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Abstracts

This paper deals with the various issues relating to the role and the importance of Management Information Systems (MIS) in the Implementation of Total Quality Management (TQM). It also draws the TQM Frame work for achieving competitive advantage and explains four important dimensions of TQM for contributing to the company's performance and success.

Keywords: Management Information Systems (MIS), Total Quality Management (TQM).

Introduction

The increasing global competition and the nature business environment which forced companies to develop strategies to become low cost producers and to differentiate their products from their competitors the customer-focused quality implementation programs played a vital role and reduced the cost and became a powerful product differentiation to customers. In order to be successful, companies must view quality as an essential part of their strategic process.

Total Quality (TQ)

Total Quality (TQ) is a formidable tool of competitiveness. It is therefore essential to define TQ in terms of this competitiveness. Put it as simple as possible, competitiveness is the quality of being able to compete, which means two things:

- The capacity to keep and not therefore lose, the customers already gained
- The capacity to attract and win new customers.

Information technology for Total Quality Management

It has been significantly implemented on most organizations and each has been widely researched. Many organizations are providing better products and services with the help of introducing Information Technology in Total Quality Management. The global competition has enhanced the role of quality in business world whereas

competition is adding to pressure to the organization. These challenges and pressures have placed a renewed focus on quality improvement for the long-term survival of the organization. Technology acts as an enabling mechanism, which results in enriched jobs and increased job satisfaction.

Total Quality Management (TQM)

It is a philosophy of Management Information Systems (MIS) is the discipline that focuses on the integration of computer systems with the objectives and aims on an organization. MIS are useful in the collation of business data and production of reports to be used as decision making tools.

The MIS literature suggests that customer may assess the quality of an organization's system by evaluating the level of the system services preferred. For instance, customers may choose not to accept services from an organization if the systems used in the services are outdated or are unable to satisfy the needs of the customers.

It is anticipated that application of IT in quality management will improve the operational tasks of quality management and hence increase quality output. IT in service industry

Commented that service industries are investing heavily in technology especially IT, to improve productivity, but with apparently very limited services. The role of IT in quality

Improvement is:

- Increasing quality awareness
- Online information about the quality level
- Reducing quality costs

Role of Management Information System (MIS)

The MIS is an idea which is associated with man, machine, marketing and methods for collecting information's from the internal and external source and processing this information for the purpose of facilitating the process of decision-making of the business.

MIS is not new, only the computerization is new , before computers MIS techniques existed to supply managers with the information that would permit them to plan and control business operations. The computer has added on more dimensions such as speed, accuracy and increased volume of data that permit the consideration of more alternatives in decision-making process.

The scope and purpose of MIS is better understood if each part of them is defined individually, thus

1. **MANAGEMENT:** Management has been define in process or activities that describe what managers do in the operation for their organization plan, organize, initiate and control operations. They plan by setting strategies and goals and selecting the best course of action to achieve the goals. They organize the necessary tasks for the operational plan, set these tasks up into homogenous groups and assign authority delegation; they control the performance standards and avoiding deviation from standard.

The decision-making is a fundamental prerequisite of each of the foregoing process, the job of MIS is facilitating decisions necessary for planning, organizing and controlling the work and functions of the business so that specified goals of business are achieved.

2. **INFORMATION:** Data must be distinguished from information and the distinction is clear and important for present purpose. Data are facts and figures that are not currently being used in a decision-making process and usually are taken from the historical records that are recorded and filled without immediate intent to retrieve for decision-making.

Information consists of data that have been retrieved, processed or otherwise used for information or interference purpose, argument or as a basis
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forecasting or decision-making regarding any business unit. Information is knowledge that one derives from facts for effective functioning of systems placed in the right context with the purpose of reducing uncertainty regarding the alternative courses of action as they are based on description and measurement of attributes of various entities associated with the enterprise.

3. **SYSTEM:** The system can be described as a set of elements joined together for a common objective. A subsystem is a part of a larger system with which one is concerned. All systems for our purpose the organization is the system and the parts (divisions, departments, functions, unit etc) are the subsystem.

