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A Review Paper on Implementation of TQM in Plastic Industry

Rushikesh V. Kokate[1], Anil A. Kurhe[2], Shubham V. Nikam[3], Sudhir S. Shinde[4],Ravindra S. Warkar[5], Snehal S. Parashar[6]

Mechanical Department, Pune University

[1,2,3,4,5]BE Student, [6]Asst. Prof. , Mechanical, SND COE & RC, Yeola, Maharashtra, India

Abstract*: *The TQM consists of an organization effects to install and make permanent a climate in which an organization permanently improves its ability to deliver high quality products. The TQM typically efforts to draw heavily on the permanently developed tools and techniques of quality control tools for improving the quality. When study investigated whether or not Total Quality Management is a source of competitive advantage in both service and manufacturing quality sections in India. The Maintenance of manufacturing systems are closely related functions of any organization has Over a period of time two concepts have emerged which are Total Productive Maintenance (TPM) and Total Quality Management (TQM) along with other concepts to achieve World Class Manufacturing system. In this review paper experience of implementing Quality and total Productive Maintenance is shared and investigated for a company manufacturing automotive component. Implementation of TQM is not just a management challenge is a Total quality management (TQM) was proposed to improve organizational of whole management and received considerable attention in current scenario. In current study has examined critically the extent to which TQM and organizational effectiveness are co-related to each other and the TQM impacts various phases of business planning to improve a product quality.

***Keywords*: *Total Productive maintenance, TQM, Quality Audit, DMAIC improvement, JIT*.**

I. INTRODUCTION

An Quality management states that the organization of product or service is consistent. It has four main components DMAIC (Define, Measure, Analyze, Improve, Control), Quality Audit, Total Productive Maintenance, Zero Defect and Just In Time like this all these parameters to improve Quality management is focused not only on product and service quality, but it also focused on the means to achieve it to quality. The Quality management uses quality assurance and control of processes as well as products to achieve more consistent quality. According to the American Society for Quality Control total quality management is a management approach to long term success through customer satisfaction an achievement of customer satisfaction. The aim of the any private c to company develop Total Quality Management program is to higher improve Quality with good management skills and quality along with increased employee morale. When the quality is the degree to which product likes up to its performance, productivity. The total quality management process in that the word total means the total of everything in an industry. That is must covers an all process job, resource, output.

II. METHODOLOGY OF TQM

The Total Quality Management (TQM) refers the management methods and used to enhance the quality and productivity in business management. TQM is a qualitative management approach that works horizontally across an organization, involving all departments and employees and customer, traders and all member of the comity backward and forward to include both suppliers and clients or customers. TQM is only one of many times used to label management systems that focus on quality. Other quality system include CQI (continuous quality improvement), SQC (statistical quality control), QFD (quality function deployment), QIDW (quality in daily work), TQC (total quality control) etc Like many of these other systems. The Total Quality Management provides to a framework for implementing the quality and productivity that can increase the profit and competitiveness of industry. In a Total Quality Management is the company wide range of philosophy that focuses on customer satisfaction. Every business improvement, quality improvement or continuous improvement process is part of TQM Methodology. A TQM company understands their customers and needs and A TQM Company works with their vendors and traders them TQM tools. A TQM company constantly trains their employees and helps them improve their quality. A TQM company thinks long term & Short term profits are not the

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immediate earn. Customer satisfaction is the focus on quality to implementing.

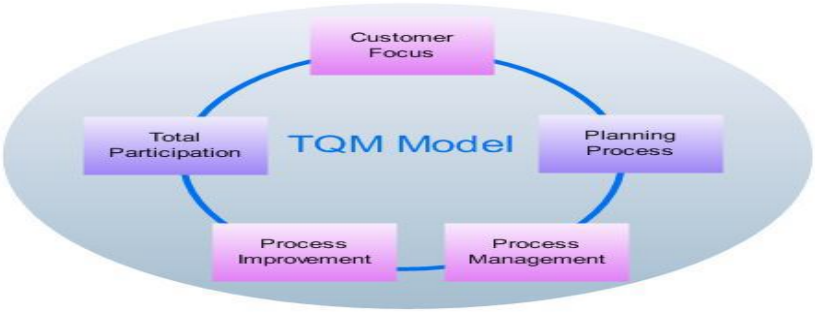

Fig 1: Methodology of TQM

A. Principals of TQM Methodology

1) 100% Commitment
2) Customer Driven
3) Detailed Process
4) Improvement Teams
5) Long Term Thinking
6) Management and Monitoring
7) Continual Improvement
8) Frequent Auditing
9) Employee Empowerment
10) Measuring and Controlling

III. SIX C'S OF TQM

For proper implementation of a TQM following Six C's are required

A. Commitment

The all employees of the organization must have quality improvement commitment. If a good TQM culture is to be developed in the organization, then quality improvement should become a normal quality development of part of everyone's job and a clear support and commitment from the top management must be provided. Quality issue is not a responsibility of a single employee since this cannot create an environment for changing mindset and breaking down the barriers to quality improvement.

