



APPLICATION OF 'SIX SIGMA' FOR LIBRARY SERVICES

Mangala Hirwade And Cynita Christy

DLISc RTMNU, Nagpur

ABSTRACT :

Six Sigma is a quality improvement tool to measure the process outputs for error reducing system. It aims to maximize user/customer satisfaction and minimize defects in products and services being offered by an organization. A fundamental objective of six sigma is to achieve customer satisfaction. The purpose of any library is to satisfy to all its users needs. It is necessary to implement Six Sigma in Libraries to develop the library and its service.

This paper elaborates Six Sigma tools in library management for identifying the key functional areas to achieve the user's satisfaction with continuous process and to provide better service and full satisfaction to the library users.

Keyword: Six Sigma, Total Quality Management, User Satisfaction, Library services

INTRODUCTION :

Today's libraries are much like a service industry where user satisfaction is supreme. Many industrial, research and academic libraries are looking for established and approved quality symbols, i.e. ISO, etc. For the purpose of getting accreditation from such body and to make user more satisfied new management strategies and techniques are required for the libraries. In management of libraries and information centres majority of the concepts and theories of are adapted from business and human resource management studies. Moreover, these days the concept of Quality Improvement is also attracting library professionals. One of the tools to improve the quality of Library services is through the use of six sigma. (Six Sigma Introduction)

To improve the quality of library services, this paper insist to implement "Six Sigma" in libraries and information centres. Use of Six Sigma in library will help in improvement of library, maximising user's satisfaction, cut the costs involved in any library service and reduce the defect in any library service.





Since the introduction of Six Sigma in the 1980s, there have been many success stories from companies like Motorola, General Electric, and Allied Signal. The majority of these stories are from the manufacturing sector. The service sector, barring the healthcare and banking industries, are lagging behind in applying and reaping the benefits of Six Sigma. The emergence of Six Sigma has renewed interest in the scientific management of service industries. Six Sigma offers a framework that unites these basic quality tools with high-level management support. (Kumar, 2007)

Six Sigma

Six Sigma programs provides to reduce the variation in the processes and Six Sigma means 3, 4 defects are produced for million opportunities in the processes. Six Sigma presents a problem solving methodology in order to eliminate root causes of the defects. Six Sigma is a customer focused approach that emphasizes that defects are factors that reduce the customer satisfaction and increase the costs. Six Sigma helps the organization to gain more money by increasing the customer value and efficiency. Six Sigma focuses on improving the quality by helping the organizations to produce their products and services faster , better and lower costs .Six sigma programs have ensured achievements in four areas in the firms; financial gains, benefits from the viewpoint of customers, benefits from the viewpoint of personnel, and effects of quality. (Yukesli, 2012)

Definition

Bob Galvin of Motorola, Larry Bossidy of Allied Signal and Jack Welch of General Electric (Six Sigma) developed a framework to make Six-sigma happen. "**Six-sigma in Motorola** is considered at three different levels:

1. As a Metric ,
2. As a Methodology, and
3. As a Management System.





Essentially Six-sigma is All Three at the Same Time.”

Six Sigma Academy (Ramasamy, 2009) defines it as “a business process that allows organisations to drastically improve their bottom line by designing and monitoring every day business activities in ways that minimize waste and resources while increasing customer satisfaction”.

ADVANTAGES OF SIX SIGMA

Some advantages of Six Sigma are given below as (Agrawal, 2011)

- Six sigma strategies focus on client satisfaction.
- Reduces process cycle time, thus reduces costs.
- Achieve accuracy in process by reducing defects.
- Helps to work smart rather than work hard.
- Provides better decision making capacity.
- Provides better understanding of processes

SIX SIGMA METHODOLOGIES AND LIBRARY PERSPECTIVE

Six sigma methodologies is a highly controlled management approach that promises the companies’ such yardsticks which would enable them to deliver their best products and services and also to achieve higher profits with an increase in satisfied customers. As a disciplined process, Six Sigma provides two standard process models, i.e. DMAIC (Define, Measure, Analyse, Improve, and Control) and DMADV (Define, Measure, Analyse, Design, and Verify). (Six Sigma Methodologies).

DMAIC

DMAIC stands for D- Define; M-Measure; A-Analyse; I-Improve; C-Control. DMAIC is targeted to improve existing business processes.

Define:

It involves defining or finding project goals and sub goals, establishing an infrastructure to meet these set goals and planning to improve present functioning.





