

The Contribution of Total Quality Management And Six Sigma to Achieve the Success in Terms of Quality

P. Deolia, P.L. Verma, L. Bajpai
(*Department of Mechanical Engineering, S.A.T.I., Vidisha, India*)

Abstract: *The objective of this research paper is to grant a clear understanding of Total Quality Management & SIX SIGMA is helpful to the organizations to attain the success in terms of quality. This research paper contains the approaches of SIX SIGMA are DMAIC & DMADV. The key aim of this paper is to look at Total Quality Management & SIX SIGMA definition, history, the contribution in an industry, importance and explains the strengths, differences and weakness/deficiencies of Total Quality Management & SIX SIGMA and also discussed their distinctive characteristics and similarities.*

Keywords: *Total Quality Management, implementation of TQM, DMADV, DMAIC, six sigma and Quality.*

I. INTRODUCTION

The concept of Total Quality Management has command the management scene for some decades. Many organizations across all over the world have approved to use Total Quality Management to attain increased competitiveness and improved financial condition. Some organizations have succeeded. For instance, quality award recipients show better financial results than comparable average companies. Although there are several reasons for these mixed results, the failures have tarnished the Total Quality Management star and have aggravate the search for new and efficient means of navigating the increasing competitiveness of all over the world. Six Sigma and other concepts, have grown in popularity and many organizations have alter their strategies and habit towards these concepts. Total Quality Management is less visible now than in the early 1990s due to problems including lack of assimilation, leadership apathy, a fuzzy concept, unclear quality goals and a failure to formulate internal blockade and conclude that Six Sigma can overcome these

deficiencies. Today, depending on listen to, Six Sigma is either a revolution slashing trillions of dollars from corporate inefficiency, or it is the most aggravating management fad yet devised to keep front-line workers too busy collecting data to do their activity. Whatsoever the truth is, it seems important to reflect on the reasons for this development, and try to dissect the Total Quality Management and Six Sigma concepts and evaluate their composition. What is true and what is not? Are Total Quality Management and Six Sigma in fact two sides of the same coin – two versions of the same dish? We will check out the two concepts, compare them and present some reflections related to this issue.

II. TOTAL QUALITY MANAGEMENT (TQM)

Total Quality Management is systems approach to management that aims to enhance value to customer by designing and constantly improving organizational processes and arrangement. It places customers as principal focal point and redefines quality as customer satisfaction. Total Quality Management depends on fact-based decision-making. Total Quality Management is a deep-based approach used by world class companies to achieve organizational perfection, the highest adequate category of all the quality and merit awards. Most of the analyst agrees that Total Quality Management is a useful attitude for management if properly planned and implemented. It has been expected that if Total Quality Management is used properly and fully unified into the business, this approach will help any organization deliver its goals, targets and strategy. According to Lindquist (1995), TQM implementation is based on three core elements:

- The TQM philosophy that comprises a set of
- TQM principles; The organizational culture-the present and desired state of culture that will be reached when the TQM philosophy is realized; and
- The implementation strategy-the approach to realizing the philosophy that will specifically include the activities to identify and offset TQM implementation barriers.

The competing value framework (CVF) prospective and tested by Denison and Spreader (1991) has been selected to identify types of organizational culture and explore underlying gesture of culture in terms of Total Quality Management practices being supported be types of culture.

Five empirical studies have been identified to derive significant Total Quality Management principles for implementation to achieve performance excellence. Total of 48 significant Total Quality Management practices were identified and classify into eight major Total Quality Management principles:

1. Process Control
2. Top management commitment
3. Quality culture
4. Quality planning

5. Supplier management
6. Employee focus
7. Customer and market focus
8. Information management

Total Quality Management is for attain excellence and Total Quality Management is for continuous quest for excellence. Total Quality Management can be defined as holistic management philosophy aimed at continuous improvement in all functions of an organization to convey goods and services in line with customers' needs or requirements. Feigenbaum illustrates that Total Quality Management is the ensuing further development of Statistical Process Control.

III. SIX SIGMA

Six Sigma is a set of approach and tools for process development. It was developed by multinational company Motorola in year 1986. Jack Welch made it central to his business action at General in 1995. Today, it is used in many industrial sectors.