B. Culture

An Organization must develop to follow the modern culture for quality improvement on a regular basis. Training and quality analysis on regular basis is very essential for bringing to change the culture and our attitudes. Management accountants, too often associate 'creativity' with 'creative high data quality work and associated negative perceptions.

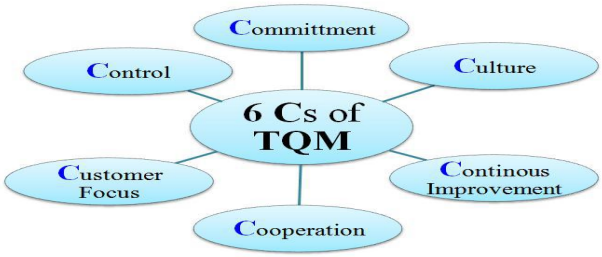

Fig -2: 6 C's of TQM

C. Continuous Improvement

There must be an continuous improvement in all policies, procedures and activities laid down by top management for the company. To overall Recognition that TQM is a progress not a quality necessary that we are committed work in the long term to the never-ending search for ways to do the job better. There will be always room for improvement of quality however the small or big.

D. Cooperation

The Cooperation amongst the employee and experience to employees must be utilized for improving quality strategies and enhancing performance of these quality. The application of Total Employee Involvement (TEI) principles is paramount on-the-job experience of all employees must be fully utilized and their involvement and co-operation sought in the development of improvement strategies and associated performance measures.

E. Customer

The long-time service of an the business organization must focus on customers requirements and satisfaction of their expectations. The needs of the customer are the major driving thrust is not just the external but the internal customer's Perfect service with zero defects in all that is acceptable at either the internal or external levels. T improve TQM implementations focus entirely on the external customer to the exclusion of internal relationships they will not survive in the short term unless they foster the mutual respect necessary to preserve morale and employee participation.

F. Control

They must be an effective control tools like quality for monitoring and measuring the real performance of the business strategy. The procedure of documentation awareness of current best practice are essential if TQM implementation is to function appropriately. The need for control mechanisms is frequently overlooked in practice Difficulties will undoubtedly be experienced in the implementation of quality improvement and it is worthwhile expounding procedure that might be adopted to minimize them in detail.

IV. QUALITY IMPROVING TOOLS

These are the following quality improving tools explained as follows:

A. DMAIC

The term DMAIC (Define, Measure, Analyze, Improve, Control) is means that the generation of quality improvement approaches adding concepts and quality improving methods tools and rearranging the quality policy terms to removing limitations to identified in management in line quality control. The DMAIC concept is studied for some years with an essential focus on the different tools used to improve quality. The DMAIC approach is a improvement procedure to achieve the quality implementation. Some evidence have the benefits of its implementation on the conditions on its success and difficulties have been produced in the industrial sector. This article contributes to the body of knowledge on DMAIC from the perspective of a service sector.

B. Quality Audit

The term Quality Audit is playing the important role of developing and improving the global economy of industrial business strategies. Management quality Auditors express the knowledge to the quality audit of financial statements. It is an important concept for users of financial statements to gain assurance that the data are being reported properly measured and fairly presented. Quality auditors must raise their knowledge and skills in order to increase the probability to rely more on the auditor's report. Audited financial statements which are more relevant unbiased and accurate for the decision makers. The Quality audit is the process of systematic examination of a quality system carried out by an internal or external quality auditor or an audit team. Quality audit is an important part of organization quality management system and is a key element in the ISO quality system standard ISO 9001. Quality audits are typically performed at predefined time intervals and ensure that the institution has clearly defined internal system monitoring procedures linked to effective action. This can help determine if the organization complies with the defined quality system processes and can involve procedural or results based assessment criteria.

C. Total Productive Maintenance

The term known as total quality management (TPM) is a concept of implementing in a phased manner in a machine shop or industry of a company manufacturing automotive components in every phase one TPM has to implementing in every sector. The Overall equipment effectiveness (OEE) is taken as a measure of success of TPM implementation and the two management strategies a minimum change exploitation strategy (kaizen) and a maximum output exploration strategy (kaikaku) have been applied in a manufacturing case in each study manufacturing system. TPM focus on improvement in equipment availability performance and quality with assuring health and safety of employees and protection of environment. Total productive maintenance helps for removing equipment part for breakdown and improving quality performance of equipment thus the achievement in TPM strongly supports in attaining the lean concepts which includes the elimination of waiting time and defects in process etc.