The system concept of MIS is, therefore one of optimizing the output of the organization by connecting the operating subsystems through the medium of information exchange.

The Management information system (MIS) is a concept of the last two decade or two. It has been understood and described in a number of ways. It is also known as the Information System, the Information and Decision System, the computer based Decision System.

The role of the MIS in an organization can be compared to the role of heart in the body. The information is the blood and MIS is the heart. In the body the heart plays the role of supplying pure blood to all the elements of the body including the brain. The heart work faster and supplies more blood when needed. It regulates and controls the incoming impure blood, processed it and sends it to the destination in the quantity needed. It fulfills the needs of blood supply to human body in normal course and also in crisis.

The MIS plays exactly the same role in the organization. The system ensures that an appropriate data is collected from the various sources, processed and send further to all the needy destinations. The system is expected to fulfill the information needs of an individual, a group of individuals, the management functionaries: the managers and top management.

Here are some of the important roles of the MIS:

- i. The MIS satisfies the diverse needs through variety of systems such as query system, analysis system, modeling system and decision support system.
- ii. The MIS helps in strategic planning, management control,

- operational control and transaction processing. The MIS helps in the clerical personal in the transaction processing and answers the queries on the data pertaining to the transaction, the status of a particular record and reference on a variety of documents.
- iii. The MIS helps the junior management personnel by providing the operational data for planning, scheduling and control, and helps them further in decision-making at the operation level to correct an out of control situation.
 - iv. The MIS helps the middle management in short term planning, target setting and controlling the business functions. It is supported by the use of the management tools of planning and control.
 - v. The MIS helps the top level management in goal setting, strategic planning and evolving the business plans and their implementation.
 - vi. The MIS plays the role of information generation, communication, problem identification and helps in the process of decision-making. The MIS, therefore, plays a vital role in the management, administration and operation of an organization.

- iv. Computer-based system

Importance of TQM

Total Quality Management (TQM) is a participative, systematic approach to planning and implementing a constant organizational improvement process. Its approach is focused on exceeding customers' expectations, identifying problems, building commitment, and promoting open decision-making among workers.

There are five major steps to TQM, and each are essential to successful implementation.

Commitment and understanding from employees

It is key to ensure that all employees within your organization know about the Total Quality Management (TQM) policies and make them an fundamental part of their work. Your employees should know your corporate goals and recognize the importance of these goals to the overall success of your organization. Employees need to know what is expected from them and why. It may sound like a no-brainer but too often this is not driven home by management. When employees understand and share the same vision as management a world of potential is unleashed. If they are in the dark, commitment is lacking and policies will not be successfully deployed.

Quality improvement culture

The organizational culture needs to be modernized on a continuous basis to encourage employee feedback. Your employees are full of valuable knowledge-embrace it! Listen to those executing the processes that keep your business moving daily. If employees have an idea on how to improve operations, they need to know management respects their ideas or they will not share.

Continuous improvement in process

There is no standing still. If you are not moving forward, you are moving backwards. Total Quality Management (TQM) is a continuous process and not a program. This requires constant improvement in all the related policies, procedures and controls established by management. Do your research. Keep your ear to the market and make an effort to routinely revise all aspects of your operation. There should be a constant effort to improve proficiency – which will result in constant scopes for improvement (even if some improvements are small).

If the management is able to spell out the decision required to be taken, then the MIS is designed suitably. The actual MIS process relates to:

- A. Collection
- B. Organization
- C. Distribution
- D. Storage of wide information
- E. Managerial control and analysis of data

Hence MIS focuses on:

- i. Organization-wide information
- ii. Decision-making process
- iii. Managerial control and analysis

Focus on customer requirements

In today's market, customers require and expect perfect goods and services with zero defects. Focusing on customer requirements is significant to long term survival and essential in order to build relationships with customers. People do business based on emotion. Competitors will always be a risk. Keep your customers close and happy. Make sure precise requirements of all customers are documented and understood by everyone that touches the account.