Six Sigma explore to improve the quality of process outputs by diagnose and removing the causes of defects and minimizing changeability in manufacturing and business processes. It uses a set of quality management methods, including analytical methods, and creates a special framework of people within the organization who are experts in these methods. Each Six Sigma business carried out within an organization follows a defined adjustment of steps and has appraised value targets, for example: increase profits, reduce process cycle time, increase customer satisfaction, reduce cost and reduce pollution.

The term Six Sigma comes from terminology associated with manufacturing, specifically terms associated with statistical design of manufacturing processes. The capability of a manufacturing process can be described by a sigma rating indicating its yield or the percentage of defect-free products it conceive. A six sigma process is one in which 99.99966% of the products manufactured are statistically normal to be free of defects (3.4 defective parts/million), although, as discussed below, this defect matched corresponds to only a 4.5 sigma level. Motorola set a goal of "six sigma" for all of its manufacturing action, and this ambition became a by-word for the management and manufacturing practices used to achieve it.

A. DMAIC

The DMAIC project methodology has five phases:

- Define the system, the voice of the customer and their requirements, and the project goals, specifically.
- Measure key aspects of the current process and collect relevant data.

- Analyze the data to investigate and verify cause-and-effect relationships. Determine what the relationships are, and attempt to ensure that all factors have been considered. Seek out root cause of the defect under investigation.
- Improve or optimize the current process based upon data analysis using techniques such as design of experiments, poke yoke or mistake proofing, and standard work to create a new, future state process. Set up pilot runs to establish process capability.
- Control the future state process to ensure that any deviations from the target are corrected before they result in defects. Implement control systems such as statistical process control, production boards, visual workplaces, and continuously monitor the process.

Some organizations add a Recognize step at the beginning, which is to recognize the right problem to work on, thus yielding an RDMAIC methodology.

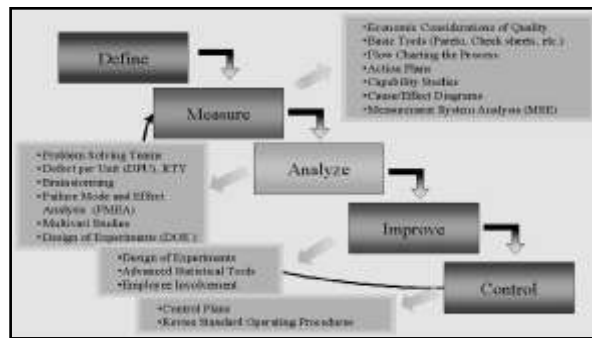


Fig. 1 DMAIC methodology for running Six Sigma projects

B. DMADV or DFSS

The DMADV project methodology, known as DFSS ("Design for Six Sigma"), features five phases:

- Define design goals that are consistent with customer demands and the enterprise strategy.
- Measure and identify CTQs (characteristics that are Critical to Quality), product capabilities, production process capability, and risks.
- Analyze to develop and design alternatives
- Design an improved alternative, best suited per analysis in the previous step
- Verify the design, set up pilot runs, implement the production process and hand it over to the process owner.

IV. CONCLUSION

This paper explores the contribution of TQM and SIX SIGMA in the organizations. TQM has been used successfully in variety of organizations, including manufacturing and service organizations. Firms that want to implement TQM effectively must have patience. It is widely accepted that TQM takes a long time to implement as it requires major organizational changes in culture and employee mindset. To get the benefits from TQM, one must be patient. It improves performance in the long-haul. The Six Sigma Quality Control Program mandates training in all aspects of organizational processes. Any business processes that incorporate Six Sigma must be refined and this refining process requires training. One of the greatest advantages that the Six Sigma Quality Control Program offers organizations is the reported return on investment. How the Six Sigma and TQM are helpful in an industry. Six Sigma provides an effective mechanism to focus on customer requirements, through improvement of process quality. The Six Sigma Approach is customer-driven. For a business or a manufacturing process, the Sigma Capability is a metric that indicates how well the process is being performed. The Six Sigma Approach is also data-driven. It focuses on reducing process variation, centering the process and on optimizing the process. TQM is an approach to improving the competitiveness, effectiveness and flexibility of an organization for the benefit of all stakeholders. It a way of planning, organizing and understanding each activity, and of removing all the wasted effort that is routinely spent in organizations.

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