Total Productive Maintenance is characterized by five key elements namely

1) TPM aims to maximum equipment effectiveness.
2) TPM improves the system of Preventive Maintenance (PM) for the equipment's entire life span.
3) . TPM is cross-functional implemented by various departments (engineering, operators, maintenance, managers).
4) TPM involves every single employee.
5) TPM is based on the promotion of Preventive Maintenance through the motivation of management and autonomous Small Group Activity (SGA).

D. Zero Defect

The term zero defects is means that the management tool decision of the reduction of defects through prevention. The quality improving tool Zero Defect directed at the motivating people to prevent mistakes by developing a constant conscious desire to do their job right and better at the first time doing. Zero Defects was the management leading program to eliminate their defects in industrial production that enjoyed brief popularity. Quality expert Philip Crosby later incorporated it into his Absolutes of Quality Management and it enjoyed a renaissance in the American automobile industry as a performance goal more than as a program in the 1990s.

E. Just In Time

The term Just-in-time (JIT) is means that an inventory strategy companies employ to increase efficiency of quality, production, and management system. The term using to decrease waste by receiving goods only as they are needed in the production process thereby reducing inventory costs and removing wastage of row material. This method requires producers to forecast demand accurately. This inventory supply system like JIT represents a shift away from the older just-in-case strategy in which producers carried large inventories in case higher demand had to be met. The Toyota Production System Gravity Flow Rack (GFR) plays an important role in order to support the effectiveness of one of TPS principles which is Just in time (JIT) system. Main concerns of JIT are to implement pull system and regulate and control process of manufacturing based on actual market demand by producing the right product at the right time and in the right quantity. By introducing the GFR system in JIT production line Point of Use (POU) technique can be implemented at the line. The just in time technique used to helps the smooth the material production flow and reduce the distance walking of the operator so that the cycle time of the process can be reduced.

V. TQM AND ORGANIZATIONAL EFFECTIVENESS

The organizational effectiveness are talent management, leadership development, organization design and structure design of measurements and scorecards implementation of change and transformation deploying smart processes and smart technology to manage the firms human capital and the formulation of the broader Human Resources agenda. The TQM literature there are several fields which have contributed to the development of current knowledge namely organizational theory, strategic management, project management, production & operation management and finance. However we can see most of these fields have been studied separately which has resulted in fragmented and disputed findings. Organizational effectiveness (OE) is one of the most extensively researched topics from the early phase of development of organizational theory.

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Fig -3: TQM & Organizational Effectiveness

Organizational effectiveness & Performance measurement are integral part of all management processes and traditionally has involved management accountants through the use of budgetary control and the development of financial indicators such as return on investment. It is clear that TQM acts as a platform for organizations to enhance their competitiveness still many organizations have been disappointed in the extent to which TQM has been associated with constant improvements in organizational effectiveness. Performance management systems are like cornerstone of human resource management (HRM) policies and are the basis for developing a systems oriented approach to organization effectiveness. Theoretically a performance management system provides a linkage between organizational and employee goals through a goal-setting process and subsequently links employee goal achievements to a variety of HR management decisions through a performance measurement process.

VI. IMPLEMENTATION OF QUALITY REPORT


Before


After

The place is utilized by to check the quality of the component with Brinnel Hardness testing machine for inspection purpose.


Before


After

Chip conveyor tank which was delivered by CNC manufacturer by producing the well quality product.

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Before


After

To check the quality of each tool and also placed Proper places are decided for each tool.
TQM is quality improving process are enhancing the quality of goods and services delivered through the involvement of personnel at all levels and functions of the organization. The customer satisfaction through delivery of highest quality product through focused improvement defects are eliminated from the process after identifying the parameter of machine which affects the product quality and transition is from Quality Control to Quality Assurance. The condition is checked and measured in time series to verify that measured values are within standard values to prevent defects.

VII. CONCLUSIONS

Total Quality Management has been a technique to improve the quality for following tools like DMAIC, Quality Audit, TPM, Zero Defect and JIT are enhancing the quality of goods and services delivered through the involvement of personal at all levels and functions of the organization. Total quality management has examined the relationships between the Total quality management and organizational effectiveness. It has been observed that effective TQM implementations improve quality organizational effectiveness, long-term profitability and financial returns. Also higher intensity of TQM practices results in improved quality performance. There is a growing body of empirical research supporting a direct relationship between the adoption of Total Quality Management (TQM) and improved organizational effectiveness. TQM has been based on the quest for progress and continual improvement in the areas of cost, reliability, quality, innovation, efficiency and business effectiveness.

