



Research Article

TOTAL QUALITY MANAGEMENT IN INDIAN AUTOMOTIVE FIRMS- AN EMPIRICAL FRAMEWORK

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ABSTRACT

TQM is a way to continuously improve performance at every level of operation, in every functional area of an organization, using all the available capital resources. This study is an attempt to identify the critical factors for TQM implementation through survey-based research carried out in Indian automobile industry. Questionnaire was prepared to measure the effectiveness of nine TQM practices including Top Management commitment, leadership, Customer Focus, statistical Process Control, and Benchmarking. Extents of various TQM aspects are investigated from data collected from 29 respondent and relationship between different TQM practices are investigated using them. Some findings are consistent with established TQM norms and some provides an understanding of the neglected domains of TQM in automobile sector. It is also observed that some specific TQM approaches have found their wide dissemination in a particular segment of industry.

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INTRODUCTION

It is known fact that concept of quality has been around for a very long time, but the stress on the word quality in every aspect of life i.e. in business, service or social life has increased in the last few decades. Quality has awakened all the nations, industries and organizations around the world. The word “quality” means different things to different people. The ranges of meanings include that quality is excellence, value, conformance to specifications, conformance to requirements, fitness for use, customer satisfaction, meeting and exceeding customers’ expectations and minimizing the loss imparted to society. Successful companies over the years have not fundamentally redefined the word quality; they have expanded it to design and service quality. Incorporating the customer’s requirements into the product design and services requires companies to change the way they treat their customers. Companies now need to translate the words and ideas of customers into product and service specifications (Kumar *et al.*, 2009).

One of the fundamentals of Total Quality Management is a long-term commitment to continuous improvement on the part of everyone in the organization. The second objection that usually arises in a liberal environment stems from TQM emphasis on benchmarks; on the identification of quantifiable

items so that data can be gathered and analyzed to substantiate the improved quality. TQM is defined as the Management approach of an organization centered on quality with a global strategy, based on the participation of all its members and aimed at long term profitability through customer satisfaction, including benefits to the members of the organization and society. (Sreehari, 2003). This study is an attempt to assess different TQM practices in automobile sector of Northern India and results are highly encouraging. Descriptive statistics and correlation analysis has been performed to ascertain the significance of different TQM practices towards performance improvement.

LITERATURE REVIEW

Juran (1989) explained the aspect of customer focus that it is aimed at determining the needs of a customer before he or she becomes aware of that. Product characteristics are categorized as “must be” and attractive”. These “attractive” chics are the latent or hidden requirements, meaning that if they are not present, customer is not aware they are missing. Their absence does not detract from level of customer satisfaction; however, if they are present satisfaction increases dramatically. Inspection through acceptance sampling etc. can be eliminated, if companies deal with suppliers under statistical control.

Carter and Narasimhan (1994) analyzed on the application of TQM to the purchasing function have been analyzed by they found several advantages of this, including implementation of best practice through benchmarking activities, identification of areas for improvement through quality management methodologies, application of quality management systems,

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tools and techniques, and improved team working. But they also identified the following problems:

- Poor levels of communication between purchaser and supplier.
- Inadequate supplier quality improvement processes
- Suppliers' lack of confidence and trust in the purchaser

Rao (1996) found many quality awards such as Malcolm Baldrige and CII- EXIM AWARD have assigned a high weight age to customer focus of the applicant organization. The author stressed that the relative effectiveness of a change program is contingent on the technology, values and strategy of each organization. TQM leads of the changes, and changes are always associated with many factors related to an organization, it can not be said of a TQM program that it context-free. Since TQM is an organization-wide function, organization theory should be used to describe, explain and improve it. Organization variables may have considerable effect on TQM practices and study of these effects could contribute to improve TQM performance.

Sinha and Subash (1998) found that Indian companies are increasingly committing to the concepts of total quality management (TQM). Liberalization of the Indian economy has posed new challenges to the manufacturers of fast moving consumer goods. Consumers now have a wide range of products to choose from. They demand that products of their choice be made available to them whenever and wherever required.

