



Application of Six Sigma in Various Sectors

KEYWORDS

Six sigma reduce waste and do continuous improvement, DMAIC- Method, DMACV- method, limitations.

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ABSTRACT *The Six sigma is one of the business methods which improve the business quality process. It provide the practical movement with innovative ideas and continuous improvement. The application of six sigma methodology in banking sector which can be summarized in different areas. Six sigma can be applicable to production as well as service sector also.*

Summary:

Six sigma in the specific methodology to improve the existing process, to meet the desired level of satisfaction. It can be applicable to various sectors and organization which gives fruit full result so that the respondent will be satisfied. Generally it is used in production process now a days it give us usefulness to implement in service sector so that the customer will be satisfied and will get expected benefits to both.

Introduction

Six sigma is a powerful system. Basically it is measuring of quality that longs for perfection (3,4 defects on 1.000.000 transactions). Word "sigma" is a Greek letter which represents standard deviation, the term that describes how distant is the data from average or middle.

It is widely recognized as a business strategy that employs statistical and non-statistical tools and techniques, change management tools, project management skills, teamwork skills and a powerful roadmap (DMAIC) to maximize an organization's return on investment (ROI) through the elimination of defects in processes. According to statistical view Six Sigma implies 3.4 defects or mistakes or errors or failures per million opportunities. Here Sigma is a term used to represent the variation about the average of a process. The focus of 'Six Sigma' is not on counting the defects in processes, but the number of opportunities within a process that could result in defects.

The objective of a Six sigma strategy is to understand the process, which creates the defects and devise process improvement methods to reduce the occurrence of such defects which improve the overall customer experience.

Literature Review

The methods, tools and techniques of Six Sigma strategy which have greater impact on quality improvements and performance in various banking industries are described (Lixia Wang)[4]. The study examines the gainful effects of the knowledge management and also gives a critical analysis of the impact of six sigma on banking performance and customer service.

Gregor Zellner, Susanne Leist, et al.[3] focuses on the selection of critical processes for a six sigma project in teaching case. It presents an approach establish during the prototypical implementation of six sigma at an automotive bank and individual steps of the selection process are closely determine.

The evaluation , benefits and challenges of six sigma prac-

tice and identify the key factors influencing successfully six sigma project implementation (Young Hoon Kwak and Frank T. Anbari (2006, 26,Technovatio)[6]. It described that Six sigma project include management involvement and organizational commitment, project management and control skill, culture change and continuous training.

(Ayon Chakrabarty and Kay Chuan Tan) [1], Measuring Service Quality described about the review of six sigma application in service with some of them, such as key performance indicator ,CTO and benefits, limitations of applying six sigma. The literature analysis shows that Six sigma is slowly but surely finding structured and beneficial application in service sector.

1.2.2 Definition: Six sigma

Six sigma refers to "A data-driven method for achieving near perfect quality. Six Sigma analyses can focus on any element of production or service, and has a strong emphasis on statistical analysis in design, manufacturing and customer-oriented activities and in financial services." (Gandhi 2014)[2].

Six Sigma is an organized systematic methodology used to improve processes or product performance with impact on customers, and is based on scientific and statistical methods.(Patricia 2012)[5]

Six sigma has two major methodologies,

They are DMAIC and DMACV. DMAIC is used to improve an existing business process and DMADV is used to create new product designs or process designs in such a way that it results in a more predictable, nature defect free performance.

DMAIC

D- Define, M- Measure, A- Analyze, I- Improve, C- Control

DMADV

D- Define, M- Measure, A- Analyze, D- Design, V- Verify

DMAIC: - DMAIC is based on original PDCA Plan Do

Check Act cycle. However, DMAIC is used for application of both efforts - improvement of processes and design/redesign of processes. Therefore, no matter if it refers to "DMAIC projects".

Basically DMAC Methodology consists of the following five steps.

Define :-

The define is the first phase of Six Sigma process. In this process aims and limits of specific banking processes is defined collectively by team manager and other staff, members. Customer satisfaction is considered as central aim of six sigma in banking industry, therefore in this stage all those processes are defined which include customers connection and directly and indirectly influence clients satisfaction is called as voice of customers (VOC). Some important tools used in this phase are Pareto Analysis, Process mapping, Priority Matrix, Project management tools, voice of customer, brainstorming etc.

Measure :-

Measurement phase involves implementation of different quantitative methods and tools such as Cause and Effect Matrix, Quality control tools, Creativity technique, quality function deployment, fishbone diagram, to gather required statistical information. In today's competitive environment time is the most scarce resource; therefore saving customers' time is regarded critical for customer satisfaction.