Library Perspective

Library Perspective of Define may involve the identification of target group of library users and the attributes of their age, gender, qualifications or present area of interest and their information needs. The goals can be the kind of services to be provided, method of providing those services, training to users, users' survey, availability of infrastructure for the utilization of information sources etc.

Measure:

It is the measurement of current processes by collecting different kinds of data and by preparing matrices.

Library Perspective

Library Perspective of Measurement can be the making out of number of users and kind of collection in any library. Data can also be of information use behaviour of the library users, how and from where the information is gathered and what ways are adopted to process it so as to make that information accessible. What are the different formats of information available and what storage media is used for information products are other dimensions of measurement.

Analyze:

The analysis involves the determination of root cause in the present process by establishing cause and effect relationship.

Library Perspective

Library Perspective of the analysis can be the establishment of what resources are more exploited or are more in demand and why. What are the reasons for underutilization of other information sources and services? Feedback can be taken about present library set up and regarding what new services should be introduced or how the status of existing library products and services can be enhanced in terms of collection, timings, staff etc.





Improve:

Using data, matrices and analysis of above phases, better techniques are opted in the organization for eliminating root causes of defects.

Library Perspective

Library Perspective under this phase can be orientation of users towards the library services and resources. User education for improvement through seminars, exhibitions, lectures, library portal, and library website are the best options. User friendly library management software shall be installed and for providing better library services periodic training programmes for library staff and users should also be conducted.

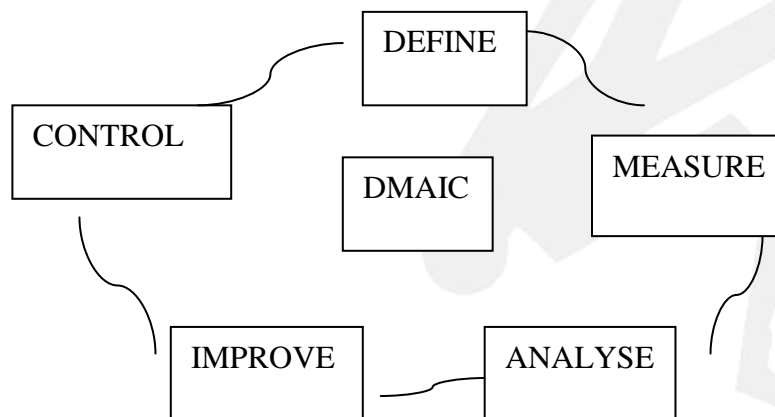
Control:

It demands continuous monitoring of the process/techniques of all the stakeholders. Regular feedback from customers and people within the organization for improvements are asked for.

Library Perspective:

The role of top management in compilation and implementation of above phases, especially the feedbacks from library users and people within the organization are necessitated under control. The change in policies for improvements, budgetary provisions and involving librarian in policy decisions are some of the dimensions of control mechanism.

GRAPHICAL PRESENTATION OF DMAIC METHODOLOGY





DMADV

DMADV Stands for D- Define; M-Measure; A-Analyze; D-Design and V-Verify. DMADV aims to create those products and services that best suits and match the customer needs. It is also called DFSS- Design for Six-Sigma (Kaushik Chitra, 2007).

Define:

This phase of six-sigma identifies, determines and sets the organization's goals in accordance with the customer needs.

Measure:

At this stage the organization identifies and measures those factors that are critical to quality, exactly determines the customer needs and specifications, product capabilities and risk factors.

Analyze:

Alternative processes are designed and analyzed to meet customer needs along with the existing processes.

Design:

The best design or model implied from above phases is selected and customized for the organization.

Verify:

Performance and ability of the selected design to meet customer need is verified.

Library Perspective

Library Perspective of all the above stages is that the library user is all important and while formulating library objectives and designing library services s/he is to be kept into consideration. Users' feedback and user awareness about the library products and services should be given utmost importance.

Limitations of Six-sigma

Six-sigma has many advantages to its credit and it has been proved by Motorola and General Electricals and the like companies but when this





process is implemented in service agencies like libraries many shortcomings may be confronted.

➤ **Collection of quality data:**

The data collection is a tedious job and that too of highest quality. It largely depends upon the willingness of the user and on availability of data. It also has financial implications for any organization. Sometimes the desired result is far from expectations. The gap between costs and results may adversely affect the results (Coronado, 2002).