Obeng and Ugboro (2000) explained that this empowerment is effectively by being associated with employee satisfaction in terms of employee participation in the organization. Also, empowering employees by providing them access to job requirement information is associated with improvements in employee's participation. They also stated that top management, leadership and employee empowerment are considered two of the most important principles of total quality management because of their assumed relationship with customer satisfaction. Empowering employees to participate and be involved in an organization is strongly associated with job satisfaction in terms of equitable reward.

Chong and Rundus (2003) stated that quality difference can give a competitive edge to a company in the world market; therefore, high quality is driving force of new manufacturing practices. The firms that have adopted now TQM practices are enjoying tremendous cost saving, improved product quality, and reduced waste rate and optimal utilization of capacity.

Ismail and Maling (2005) highlighted the critical factors of TQM can be described as best practices or ways in which "firms and their employees undertake business activities in all key processes: leadership, planning, customers, suppliers, community relations, production and supply of products and services, and the use of benchmarking.

Masahiro and Kosaku (2005) underlined the process Strategic planning process of quality management which includes the operational plan to improve customer's satisfaction relates to external performance such as increasing market share and competitiveness.

Research Problem and Research Methodology

Research Problem

Indian automobile industry is a growing sector. TQM is also growing in Indian industry but how much TQM is affecting automobile sector is still a far away question. It is a study on implementation of different variables to know how much TQM is effective in this growing sector. Recent debates over the merits of new systems of work organization in the automobile industry are promoting TQM to reduce employee alienation and improve the quality of working life. This study also tries to explore the effects, which different organizational variables have on the implementation of TQM practices. An attempt has been made to know the extent of implementation of TQM aspects. Each organization operates with different kinds of sophistication and maturity.

Research Methodology

Research is an exercise full of trade-offs. Good research design should reflect the question being addressed. Decisions regarding subject of study, data collection procedures, and geographical location subject and so on are based on the degree of precision and control. High degree of these factors almost always translates into higher costs. Keeping these facts in mind, after evaluating the strength and weaknesses of various research designs, field survey method was selected. Present study covers the automobile industry and requirements for some generalizability of results over this segment. Case study method is not suitable for our purpose as it is difficult to generalize on the basis of a sample of one or two; also it is too time consuming. By keeping in view these considerations, a questionnaire based field survey of automobile companies was carried out. Measuring instrument is discussed in questionnaire design section.

Research Instrument and Respondent Characteristics

Research Instrument

For field survey, a questionnaire was used to measure TQM constructs and contextual variable. The data collection instrument consisted of two parts: the first solicited respondent's ratings on TQM aspects; the second part asked for the organization's details. In all 20 items were used in questionnaire. Perception regarding TQM practices sought on five-point scale. The five views are; "1= strongly disagree", "2=disagree", "3 = neutral", "4 = agree", "5 = strongly agree". A "CC = cannot comment" option was also added to avoid the bias resulting from the unawareness of the respondent.

Respondent Characteristics

A list of companies enlisted with Thompson directory was taken into account. From this list, keeping in view the time constraints 100 organizations were randomly selected which belongs to northern region Companies generally selected were distributed near Northern region. Total 100 companies were sent the questionnaires by different ways and in all 29 responses were gathered. In the sample all possible efforts were made to give representation to all constituents within the organization: For this responses were collected from different levels as well as functions. Initially the plan was to collect one response from each department and on average six from an organization. But, during data collection, even two responses were obtained from same department. Table.1 contains the distribution of respondents across levels and functions.

Table 1 Respondents' Matrix

Function	Top	Middle	Lower	Total
	Management	Management	Management	
HR	1	2		3
QA	3	1	2	6
R&D	2	1		3
Purchase	2			2
Marketing	2	2		4
Production	4	5	2	11
Total	14	11	4	29

Table 2 Reliability test of different TQM factors

Category Factors	Cronbach's Alpha
Top Management Support.	.7787
Leadership	.7403
Customer focus.	.8487
Statistical Process Control.	.7505
Benchmarking.	.7339

