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## Barriers in the Implementation of Six Sigma in Manufacturing Organizations

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**Abstract:** Six Sigma is a business improvement strategy that is very popular and widely accepted to improve quality and increase organizational profit. Despite this, there is a rising concern regarding the inhibitors that hamper the process of Six Sigma implementation process. In this paper an attempt has been made to unveil the barriers affecting the implementation of Six Sigma methodology based on literature review.

**Keywords:** Six Sigma, Quality Improvement, Barriers, Defect Reduction.

### 1. INTRODUCTION

Due to ever rising high competition in the global market an organisation needs to produce products and services of high quality to sustain their position in the market, achieve customer contentment and loyalty, and to attain organisational growth. For attaining the desired results, organisations can use Six Sigma business approach as an outline and explanation for pursuing continuous improvement in processes, products, customer satisfaction and profits of the organisation. It is a new management strategy by which top management level can be increased to create quality innovation and customer satisfaction. It provides a quality culture in which things can be done in the correct manner in the very first time by using data information. It also enhances team efforts which can be used for solving many critical-to-quality (CTQ) problems.

### 2. NEED FOR SIX SIGMA APPROACH

Six Sigma tools and concepts are similar in many ways to many of the previous approaches of quality management, yet it differs from others in a way that it provides an organisation structure. This aspect of quality has enabled Six Sigma to be used in controlling process improvement activities. The Six Sigma strategy extends to enterprise level for cost reduction and production of high quality products. Six Sigma approach helps in identifying identifiable enduring problems that directly impacts the bottom line of an organisation. Six Sigma projects are selected in a manner to minimize the defects which results into lower costs and happier customers.

### 3. BARRIERS IN SIX SIGMA IMPLEMENTATION

Snee (2001) identified the lack of support by management, very large project scope, insufficient time to work on the project and lack of alignment between the project and

organisation's strategic goals as the major inhibitors in the implementation of Six Sigma. Snee (2001) also suggested that strong leadership and managerial involvement is necessary for successful Six Sigma implementation. Snee and Hoerl (2003) argue that there is nothing intrinsic in Six Sigma that makes it more suitable for large companies. They also suggest that the greatest barrier to implementation in small companies to date has been the way the major Six Sigma training providers have designed their offerings. More recently, as more and more sets of deployment guides and training materials have become available, the pricing arrangements have begun to change. McAdam and Evans (2004) stated that Six Sigma program is weak in transforming customer needs into real products. Antony et al. (2005) claimed that lack of physical resources such as finance, and professional resources such as lack of proper training and guidance are the vital barriers in Six Sigma implementation in small and medium sized manufacturing enterprise in UK.

Chakrabarty and Tan (2007) tried to find out difficulties in implementation of Six Sigma in service organisations and recognised insufficient time to work on Six Sigma projects, lack of knowledge regarding Six Sigma and poor data collection as some of the problems faced by service organisations. They also identified that misunderstanding of process and sub-processes and difficulty to sustain Six Sigma improvements due to insufficient resources leads to difficulties in its proper implementation. Antony et al. (2007) specified a number of managerial and technical challenges such as difficulty in identifying process parameters and resistance to change that hinders the implementation of Six Sigma in UK service organisations. Antony and Desai (2009) further suggested that lack of physical resources and technical training, internal resistance from within the organisation, intangibility of the results and poor project selection methodology acts as the main barriers in the implementation of Six Sigma in the Indian industry. Kumar et al. (2009) stated

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that low emphasis on voice of customers, focus on short term savings, over emphasis on quick-fix, selection of too big projects and too large scope projects are the main barriers for failure of Six Sigma project.

Aboelmaged (2011) said that improper estimation of financial gains also acts as a barrier in Six Sigma implementation. Soti and Kaushal (2011) claimed that lack of employ involvement and lack of training funds acts as main barriers in the implementation of Six Sigma. Raghunath et al. (2013) said that the false notion that Six Sigma is too complex to use also acts as a major barrier in its implementation. Shaikh et al. (2015) stated that the imperative of six sigma methodology in all kinds of activities globally everywhere is solicited strongly. During last decade, Six Sigma has achieved a reasonable maturity and there has been substantial contribution made in Six Sigma framework to extend application from manufacturing to services context (Narula et al. 2015). Tyagi et al. (2016) and Kumar et al. (2016) stated that lack of top management involvement and support leads to failure of Six Sigma strategy implementation. Psomas (2016) claimed that unclear prioritization of Six Sigma project is the main reason behind the failure of Six Sigma implementation in any organisation.

## 4. CONCLUSION

In the rapidly changing global market the use of Six Sigma has been on the rise. The results produce by adopting Six Sigma depends largely on the manner in which it is implemented. So it is necessary for every organization to identify the barriers inhibiting its proper implementation. The lack of top management support and proper leadership acts as main barriers to Six Sigma implementation. As Six Sigma is a statistical methodology so the identification and improper presentation of data related to Six Sigma also acts as barriers to its implementation. There are also some technical and financial limitations associated with Six Sigma implementation. In the present article a general overview of the barriers affecting Six Sigma implementation has been presented which can be used by organizations to improve the manner in which Six Sigma is implemented.

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