Effective control

It is essential to monitor and measure the performance of the business. It's easy to forget how many times in a year an employee does not conform to a controlled procedure or how many times a piece of equipment was down due to unplanned maintenance. If strict documentation is maintained, you will be able to objectively quantify areas for improvement and focus your efforts where they will provide the greatest return of both your time and financial resources

Always remember that TQM is an amalgamation of many steps. Today's ever changing economic market requires organizations to consistently exceed expectations, and workers demand being more than an observer in decision making.

Need For Integration of MIS and TQM

MIS+TQM = QIS

Computers and other information technology should be integrated into a company's quality efforts for competitive advantage. The management information service (MIS) should be linked with total quality management (TQM). The resulting quality information system (QIS) will focus less on technology and more on the business process.

QIS act primarily as business people and secondarily as computer specialists. They even implement solutions that do not involve computerization.

Importance of Management Information System:

It goes without saying that all managerial functions are performed through decision-making; for taking rational decision, timely and reliable information is essential and is procured through a logical and well structured method of information collecting, processing and disseminating to decision makers. Such a method in the field of management is widely known as MIS. In today's world of ever increasing complexities of business as well as business organization, in order to service and grow, must have

a properly planned, analyzed, designed and maintained MIS so that it provides timely, reliable and useful information to enable the management to take speedy and rational decisions.

MIS has assumed all the more important role in today's environment because a manager has to take decisions under two main challenges:

First, because of the liberalization and globalization, in which organizations are required to compete not locally but globally, a manager has to take quick decisions, otherwise his business will be taken away by his competitors. This has further enhanced the necessity for such a system.

Second, in this information age wherein information is doubling up every two or three years, a manager has to process a large voluminous data; failing which he may end up taking a strong decision that may prove to be very costly to the company.

In such a situation managers must be equipped with some tools or a system, which can assist them in their challenging role of decision-making. It is because of the above cited reasons, that today MIS is considered to be of permanent importance, sometimes regarded as the name centre of an organization. Such system assist decision makers in organizations by providing information at various stages of decision making and thus greatly help the organizations to achieve their predetermined goals and objectives. On the other hand, the MIS which is not adequately planned for analyzed, designed, implemented or is poorly maintained may provide developed inaccurate, irrelevant or obsolete information which may prove fatal for the organization. In other words, organizations today just cannot survive and grow without properly planned, designed, implemented and maintained MIS. It has been well understood that MIS enables even small organizations to more than offset the economies of scale enjoyed by their bigger competitors and thus helps in providing a competitive edge over other organizations.

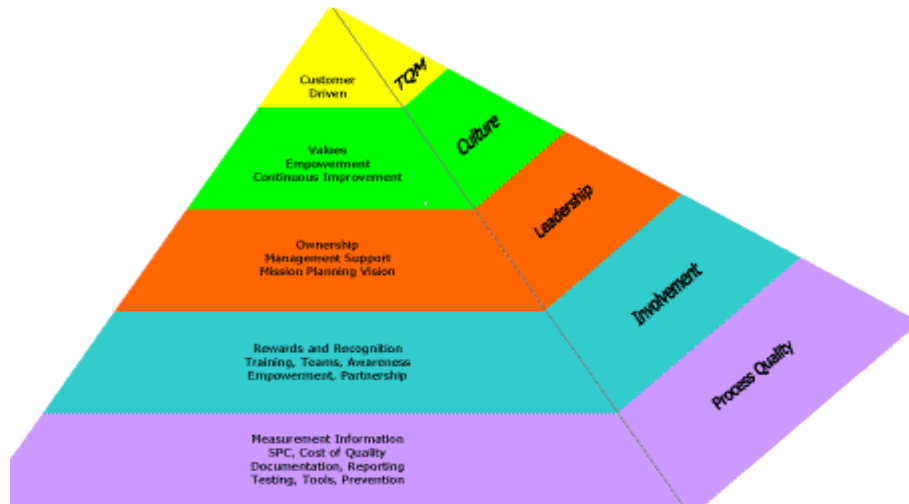
A case study shows how the MIS department at Lithonia Lighting Company helped improve the ordering and installation-drawing processes in one of its divisions. Successful MIS occurs when: everyone in MIS understands TQM, even if MIS personnel do not deal directly with customers; MIS personnel use their experience with quality tools such as flowcharts to analyze processes; and the goals of the company are the goals of the MIS department.