Analyze:

Analysis phase heavily depends on the process and the type of business you are involved. During this stage analysis of the gathered data is conducted according to the measures used and priority defined standards with the purpose of highlighting the practices and processes which could be better developed at a lower cost. The analyze phase involves various aspects of processes which can put certain impacts on clients' satisfaction. It involves performance objectives by the team benchmarking and identifying the source of variation by performing analysis of variance (ANOVA) test, Regression Analysis and hypothesis testing. On the basis of above information, the root cause and defects and their impact on the business or process can be identified.

Improve:-

In this phase, one may develop potential solutions to fix the problems and prevent them from recurring. Once the potential solutions are developed by the team, it is able to evaluate the impact of each potential solution using a criteria-decision matrix. The corrective actions and measures taken are based on data collected during measure phase and analyzed during analyze phase.

Control :

This phase focused in identifying the root causes of the delays, a specified controlling system are employed in various operations to measure the influence of actions taken for quality enhancement. In case, the banking practices and processes are not improved as per defined Six Sigma levels, even after, the actions taken. The DMAIC process will again start from 'define' stage. On the other hand, if the problem causing ineffective Six Sigma performance is of a minor in nature, in that case corrective actions are employed and no need to repeat the complete process. The tools are Controls Charts, Control.

1.2.4 Application in various fields:-

Sales and Marketing

Several companies are using six sigma for marketing purpose. Here GE and Dow has taken care of the customer by implementation six sigma for improvement and for development of new product to reduce cost, to improve the performance and at to increase the profit. Many companies are using six sigma in marketing and sales as a road map, to collect the market data and the present status of various companies so that the market strategy can be defined to meet the customer satisfaction level. Further six sigma strategy combine with online research market to provide the quality service and observe that sales and marketing process can be improved by six sigma methodology.

Accounting and Finance

In accounting and finance six sigma methodology is used to reduce error in invoice processing, reducing cycle time and to optimized cash flow. Department of health care insurance developed and applied six sigma methodology in account department to improve the account withdrawal process. In existing process rectifying an error in billing process involved too much rework process., results 60 percent of customer account has been charged less than due amount and about 40% being overcharged. A drastic change has been observed after implementation of six sigma cycle time has been reduce from 4 week to three days and defect rate reduce to zero.

Manufacturing sector

In 1980 Motorola was the first organization to use six sigma as a part of quality improvement technique. General Electric, Boeing, Toshiba, Allied Signal Kodak, soney has been successfully applied six sigma in manufacturing organization. The reported benefits and savings are composed and presented from investigating various literatures in six sigma. By implementing of Six sigma process it helps to improve the organization, project benefits, and cost saving.

Financial sector

To remain in competitive situation finance and credit department are responsible to reduce cash collection cycle time and variation in the process. where as six sigma is used to improve the accuracy of allocation of cash, to reduce extra charges, improve report, reducing documentary credits defects and reducing check collection defects. Bank of America is the pioneer of adopting and implementing Six sigma concept to improve the service quality and customer satisfaction. Bank of America reported that customer satisfaction level has been increased by 10.4 percent and decrease in 24 percent customer problems.

Healthcare sector

Health care and six sigma concept are very well matched because of zero tolerance for mistake, to reduce medical error. In implementing six sigma project it tries to improve the service quality by improving timely and accurate claims reimbursement, streamlining the process of healthcare delivery and reducing the inventory of surgical equipment and related costs.

Research and development sector

The objectives of implementing six sigma in R&D organizations are to reduce cost, increase speed to market, and improve R&D processes. To measure the effectiveness of six sigma, organizations need to focus on data driven reviews, improved project success rate, and integration of R&D into regular work processes.

1.3 Limitations.

The application of six sigma in services sector is growing to improve the quality of service. The factors which are given below are responsible for the improvement:

1 The most important limiting factors is the difficulty in quantifying and collecting data from service processes.

2 It is very difficult to distinguish between service process and sub-processes. And consequently there is difficulty in measuring and collecting data which subsequently make it difficult to control the measure the control phase of six sigma

3 It is argue that data collection in manufacturing is oftentimes routine and automated. But usually it does not happen in services

4 To realize improvement in the process Six sigma provides a strong framework . But it does not support for creative thinking, breakthrough, or entrepreneurship, which are also an important for organizational excellence. (Ayon Chakrabarty and Kay Chuan Tan 2007)[1]

Conclusion:- Six sigma in the specific methodology to improve the existing process, to meet the desired level of satisfaction. It can be applicable to various sectors and organization which gives fruit full result so that the respondent will be satisfied. Generally it is used in production process now a days it give us usefulness to implement in service sector so that the customer will be satisfied and will get expected benefits to both.

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