

Use of Six Sigma to Improve Quality within Any Organization

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Abstract

After Motorola introduced Six Sigma, it has been widely adopted by most of the organization and it has been seen that effectiveness of six sigma is supported by realistic evidences. Indian automotive industries are one of the fast developing inside the small and medium of enterprises which are one of the most influential contributors to the complete manufacturing of auto components. In this unique circumstance, the primary point of the examination is to research the principle structure of the six sigma approach and its attributes and to dissect the impacts of six sigma approach on the association's exhibition markers by considering a firm profiting proficiently from six sigma approach and working in the white merchandise sector.

Keywords; Six Sigma, Process performance, DMAIC, sustainable improvement.

I. INTRODUCTION

Today's competitive scenario, the business sectors are turning out to be worldwide and economic conditions are drastically changing. Customers becomes conscious about quality and demand of high quality products at very competitive rates with variety of products. Organizations are facing challenge to react to the requirements of customers while keeping production and other related expenses down. The organizations are making progress toward their very survival. Organizations can decrease their expenses by reducing defective parts in production [1], [2]. This is what Six Sigma is about. Six Sigma is trained, focused and scientific problem solving method, which uses non-statistical and statistical tools coordinated with approach to cut down number of defects to 3.4 defects in per million opportunities (DPMO) in every process [3]–[6]. Use of the six Sigma is a management program for accomplishing quality of product Six Sigma "levels of quality". Six Sigma represents six standard deviations (sigma is a Greek letter use to represent standard deviations in statistic). Motorola

spearheaded it – in mid 1980s, which started seeing, benefits just after two-year later. Six Sigma was introduced by Mikel Harry. The program got attention when Motorola won the Malcolm Baldrige award (MBNQA). After this program got attention and award there are many gig organization adopted this method, like General Electrical (GE), allied signal, Texas instrument [7], [8]. In 2000, Fort Wayne, Indiana turned into the first ever city to execute the program in city government. General Electric invested \$500 million on Six Sigma in 1995 and gained more than \$ 2 billion from that investment.

II. BACKGROUND

The invention was persuaded by the high expense of poor quality found at Motorola. Six Sigma was developed at Motorola during the 1980s. Similarly many other organizations at that time, it was as high as 15% to 20% of the business income. Most of the products failed to meet customer's requirements. Because of this scrap, rework, field service or recall if the product has shipped to customers. If Motorola

can improve its process with the goal that, very less defective products are produce, the expense of low quality can be diminished significantly. Hence Motorola engineers proposed the idea to use of Six Sigma, that means accomplishing a value standard of under 3.8 defects in per million opportunities (DPMO) [9], [10].

Thus, Six Sigma was promoted to numerous Fortune 500 organizations during the 1990s where it additionally helped them accomplish good returns. Simultaneously, there are many advancements happens in six sigma. Especially, GE upgraded Six Sigma with numerous new practices. GE later claimed that Six Sigma has become an essential piece of its business culture and technique. GE's prosperity further dispersed Six Sigma too small to medium sized organizations [11]–[13].

III. CASE STUDY RESULTS

Problems occurred:

The examination study began with a meeting in the company to talk about its issues. A profound investigation of the entire creation process was completed. Because of it a few bottlenecks associated with unmistakable vacation in the production process were watched. They alluded to playing out the way toward associating squares and covers on the machine Kobus BF. There were also others machines, which were utilized for this sort of exercises, however just this one had low adequacy. The primary issue to manage, was to dispose of all the outside variables which brought about the lower viability of the procedure and afterward concentrating on the interior ones. At the meeting with the overseeing executive and creation chief it was built up that for a situation of any required help the administration would be ready to help. Each individual associated with this venture needed to pronounce that he understood his own position and responsibilities in performing and concentrating on constant improvement of value in the entire organization. The jobs for playing out this undertaking for the most part included: Managing

Director, Production Director, Production Manager, the delegate of budgetary aspects and Quality Controller. The required assets were defined as inward documentation of the organization just as claim a perception of the procedures on a generation line. The cutoff time of the undertaking was set up for the finish of April 2016. As one of the main issues of the entire Six Sigma venture is to concentrate on a client, his needs and prerequisites for the procedure had to be characterized. The examined company had only B2B (business-to-business) clients which meant that it didn't cooperate with singular customers. The principle clients for this venture were the greatest distributing houses from Uzbekistan and abroad, and their fundamental prerequisite was to have arranges on schedule. So as to give them top notch items and administrations it was fundamental that the creation procedure run smoothly with the best viability and with no pointless personal times.