Information is the life blood of an organization, particularly in the case of system approach management. The MIS or Information system can be

define as the knowledge communicated by others or obtained from investigation or study. It is a system providing needed information to each manager at the right time in the right form and relevant one which aids understanding and stimulates the action. MIS is an organized method of providing past, present and projection information relating to internal operations

and externals intelligence. It supports the planning, control and operational functions of an organization by furnishing uniform information in proper time frame to help the process of decision-making.

TQM Framework



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For organizations to survive and grow in today's challenging marketplace they need true commitment to meeting customer needs through communication, planning and continuous process improvement activities. Creating this culture change can improve the products and services of your organization as well as improve employee attitudes and enthusiasm. All of these help with the ultimate goal of improved quality, productivity and customer satisfaction which is an important competitive advantage in today's marketplace.

TQM Dimensions

TQM has been coined to describe a philosophy that makes quality the driving force behind leadership, design, planning, and improvement initiatives. For this, TQM requires the help of those eight key elements. These elements can be divided into four groups according to their function. The groups are:

- I. Foundation – It includes: Ethics, Integrity and Trust.
- II. Building Bricks – It includes: Training, Teamwork and Leadership.
- III. Binding Mortar – It includes: Communication.

IV. Roof – It includes: Recognition.



Foundation

TQM is built on a foundation of ethics, integrity and trust. It fosters openness, fairness and sincerity and allows involvement by everyone. This is the key to

unlocking the ultimate potential of TQM. These three elements move together, however, each element offers something different to the TQM concept.

1. Ethics – Ethics is the discipline concerned with good and bad in any situation. It is a two-faceted subject represented by organizational and individual ethics. Organizational ethics establish a business code of ethics that outlines guidelines that all employees are to adhere to in the performance of their work. Individual ethics include personal rights or wrongs.

2. Integrity – Integrity implies honesty, morals, values, fairness, and adherence to the facts and sincerity. The characteristic is what customers (internal or external) expect and deserve to receive. People see the opposite of integrity as duplicity. TQM will not work in an atmosphere of duplicity.

3. Trust – Trust is a by-product of integrity and ethical conduct. Without trust, the framework of TQM cannot be built. Trust fosters full participation of all members. It allows empowerment that encourages pride ownership and it encourages commitment. It allows decision making at appropriate levels in the organization, fosters individual risk-taking for continuous improvement and helps to ensure that measurements focus on improvement of process and are not used to contend people. Trust is essential to ensure customer satisfaction. So, trust builds the cooperative environment essential for TQM

Building Bricks

Basing on the strong foundation of trust, ethics and integrity, bricks are placed to reach the roof of recognition. It includes:

4. Training – Training is very important for employees to be highly productive. Supervisors are solely responsible for implementing TQM within their departments, and teaching their employees the philosophies of TQM. Training that employees require are interpersonal skills, the ability to function within teams, problem solving, decision making, job management performance analysis and improvement, business economics and technical skills. During the creation and formation of TQM, employees are trained so that they can become effective employees for the company.

5. Teamwork – To become successful in business, teamwork is also a key element of TQM. With the use of teams, the business will receive quicker and better solutions to problems. Teams also provide more permanent improvements in processes and operations. In teams, people feel more comfortable bringing up

problems that may occur, and can get help from other workers to find a solution and put into place. There are mainly three types of teams that TQM organizations adopt:

A. Quality improvement teams or excellence teams (QITs) – These are temporary teams with the purpose of dealing with specific problems that often recur. These teams are set up for period of three to twelve months.

B. Problem solving teams (PSTs) – These are temporary teams to solve certain problems and also to identify and overcome causes of problems. They generally last from one week to three months.

