tools and techniques in Indian MSME

6.1. Support commitment from MSME

* Management leadership & commitment.
* Access to data of all kind.
* Access to site.
* Access to teams.
* Reviews meetings with the staff.
* Approval and sign off.
* Right to use their name in case studies.

6.2. Support commitment from Lean Consultant/expert

* Review the progress work throughout the successful implementation.
* Various Experts on Lean tools and techniques.

7. RESULTS AND DISCUSSIONS

The lean tools namely VSM, Kaizen, 5S & Poka-Yoke will be the appropriate starting tools for MSME to transform its current state of non-lean to lean. The basic framework can be used as guidelines for any MSME to enhance its growth, productivity and improvement in all aspects. The risks involved and support commitment are pointed to be aware before the implementation.

8. CONCLUSIONS

This paper attempts to draw a basic approach to implement the lean tools and techniques for the Indian MSME successfully. The tools to be commonly used for any MSME are recognized theoretically by extensive research work in transforming non-lean state to lean state of an enterprise and by lean expert’s experiences. The framework we are creating here can be practically applicable resulting good fruits in the basket. Finally, we conclude that any transformation process from non-lean state to lean state can consider this work as reference and proceed to achieve best transformations. Though the selection of lean tools depends on particular enterprise, the implementation of four tools will surely result in increasing the productivity and the cost incurred for these tools are marginally low when compared to other lean tools. Thus MSME which are cost bounded to increase their performance in all aspects we advise them to take the four lean tools in to first priority while implement.
REFERENCES

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