Measuring Monthly Data:

After the issue was characterized the subsequent stage was to collect historical data to get the data about procedures which were to be improved, check if there was enough information, documentation of the current situation and likewise perform the similar tests. Nonetheless, the primary suspicion was to gather and measure information which would be required at the control stage in request to show the distinctions and asses the advancement. The obtained information are appeared on Figure 1.

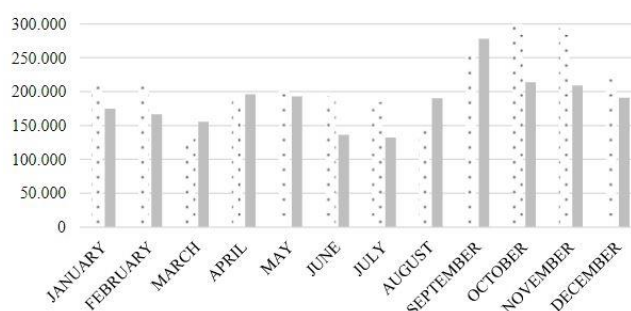


Figure 1: Efficiency on the machine BF

As it very well may be seen the adequacy in year 2017 was lower than in 2016. The greatest contrast showed up in September and October, which were the most profitable months connected with a schedule season. In September the thing that matters was 96466 pieces and in October 88 256 pieces in correlation with the earlier year. It came about because of the way that there was an expansion in orders from the clients, yet decline in their version (number of printed volumes in one order) what prompted the expanded number of changeovers on this machine.

Investigating the main problem:

So as to break down the effectiveness of the machine Kolbus BF brainstorming was performed. From the outset it was composed in a type of an individual conceptualizing and afterward there was an exchange about various thoughts and recommendations. Each individual included needed to introduce their very own thoughts as a rundown on a Flipchart. Based on these information it was conceivable to determine four primary gatherings: work organization machine method man. For a situation of work organization the actualized control system was not adequate enough to control the work association of each worker. Also, awful association resulted from too prolonged stretch of time spent on changeovers on the machine because of such a large number of client's requests. Till then the orders performed on this machine were chosen by the soonest date of conveyance of materials what affected adversely the generation cycle to a huge degree. The specialized state, age, development of the machine and sudden breakdowns likewise diminished the viability of the investigated creation forms. As the years were passing by, the machine was getting more established. Its maintenance was time-expending and required engagement of workers from the organization. Nonetheless, the expense of another machine was truly elevated and not satisfactory to benefits. Another gathering of causes alluded to techniques for work. They were divided into: absence of directions and strategies, old

innovation and detail of creation. The absence of systems and clear directions was a hindrance particularly for new machine's administrators. They had to be educated how to pick groups regarding requests to make the procedure considerably more viable. Despite the fact that, this organization grew rapidly and attempted to pursue new patterns there was still old technology which eased back the creation procedure and affected its adequacy. Low viability of the creation procedure additionally resulted from the lack of experience, capability and information on the representatives, their predisposition, culture and inspiration for work. In the organization there were not sorted out any trainings with the exception of required wellbeing and security preparing. The laborers weren't mindful that their day by day activities contribute on an enormous scale to the working of the entire association. As there was no reward framework the absence of inspiration for work was plainly unmistakable. The inclination of representative's was also very important as a few people were more ready to work in explicit conditions than others. It tends to be associated with their psychophysical conditions which ought to be checked before hiring new representative.

IV. CONCLUSION

This paper has investigated the essential obstructions, benefits, conventionally utilized tools and strategies, key exercises learned and so on of Six Sigma venture in two Indian assembling organizations. A multi-contextual investigation examination has prompted the distinguishing proof of various significant bits of knowledge. The vast majority of the Six Sigma ventures are chosen based on cost investment funds and deformity decreases yet are not really lined up with key objectives of the business.

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