C. Natural work teams (NWTs) – These teams consist of small groups of skilled workers who share tasks and responsibilities. These teams use concepts such as employee involvement teams, self-managing teams and quality circles. These teams generally work for one to two hours a week.

6. Leadership – It is possibly the most important element in TQM. It appears everywhere in organization. Leadership in TQM requires the manager to provide an inspiring vision, make strategic directions that are understood by all and to instill values that guide subordinates. For TQM to be successful in the business, the supervisor must be committed in leading his employees. A supervisor must understand TQM, believe in it and then demonstrate their belief and commitment through their daily practices of TQM. The supervisor makes sure that strategies, philosophies, values and goals are transmitted down through out the organization to provide focus, clarity and direction. A key point is that TQM has to be introduced and led by top management. Commitment and personal involvement is required from top management in creating and deploying clear quality values and goals consistent with the objectives of the company and in creating and deploying well defined systems, methods and performance measures for achieving those goals.

Binding Mortar

7. Communication – It binds everything together. Starting from foundation to roof of the TQM house, everything is bound by strong mortar of communication. It acts as a vital link between all elements of TQM. Communication means a common understanding of ideas between the sender and the receiver. The success of TQM demands communication with and among all the organization members, suppliers and customers. Supervisors must keep open airways where employees can send and receive information about the TQM process. Communication coupled with the sharing of correct

information is vital. For communication to be credible the message must be clear and receiver must interpret in the way the sender intended.

There are different ways of communication such as:
A. Downward communication – This is the dominant form of communication in an organization. Presentations and discussions basically do it. By this the supervisors are able to make the employees clear about TQM.

B. Upward communication – By this the lower level of employees are able to provide suggestions to upper management of the affects of TQM. As employees provide insight and constructive criticism, supervisors must listen effectively to correct the situation that comes about through the use of TQM. This forms a level of trust between supervisors and employees. This is also similar to empowering communication, where supervisors keep open ears and listen to others.

C. Sideways communication – This type of communication is important because it breaks down barriers between departments. It also allows dealing with customers and suppliers in a more professional manner.

Roof

8. Recognition – Recognition is the last and final element in the entire system. It should be provided for both suggestions and achievements for teams as well as individuals. Employees strive to receive recognition for themselves and their teams. Detecting and recognizing contributors is the most important job of a supervisor. As people are recognized, there can be huge changes in self-esteem, productivity, quality and the amount of effort exhorted to the task at hand. Recognition comes in its best form when it is immediately following an action that an employee has performed. Recognition comes in different ways, places and time such as,

-Ways – It can be by way of personal letter from top management. Also by award banquets, plaques, trophies etc.

-Places – Good performers can be recognized in front of departments, on performance boards and also in front of top management.

-Time – Recognition can given at any time like in staff meeting, annual award banquets, etc.

Conclusion

Management Information Systems is sets of inter-related procedures using information system infrastructure in a business enterprise to generate and disseminate the desired information. Such systems are designed to support decision-making by the people associated with the enterprise in the process of attainment of its objectives. The MIS gets data and

other resources of IT infrastructure as inputs from the environment and process them to satisfy the information needs of different entities associated with the business enterprise. There are subsystems of control over the use of IT resources and feedback system offers useful clues for increasing the benefits of information system to business. The MIS are subsystem of business system and by themselves serve the function of feedback and control in business system.

On the other hand, Total quality Management (TQM) is a description of the culture, attitude and organization of a company that strives to provide customers with products and services that satisfy their needs. The culture requires quality in all aspects of the company's operations, with processes being done right the first time and defects and waste eradicated from operations.

TQM without involving integrity, ethics and trust would be a great remiss, in fact it would be incomplete. Training is the key by which the organization creates a TQM environment. Leadership and teamwork go hand in hand. Lack of communication between departments, supervisors and employees create a burden on the whole TQM process. Last but not the least, recognition should be given to people who contributed to the overall completed task. Hence, lead by example, train employees to provide a quality product, create an environment where there is no fear to share knowledge, and give credit where credit is due is the motto of a successful TQM organization.

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