

Total Quality Management : Application to Libraries and Information systems

B.M. MEERA

Indian Statistical Institute, Bangalore Centre Library, Bangalore - 560 059

Abstract

Total Quality Management (TQM) is a people-focused management system that aims at continual increase in customer satisfaction at continually lower real cost. It is not a tool in itself, but simple and useful tools and techniques of Statistical Process Control (SPC) form an essential part of TQM exercises. Of various tools and techniques, the author has described three, i.e. Process flow diagram, Pareto diagram and Cause-effect diagram, mentioning about their applications and advantages in management of libraries and information centres. These three techniques are simple in approach and application. There are other techniques of TQM, which can also be used in library environment but needs statistical computations.

Introduction

Total Quality Management (TQM) is often used to refer to any collection of changes, techniques and programs that managers choose to institute in the name of improvement. The word 'Total' conveys the idea that - all employees, through out every function, and level of an organization, pursue quality. The word 'Quality' applies to every aspect of the organization. TQM has emerged as a response to the need for improving and assuring quality in business as well as in managerial and technological process for effectively restoring and achieving customer satisfaction.

TQM is the offshoot of quality control activities at the USA. However, the concept was adopted and implemented successfully in Japanese Industries in the later part of 80's. TQM has taken a firm hold in all the business circles. It has become all the more pervasive on account of globalized economy. As a result, TQM has emerged as a predominant Management Philosophy.

Definition of Total Quality Management

In spite of all the importance it has gained, TQM has no concise definition which is agreeable to both business managers and academicians.

However, a study group of the 1992 Total Quality Forum (Who meet annually) defined Total Quality Management as :

"..... a people-focused management system that aims at continual increase in customer satisfaction at continually lower real cost. Total Quality is a total system approach (not a separate area of program), and an integral part of high level strategy. It works horizontally across functions and departments involving all employees, top to bottom, and extends backwards and forwards to include the supply chain and the customer chain...."

TQM is not a tool in itself. But simple and useful tools and techniques of Statistical Process Control (SPC) form an essential part of TQM exercises. Some of the tools and techniques are :

1. Process Flow Diagram
2. Pareto Diagram
3. Cause and Effect Diagram
4. Check Sheet
5. Stratified Graph
6. Control Chart
7. Scatter Plot
8. Histogram
9. Comparison Plot
10. ANOM plot

TQM emphasizes on number of concepts such as "Customer focus, Continuous improvement, Defect prevention and a Recognition that the quality responsibility should be shared by all. Other technologies support these 4 principles. This approach is well represented in Fig.

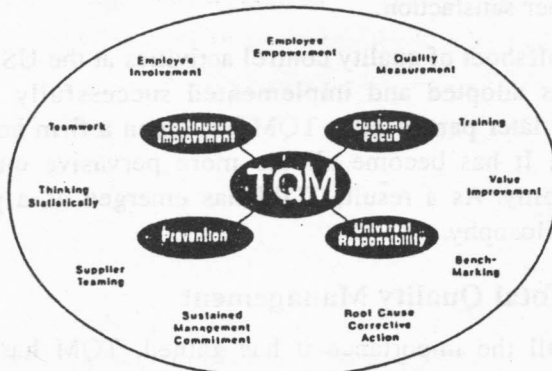


Fig. : Elements of Total Quality Management

In this presentation, we concentrate on the first and the foremost concept "Customer focus". We analyze the relevance of 'TQM Tools and Techniques to achieve the ultimate objective - Customer Satisfaction in Libraries and Information systems.'

Quality Requirements of the Customers

Quality requirements in general can be classified into 2 categories.

- I. Systems Quality
- II. Behavioral Quality of the Service Provider

Systems Quality

Following are the quality characteristics generally expected by the customers from an information centre.

1. Reliability
2. Up-to-dateness
3. Timeliness
4. Error free
5. Currency
6. Exhaustiveness
7. Customization
8. Precision
9. Presentability
10. Nascency

Behavioral Quality of Service Provider

Interpersonal relationship exists between the provider of the information service (Staff of the system) and the consumers of information service. This demands certain quality characteristics to be executed by the professional staff. They are :

1. Hospitality
2. Friendiness
3. Courtesy
4. Care
5. Concern
6. Helpfulness
7. Patience
8. Tactfulness

Quality of information service should be evaluated based on the opinions of the customers. Quality should be judged by the consumers of the service and not as announced by its provider.

According to R H Orr, a pioneer in quality studies of Information sector, 'The ultimate criteria of assessing the quality of an information service is its capability for meeting the user needs it is intended to serve, and that the value of a service must ultimately be judged in terms of beneficial effects accruing from its use as viewed by those who sustain the cost.'