VIII. ACKNOWLEDGEMENT

We feel great pleasure to present the Dissertation entitled “Implementation of TQM in Plastic Industry”. But it would be unfair on our part if we do not acknowledge efforts of some of the people without the support of whom this dissertation work would not have been a success. First and for most we are very much thankful to our respected Guide Prof. Parashar S. S. for his leading guidance in this dissertation work. Also he has been persistent source of inspiration to us. We would like to express our sincere thanks and appreciation to Prof. Bhamre V.G. (HOD) for valuable support. Most importantly we would like to express our sincere gratitude towards our Friends & Family for always being there when we needed them most.

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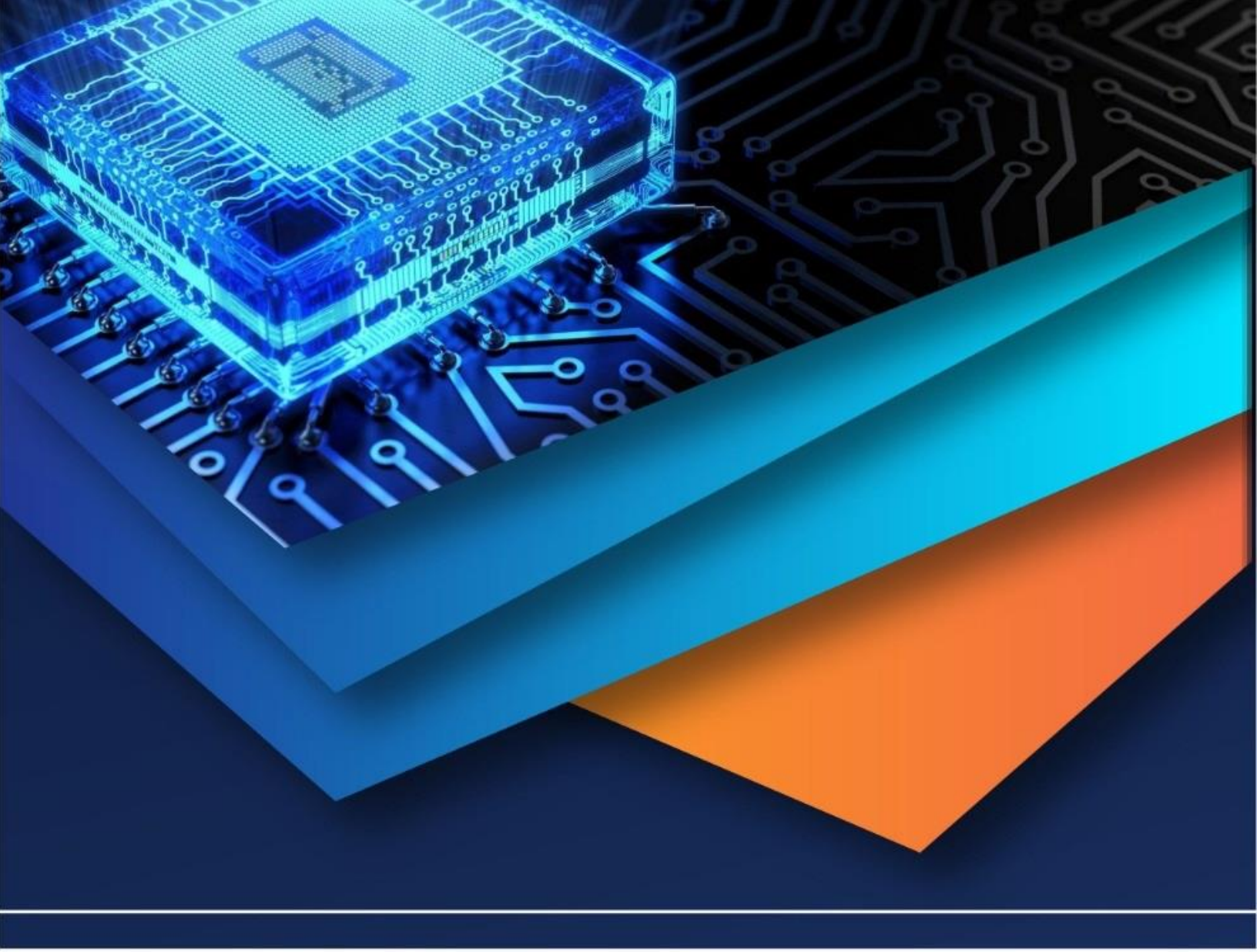

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