Three levels i.e. top, middle and lower management were considered. Top management includes personnel from the rank of executive directors and GMs, middle management include senior managers, engineers and assistant managers were included in lower management. In some organizations there is no independent department for quality; personnel from other functions are looking after related activities. Such quality respondents were considered as representing quality function. In some organizations researcher was referred directly to quality department heads. From Table 1 we can see that maximum numbers of responses are from top management. Maximum responses are from upper level (14) followed by middle (11). Production function (11) has major representation. Responses from other functions are nearly same in number (2-4) into the sample. Some of the data was collected by personal visits of researcher to every company. In the beginning of data collection, persons mentioned in the lists were contacted over telephone. After getting prior appointment from the person concerned, the plan and purpose of the study was explained. Full confidentiality regarding data was assured. Persons representing various department and positions were suggested as respondents. Appointments were fixed according to mutual convenience. Nearly all respondents were quite co-operative and responsive. Responses were received through E-mail and by post too.

Data Analysis

This section includes the validity and reliability of the content of questionnaire, descriptive statistics and correlation analysis used to validate the questionnaire towards performance improvement.

Validity and Reliability of Content

An instrument of measurement is valid if it measures what it is supposed to measure and reliability is the degree to which the results are consistent. Validity analysis is done by using one or more of the following methods: content validity, convergent validity, discriminate validity and criterion related validity. Convergent validity is the extent to which varying approaches to constructs measurement yields the same results. A scale exhibits discriminate validity if its constituent's items estimate only one construct. Criterion related validity is a measure of how well scales representing various TQM practices are related to quality performance (Criterion). An instrument has content validity if its items representatively sample the intended domain of the concept it is intended to measure. To ensure content validity of questionnaire, it was given to two experienced managers of reputed Industry. The questionnaire was modified to incorporate with their suggestions. Reliability test is conducted of the survey by finding out reliability from Cronbach's Alpha. Table 2 gives Reliability test of different TQM factors

Cronbach's coefficient alpha is used to assess inter-item reliability, with alpha values of 0.70 or higher considered to indicate acceptable reliability for established scales

CONCLUSIONS, LIMITATIONS AND SCOPE OF FUTURE WORK

Conclusions

The following conclusions are drawn from the survey:

Top Management Support

- The most important point is “Top management promotes to create the new ideas.”
- The high positive relationship has been found in following point's. If the vision and mission of the organization is long term it will help for the satisfaction and morale boosting of employees. Findings also suggest a strong and active role for top management in creating an organizational culture that promotes total quality.

Leadership

- The most important point is “Organization's commitment to quality facilitates and improving Organizational control”.
- The positive correlation gave the conclusion that when motivated employees work cooperatively, as a team that will lead to explore qualities in their leaders and supervisors that embrace the organizations focus on quality and change in all aspects.

Customer focus

- The most important point is “Continuously improving the product customer expectations are noted regularly and separately held.”
- The positive correlation gave the conclusion that with the help of TQM awareness surveys, organizations continuously improve the product, customer expectations and these points are noted regularly for future reference and further improvement.

Statistical Process Control

- The most important point is “Product quality is checked / inspected regularly. “
- The positive correlation gave the conclusion that if innovative ideas of co-workers are very appropriate and constructive it helps in controlling the process of internal benchmarking. After personnel have been trained, managers are giving them opportunities and awards to apply what they have learned; this ensures continuous improvement.

Benchmarking

- The most important point is “We are aggressive in our quality policy with respect to the competitors.”
- The positive correlation gave the conclusion that the internal benchmarking is carried out between departments and awards are given to the best departments thus its positive correlation with cost reduction is a good sign.

Limitations

A key source of bias may be the selection of respondents. As this study was cross-sectional, the causal relationship of findings might be reinforced by a longitudinal study. This study measures perception regarding TQM practices from the personnel above the supervisory level. Since supervisors enjoy the unique organizational position, midway between management and workers their inclusion might be resulted in less biased and more representative data. The cross-sectional design of the study is another limitation since it is not measuring pre and post TQM performance measures. Geographical location and absence of comprehensive statistical validity analysis may also result in some bias.

Scope of future work

This study can be extended by including manufacturing as well as service organizations. One (1) causal model relating TQM constructs and an organization's contexts (both internal and external such as environment, nature of competition, and market share) can't hypothesized and be tested. Greater validity can be ensured by including criterion variables such as TQM performance, product quality etc. in further study.

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