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Understanding the Need of Six Sigma in Manufacturing Industries : A Review

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ABSTRACT
Six sigma is one of the most important strategies since last so many decades. It tries to reduce the defects to the minimum possible level and thus results in improving the profitability and efficiency of firm. Many researchers have presented their work in this domain. The successful implementation of this concept results in better utilization of resources, increased customer satisfaction, increased quality of products, lesser rejection, increased employee morale etc.

Keywords : Six Sigma, Defects, Quality, Customer Satisfaction

I. INTRODUCTION

Six sigma have gained popularity among both manufacturing as well as service industries. Industries have gained imperative benefits by implementing this concept. Motorola have gained profit of 16 billion $ by means of six sigma in the period 1986-2001 (Eckes, 2001; Hendricks and Kelbaugh, 1998; Motorola, 2003). Also, other industries like Honeywell, General Electric and 3M have gained similar type of results (3M, 2003; Arndt, 2004; GE, 2002; Honeywell, 2002). Anderson et. al. (2006), explained six sigma as a process to remove variations and making improvements continuously. According to Banuelas and Antony (2003), "Six Sigma is a philosophy that employs a well-structured continuous improvement methodology to reduce process variability and drive out waste within the business processes using statistical tools and techniques". According to Bendell (2006), Six Sigma is a strategic, company-wide approach focusing on variation reduction and having the potential of simultaneously reducing cost and increasing customer satisfaction. Black and Revere (2006) defined Six Sigma as a quality movement, a methodology, and a measurement. As a quality movement, Six Sigma is a major player in both manufacturing and service industries throughout the world. As a methodology, it is used to evaluate the capability of a process to perform defect-free, where a defect is defined as anything that does not conform to the customer's requirements. Chakrabarty and Tan (2007) stated Six Sigma as "A quality improvement program with a goal of reducing the number of defects to as low as 3.4 parts per million opportunities or 0.0003 per cent". Kwak and Anbari (2006) defined Six Sigma as "A business strategy used to improve business profitability, to improve the effectiveness and efficiency of all operations to meet or exceed customer needs and expectations"

II. LITERATURE REVIEW

The inception of six sigma methodology was started by Motorola in 1980's. TQM also is similar concept as that of six sigma. Total Quality Management (TQM), is defined as organization wide philosophy based upon participation of all the members of organization, aiming at long term success by providing quality products and services to customers. According to

Antony and Banuelas (2002), Ford found that Six Sigma is more profit orientated, while TQM focuses on fixing the quality problem regardless of the cost. Behara et al. (1995), explained six sigma as The rating that signifies "best in class", with only 3.4 defects per million units or operations. Bendell (2006), a strategic, company-wide, approach .focusing on variation reduction, projects have the potential of simultaneously reducing cost and increasing customer satisfaction. Black and Revere (2006), A quality movement, a methodology, and a measurement. As a quality movement, Six Sigma is a major player in both manufacturing and service industries throughout the world. As a methodology, it is used to evaluate the capability of a process to perform defect-free, where a defect is defined as anything that results in customer dissatisfaction. Kwak and Anbari (2006), a business strategy used to improve business profitability, to improve the effectiveness and efficiency of all operations to meet or exceed customer needs and expectations.

III. BENEFITS OF IMPLEMENTATION OF SIX SIGMA

a. Increased profitability
b. Increased customer satisfaction
c. Increased sales
d. Increased employee morale
e. Lesser scrap
f. Lesser defects
g. Better utilization of resources
h. Increased quality of products
i. Better return on investment
j. Reduced cycle time
k. Reduced inspection

IV. CONCLUSION

It has been seen by literature review that implementation of six sigma results in better utilization of resources, better sales, increased quality of products, increased profitability, increased customer satisfaction etc. Since, the aim of each and every organization is to earn more and more profits. So, Industries should try to focus on this methodology so that they can harness more and more profits.

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