Application of TQM & Techniques to enrich customer satisfaction in Libraries & Information Centres

As mentioned earlier TQM employs tools and techniques of Statistical Process Control to attain the various objectives.

The first step in quality improvement programmes is to improve the process capability of a system. In order to do so defects should be prevented. These defects are caused by the variability of the work process. All the process, whether they involve man or machine or a combination of both exhibit some degree of variability. Statistical methods helps in identifying sources and magnitudes of variability to be evaluated and thus helpful in reducing variability. Statistical process control is a management commitment in controlling quality in any transformation process, whether in manufacturing process or in provision of services. Statistical Process Control is a strategy to reduce variability and there by improving quality of production of goods or service.

Quite similar to any manufacturing sector, service sector like 'Information Centres' can also adopt TQM/SPC techniques to improve the quality of information service. Presently, we shall attempt to find the usability of three techniques in libraries and information centres to improve the quality of services to the customers. They are :

1. Process Flow Diagram
2. Pareto Diagram
3. Cause and Effect Diagram

Process Flow Diagram

The information on a work process can be most efficiently conveyed using a process flow diagram. This diagram is simply a flow chart of a work process with several key elements. Since, all work is a process, a process flow diagram can be prepared for any activity.

Pareto Diagram

The Pareto principle states that it is possible for many performance measures, such as machine failures (in engineering industry), clerical errors (in office administration), users complaints over information retrieval problems (in libraries), to separate the vital few causes resulting in unacceptable performance from the 'trivial many causes. This concept is popularly known as the 80/20 rule, which states that the performance measures can be improved 80% by eliminating the 20% of the causes of unacceptable performance.

A Pareto diagram is a bar or column chart of number of problems with bars or columns representing the number of problems due to different causes arranged in descending order of their magnitude.

The use of Pareto diagram maximizes the impact of improvement efforts by concentrating on the "Vital few" most significant problems identified by the highest Pareto bars. Solution to the most significant problem represented by the large bar on priority basis yields much greater improvement than concentrating on trivial problems represented by small bars. From the 80/20 rule guide, a break around the 80% level of line plot is encountered. This break indicates the number of categories that should be considered to find appropriate solution on priority.

Pareto diagram is the first step in Quality improvement as it is an indispensable Statistical Quality Control method. The Pareto diagram helps in identifying the targets on which efforts for improvement should be concentrated. If the inference derived out of Pareto diagram are seriously considered and applied, then they are bound to have their impact on the quality improvement programmes of the library.

Cause - and - Effect Diagram

Service Quality has to be judged by the customer of the service and not be the provider of the service. Hence in this situation it is the user who is the customer of the information service and he has to judge the service quality of the library.

The Pareto diagram has been instrumental in choosing the problems which need immediate attention. In order to find solution to those problems, the first step is to identify causes for those problems. Each effect is due to certain causes. If those causes are identified and eliminated, then invariably the problem gets solved.

Any problem under any situation has a cause for it. The reason for any effect is due to various causes which may also be called as factor. The relation between Cause - and - Effect (CE) was first represented diagrammatically by Prof. Kaoru Ishikawa of the University of Tokyo in 1953 and he named it as Cause - and - Effect Diagram. It is popularly known as Ishikawa Diagram. When completed the diagram resembles a fish bone and hence it is often referred to as Fish Bone Diagram. Cause and effect diagram, helps in identifying the different probable causes for inadequate collection organization. Once the causes are identified, the chief Librarian should take necessary actions to find solutions to those causes and eliminate them from the system. Necessary corrective action taken at the right time helps in improving the performance quality of the library system.

Various accessories such as shelf guides, bay guides are helpful to users in showing path to the store of information. If such path finders are displayed properly, they solve many problems in the process of searching information and thus improves the quality of the system.

Cause-and-effect diagram helps to unify and systematize the thought of the team work. This method is very simple and easy to learn and to practice in any problem solving situation. Pareto diagram helps in identifying the problems which need immediate attention. Cause-and-effect - diagram helps in identifying the causes for such problems. Elimination of those causes results in total quality improvement of the system. The total quality concept in relation to relevance in library and information systems depends upon the system as a whole. This can be achieved by employing the Pareto diagram and cause-and-effect diagram in a library environment.

Conclusion

In this presentation, we have attempted to find the validity of applying Total Quality Management Techniques in Libraries and Information centres to improve the quality of services keeping in mind the entity 'Customer'. Any Quality improvement programme should aim towards customer care and customer satisfaction. This is fundamental to TQM. In this study we have concentrated only on three techniques of TQM which are really simple in approach and application. Although they are simple, they are powerful tools. The other techniques involve more

statistical computations. They can also be used in library environments to improve the different facets of information services, provided suitable measurement methods are available to measure the different functions.

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