➤ **Non application of 3.4 defects/million opportunities:**

It sounds improper as far as libraries are concerned because defects may be anything that does not suit or match users' demands and needs. Moreover behaviour of library staff, working hours, unwillingness of users to put forward constructive suggestions or needs to be introduced within the existing library system, non-co-operation from library staff to solve the users problems pose a serious question regarding relevance of six sigma in libraries (Kim, 2010).

➤ **Dynamism of users' demands and needs:**

The advancements in technologies, needs and information seeking behaviour of different age groups, races, cultures, groups, working professionals and researchers etc. are never same and similar. The critical total quality of today may not be applicable in true sense tomorrow (J, 2010).

➤ **Theoretical and subjective in nature:**

There is no specific tool to ascertain the exact and real goals of any organization and there is no provision for any pin pointed procedures that may be adopted to achieve the set goals (Rattan & Lal, 2012).





➤ **Lack of linkage between six sigma and organizational work culture:**

Six sigma has combined methodologies for production and service sectors whereas it needs to be separated because the organizational culture is different in for both the set-ups. The training and learning needs a redressal as per organization's culture (Cao, 2011).

➤ **Merely a specification driven methodology:**

Counting of defects in six sigma relates to specifications. Defects are controlled with the change in specification and these specifications are again changed as per customer needs and it does not talk about processes to be altered or followed with a change in specification (Rattan & Lal, 2012)

➤ **Lack of originality:**

Since six-sigma is a quality management technique which measures standard deviation from the standards/ specifications set to achieve quality with regard to products and services, it has imbibed the entire theoretical framework from earlier quality management methodologies, such as TQM. It is the summation of all earlier techniques (Chakravorty, 2009).

➤ **Basis of human nature and perception:**

Six sigma advocates the achievement of user satisfaction which is related to human behaviour and there are no set standards to measure the human perception at a given time. It differs from situation to situation and from time to time (Chinubha, 2011).

CONCLUSION :

Six Sigma was introduced for manufacturing process, but for more than two decades its implementation is also seen in service industries. Six Sigma helps to improve the standard of the library and helps to improve the skills and ability of the library





employees. It insists on continuous improvement and development of the library as well as library staff members. The ultimate goal of the library is to satisfy its users. This can be achieved by the Six Sigma. It helps library employees to have a better management to evaluate the services to library users.

REFERENCES :

- Agrawal, P. (2011). Application of "Six Sigma" in Libraries for Enhancing service Quality. *International Journal of Information Dissemination and Technology* .
- Cao, H. (2011). A Case Study Approach for Developing a Project Performance Evaluation. *International Journal of Project Management* , 155-164.
- Chahal, A. S. (Volume 8, Issue 10 (October 2013)). Review To Six Sigma: A Metric And A Methodology. *International Journal of Engineering Research and Development* , PP. 58-60.
- Chakravorty, S. (2009). Six Sigma Failures: An Escalation Model. *Operations Management Research* , 44-55.
- Chinubha, A. (2011). An Introduction to Six Sigma & Process Improvement. *Operations Management Research* , 415-425.
- Coronado, R. (2002). Critical success factors for the successful implementation of six sigma projects in organisation. *The TQM Magazine* , 92-99.
- J, B. R. (2010). Critical Success Factors for the Successful Implementation of Six Sigma. *The TQM Magazine* , 92-99.
- Kaushik Chitra, S. A. (2007). Six Sigma Applications for Library Services. *DESIDOC* , 35-39.
- Kim, Y. (2010). A Six Sigma-based method to renovate information services. *Library Hi Tech* , 632-647.
- Kumar, U. (2007). Six Sigma Project Selection Using Data Envelopment Analysis. *TQM Magazine* , 419-441.
- Ramasamy, S. (2009). *Total Quality Management*. New Delhi: Tata McGraw-Hill.
- Rattan, P., & Lal, P. (2012). PROS AND CONS OF SIX SIGMA: A LIBRARY PERSPECTIVE. *International Journal of Digital Library Services* , 24-33.
- Six Sigma*. (n.d.). Retrieved September 10, 2014, from www.businessballs.com/sixsigmahtm





Six Sigma Introduction. (n.d.). Retrieved September 12, 2014, from <http://www.sixsigmaspc.com/six-sigma/sixsigma.html>

Six Sigma Methodologies. (n.d.). Retrieved September 10, 2014, from <http://www.onesixsigma.com/node/7630>

Yukesli, H. (2012). Evaluation of the Success of Six Sigma Projects by Data Envelopment Analysis. *International Journal of Business and Management* .

