

Total Quality Management-An Extensive Literature Review

Palak Kakkar

Research Scholar Department of Commerce, Delhi School of Economics, University Of
Delhi,

Email ID: palak.kakkar18@gmail.com

ABSTRACT

This paper aims at studying the concept of Total Quality Management (TQM) and its likely benefits for the automobile sector in India. For this purpose, papers published across the world over the past few decades have been reviewed. Moreover, papers published in India related to TQM Accounting in the Automobile sector have been studied to analyse the level of success achieved and how further implementation of the concept across one's value chain can bring about plethora of benefits. The findings of this study reveal that TQM Accounting is an essential ingredient of corporate success measured in terms of better firm's value, satisfied customers, reduced costs and multiple benefits for other stakeholders. This paper contains six parts. The first part throws some light on the concept and need for TQM Accounting. The second part deals with the objectives of the study. The third part of the paper talks about the conceptual framework. The fourth part reviews the existing literature in the field. The fifth part highlights the scope for further research in this field of the study. Finally, the sixth part deals with the summary and conclusions of the study.

1. Introduction

In today's world of increased globalisation where organisations are looking for new means to gain or maintain the competitive advantage, it becomes imperative to ensure quality across the value chain. The concept of Total Quality Management (TQM) offers useful inputs in this regard. Although TQM as a concept was evolved decades back, its value still holds true even today as

customers are in a hunt for quality. No doubt, the organisations will experience a rise in their top line and bottom line values on account of reduced wastages, increased customer satisfaction, employee satisfaction, the protection of the natural and social environment and quality improvement.

The awareness of quality was heightened by the superior quality of Japanese export products in the 1970s and '80's. This inturn laid the groundwork for widespread change to technology and managerial principles of quality throughout the Western world. Such factors enticed the minds of theorists like Deming, Juran, Ishikawa, and Crosby to investigate more into the concept of TQM. It was argued that quality was a fundamental driver of productivity and performance. Accordingly, a number of definitions have cropped up in the past, the number of critical elements ranging from Juran's "trilogy" of managerial processes to Deming's 14 points on the concept of TQM

In the Indian context also, it becomes imperative to account for TQM, especially when the country is facing a new wave of increased investors 'interest across the globe. The concept even holds a special place in case of automobile industry where the quality is considered to be one of the building block of the industry. No doubt, a loss of even one customer can take a toll on profits of these companies. Thus, it becomes the need of the hour to implement

TQM and account for the same so that more customer satisfaction can be ensured by maximising one's quality.

2. Objective of the Study

The objective of the study is to analyze the level of TQM implementation in the Indian Automobile Industry and to account for the same in the financial books of these firms.

There is no such Accounting Standard in India that calls for accounting for TQM. One of the reasons for this could be that quality is a non-financial measure and is multi-dimensional; therefore assigning a monetary value to it appears a difficult task. But on the other hand, the need for the same is felt in this competitive world where quality has become one of the means to achieve competitive advantage.

Therefore, an attempt has been made to construct a framework that can financially account for transactions related to quality. On the basis of the rich and extensive research in the past, an attempt has been made to identify the variables that can measure the various dimensions of TQM and its impact on the financial performance.

Basically, the study would include the following:

- Determining and analysing the various dimensions of TQM in terms of its various costs and benefits.
- Determining the level of TQM implementation in the Indian Automobile Industry.
- Studying the impact of TQM Accounting on the financial

performance and goodwill of these companies.

- Analyzing and testing the relationship between TQM accounting and the financial performance.
- Interpretation of the results thereof that can contribute towards to existing literature and can be significantly used by the Indian Automobile Industry in its quest for Quality across the value chain.

3. Conceptual Framework

The relevance of TQM in the value chain analysis was recognised long back. The concept got its due share of recognition because of the various benefits that come attached with the implementation of TQM. However, the need for accounting for this concept is often ignored when it becomes difficult to justify its implementation because of lack of financial information on the same.

Quality means getting everyone to do what he or she has agreed to do and do it right the first time (Crosby, 1992). TQM is a concept based on continuous improvement in the performance of all processes in an organization in the quality of the products and services that are the outputs of those processes. The philosophy underlying TQM has been embodied in the Deming Chain Reaction Theory (Deming, 1986) which states that a chain reaction can be established if a firm first improves its quality, and then costs decrease because of fewer mistakes and delays. This should then result in reduced rework, improved use of time and materials, and ultimately improvement in total plant productivity.

However, when it comes to accounting for TQM, we often encounter a few problems. Often the job of cost accounting is restricted

to account for the unit cost of a product unit, something which financial accounting is considered incapable of doing. But in view of the changing environment and the complex situations that the Managers are facing, an urgent need has been felt to make the accounting information system multi-dimensional and flexible so that it can provide adequate information required for strategic decision making.

We analyze a few factors for and against TQM.

