

Lean Manufacturing in Electronics & Electrical Manufacturing Industry in India

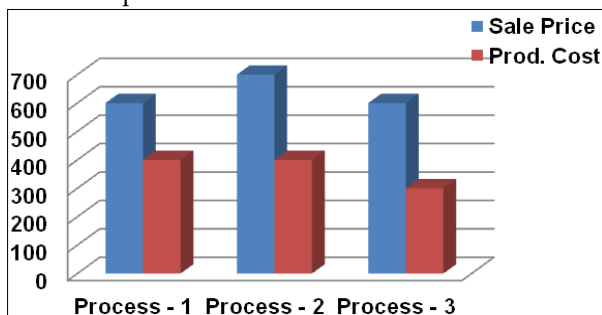
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Abstract— Lean manufacturing is an important aspect used by the current companies to compete in the market. The high cost of production in many sectors has forced companies to offer their products at high prices thus failing to attract customers. Small and medium sized enterprises in Indian electronic and electrical industry face high competition challenges from international companies thus, application of lean manufacturing is considered a competitive advantage. Lean manufacturing helps in improving the quality of products offered and increasing profits and revenues through reduction of wastes.

Keywords: Lean Manufacturing, Electronics, Electrical, Small & Medium Enterprise, India.

1 INTRODUCTION

Globalization and market liberalization have mixed results for small and medium sized enterprises. On one hand, they offer an opportunity for these companies to expand globally and compete for a large customer base in the global market. On the other hand, they make these enterprises prone to severe competition from large and international companies which offer high quality products at reduced prices. Just like any other country, the Indian electrical sector is very competitive and SMEs rely on innovation and technology to survive in the market. As put forward by Wong, Wong and Ali (522), the 21st global industry forces managers to implement low cost competitive manufacturing systems in order to improve their competitiveness. However, the biggest question asked is whether SMEs have any consideration for lean manufacturing principles to give and sustain competitive advantage. One of the advantages of lean manufacturing is to ensure that there is less wastage of resources (Kumar, Antony & Singh 408). Due to high competition in the electrical sector, Indian SMEs have to look for ways of improving their competitive advantages and implementation of lean principles is one of them. The figure below shows the role of lean manufacturing for organization in three processes.



Process 1

Profit = Sale Price - Production Cost

Profit = 600 - 400 = ` 200

Customers satisfied but industry organizers will not.

Process 2

Profit = Sale Price - Production Cost

Profit = 700 - 400 = ` 300

Industry organizers satisfied but Customers will not.

Process 3

Profit = Sale Price - Production Cost

Profit = 600 - 300 = ` 300

2 Lean Manufacturing and Competitive Advantages in Indian Electrical Sector

The main objective or goal of lean manufacturing is to reduce resource utilization such as human labour, time to manufacture and market, responding to customer demands while at the same time producing high quality products, and reducing inventory. Kumar, Antony and Singh (407) refer lean manufacturing as manufacturing without waste but focusing on adding value to the end products. In the electrical sector, SMEs face stiff competition and fail to compete with large companies because of lack of technology and innovation in their manufacturing processes resulting in production of highly expensive products which do not have added value. However, if these companies would use the available technologies and innovations to reduce wastes while improving the quality of their products, they would achieve high competitiveness (Dennis & Shook 29). In order to achieve competitiveness in the global market, SMEs can use lean manufacturing and improve their management techniques. Competitive advantage increases when wastes are reduced in an organization as this translates to reduction in cost incurred. For instance, SMEs are unable to compete with large corporations because they lack adequate resources such as human labour, finances, marketing techniques, and manufacturing technologies (Wong & Wong 2165). However, when lean manufacturing techniques are applied these enterprises can manufacture high quality products and offer them at competitive prices making increased profits. SMEs sometimes fail to consider lean manufacturing principles to give and sustain competitive advantages because of the

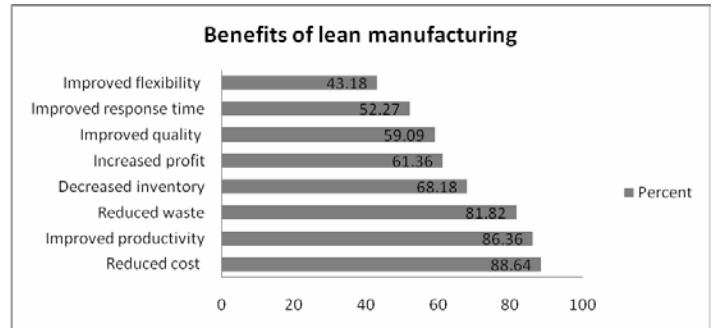
challenges faced in the implementation of these principles. For instance, as stated by Nordin, Deros and Wahab (375), resource constraint is one of the weaknesses of many SMEs and implementation of lean manufacturing requires changing the processes of the whole organization which may be very costly for the enterprises. Lean manufacturing involves creation of new practices that would require full change of the firm processes in order to create a room for introduction of new processes and technologies. Nevertheless, this should not be a big challenge because lean manufacturing can be introduced in bits depending on the capability and resource level of an organization (Wong, Wong & Ali 525).

A study by Wong, Wong and Ali on implementation of lean manufacturing in the Malaysian electrical and electronics industry (522) revealed that, small and medium sized enterprises benefit a lot from lean manufacturing because they are able to compete with large firms in the local and international markets. According to the authors, SMEs using lean manufacturing compete on the basis of the quality of their products. This is supported by the fact that current customers are interested in high quality products offered at affordable prices. Due to the resource nature of SMEs, they are forced to offer their electrical and electronics at high prices in order to make profits (Kumar, Antony & Singh 410). However, through application of lean manufacturing these companies would be able to offer high quality products at affordable prices just like the large corporations thus achieving high competitiveness and increased competitive advantages in the market. Malaysian economy is attracting international companies and this may be a challenge to small and medium sized companies which do not have adequate resources to compete with international corporations (Nordin, Deros & Wahab 376). A study by Nordin, Deros and Wahab (376) showed that waste reduction was largely understood as the main policy of lean manufacturing.



Competitive advantages increase when companies start understanding the market from the customer perspective. The success of electrical and electronics companies lies in understanding the needs and demands customers and this is translated to lean thinking and production (Kumar, Antony &

Singh 410). SMEs can sustain their competitiveness in the market by applying lean in their manufacturing and management. As noted by Dennis and Shook, management is one of the aspect that determine the performance of an organization especially in a hotly contested market because it involves allocation, distribution, and utilization of resources (32). In the Indian electrical and electronics industry, SMEs apply lean manufacturing in order to achieve and sustain competitive advantages. As indicated in the figure below, SMEs in India can benefit from lean manufacturing by reducing the cost of manufacturing.



Achieving competitive advantages in the electrical and electronics industry involves achieving a higher level of competitiveness that allows a business to continue in the market position. SMEs can achieve competitiveness using lean manufacturing through a number of ways such as improving brand name, achieving high control of raw material supply and vertical integration, achieving operational efficiency, suiting the products and customer services, and offering best quality products in the industry (Nordin, Deros & Wahab 376). SMEs would compete against large corporations in the Indian electronics and electrical industry by achieving operational efficiency through incurring lowest costs in the production of goods and services in the industry. Additionally, customers' perceptions of brand name in the market determine the performance of the brand (Dennis & Shook 33). If SMEs would use lean manufacturing techniques to achieve positive customer perceptions towards their brands, they would be able to compete against their competitors in the market. Lack of strong brand names is one of the challenges facing SMEs in the market against their competitors because the competitors have large resource base which they can use to build their brand names (Wong & Wong 2166).

As mentioned by Wong and Wong, elimination of waste and continuous improvement are the two major lean manufacturing principles considered by SMEs to achieve and sustain competitive advantages (2166). According to the authors, waste elimination helps in reducing cost of production by reducing production defects, waste of over processing, waste of waiting, and waste of transportation. Continuous improvement on the other hand, is very critical for SMEs which have low resource levels to enable overall implementation hence allowing for implementation on peace basis. This explains that

the improvement is not done overnight but for a period of time and on a peace basis. Some companies do not consider respect for humanity in their pursuit for competitive advertising programs and other motivational programs to develop them. SMEs face the challenge of labour force as they do not have adequate finances to compensate highly skilled and experienced employees like the case of large corporations. Most people are not only interested in performing well in their jobs but also in developing a sense of worth in their organizations (Wong, Wong & Ali 526).

3 CONCLUSION

SMEs face stiff competition from large and well established corporations due to globalization. However, they can use lean manufacturing to compete with these companies and achieve large market share. Considering the lean manufacturing principles such as elimination of waste, continuous improvement, respect for humanity, leveled production, quality built in, and just in time production. Application of lean manufacturing in the Indian electrical and electronics industry would allow SMEs to produce high quality products and offer them at competitive prices to compete with large and global corporations. Continuous improvement is very critical for SMEs because it may be very hard to achieve high performance in the whole firm. Producing in time involves producing what is required when it is required because customer satisfaction reduces if customers cannot get what they want when they want it. One of the reasons why customers prefer purchasing from large corporations is because they are sure that all products required are available.

vantages. For SMEs to achieve sustainable competitiveness, they must consider the welfare of their employees by offering train

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