ARGUMENTS IN FAVOUR OF TQM ACCOUNTING:

The basic reason why accounting for TQM is given due recognition is the whole lot of benefits the companies implementing it can enjoy like improved productivity; improved customer service; improvements in throughput and value added per person ; reductions in defects and rework, improved morale and participation in the business by staff; reduced waste; less transport, moving, waiting, space, and physical waste, improved lead times. Moreover, Businesses are able to respond quickly resulting in fewer delays. Also since the work in progress and inventory is less, the capital requirements are also significantly reduced.

When the companies account for TQM, they are in a better position to take various strategic decisions. They achieve a competitive edge over others and are in a better position to analyse the changes in the environment on their financial position.

Moreover, accounting for quality is recognised world over by various international organisations. Even in India if a company

follows the guidelines as laid by ISO, it surely enjoys a better position in the market which in turn adds on to its goodwill.

ARGUMENTS AGAINST TQM ACCOUNTING:

However, a few researches in the past have found that no significant relation exist between the TQM implementation and the financial performance. Since, Managers generally base their decisions only after analyzing the cost-benefit ratio and when the cost of implementing TQM appears to be on the higher side, they often reject the proposition.

Measuring the cost of Quality is also a difficult task. Quality is multi-dimensional and people carry different perceptions about this concept. Moreover, since it is intangible in nature, there is no clear basis to assign any financial value to it. Breakdown losses, Set-up and adjustment losses, Stoppage losses, Speed losses ,Quality defect losses ,Equipment and capital investment losses are some of the losses that have been associated with TQM implementation. Thus, even today many companies measure quality cost referring to different bases and therefore, generally have no idea how much they actually spend on quality planning and control.

Moreover, there are other issues like who should be “blamed” for various costs or how to define who really caused the cost generation. Lack of Management interest in the implementation is another factor that acts as a hindrance. Also, if the staff is not well trained, they may see TQM accounting as an additional burden upon them.

Since there is no proven reliability of TQM accounting, Managers often consider the cost data unreliable and do not include them in decision making. Also, there is no proper timing when the TQM or TQM accounting should be implemented. One cannot even find answer to this question because comparability is not possible. It is argued that Production oriented companies find their quality costs higher than in service oriented companies

Thus, a complete set of arguments are in favour of and against TQM accounting. Now, it depends on the orientation of the organisation and the Management's perception how they take up the concept of TQM and account for the same in their books. No doubt, investment in quality pays in terms of increased profits and higher customer loyalty but such benefits must be weighed against the cost of implementing TQM and accordingly, a decision should be taken.

4. Literature Review

TQM AND MANAGEMENT ACCOUNTING.

A number of researches have been conducted to analyze the ability of management accounting in accounting for TQM. The concept of TQM essentially falls into the realm of management accounting as it offers useful inputs to the Management while taking various decisions related to productivity.

Bruce Gurd et al (2002) conducted an exploratory study of responding to TQM to find out factors that hinder the implementation of TQM based accounting system. They have rightly defined 'accounting lag' as the lack of response of management accounting system that holds back the improving performance of

the organisation. Thus, such rigidity fails to account for non-financial factors like quality. The study was conducted at six diverse manufacturing sites. The impact of education, sponsorship and alignment on accounting lag was studied. The results suggested that management commitment, strong leadership, education and training programmes and customer focus reduces accounting lag whereas fear of change is one factor that highly contributes to accounting lag.

Maja Andrijašević*(1998) argued that lack of quality among the various manufacturing processes was the main reason behind the poor ranking of Serbian countries across the world. It was duly acknowledged that cost accounting has the potential to account for TQM, especially in an environment where quality plays an immense role due to shift of competitive battle from price to non-price instruments. Moreover, the survival of the firms has become dependent on the desire and ability of the firm to orient itself towards quality and consumer satisfaction. This calls for an investment in quality processes across the value chain. However, such an investment can only be ensured when Quality can be stated in financial terms and a cause and effect relationship between quality and financial outcomes be ensured. Infact, a number of problems are faced in its measurement like what should be the area of measuring quality; the various causes for measuring such data; who should be held responsible for such costs; to whom such costs have to be reported; the number of staff members to be involved; to what extent the data collected can be considered accurate; when is the best time to apply TQM processes and would the data be comparable enough across successful and unsuccessful initiatives.

Shirley J. Daniel And Wolf D. Reitsperger (1991) have linked quality strategy with management control systems by doing an empirical study on Japanese industry. The aim was to find out the degree to which management control systems have been modified to complement new manufacturing techniques, like total quality control and zero defect strategies. Quality strategy of 26 Japanese automotive and consumer electronics firms were measured by a set of eight attitude questions addressing whether the managers adhered to a traditional economic conference level (ECL), quality management strategy or a “zero defect” quality management strategy. The relationship of quality strategy with the type and frequency of quality goal and feedback information was also measured. The results indicated that the management control systems supporting a zero defect quality strategy were more likely to include regular goal-setting and more frequent feedback relating to quality than those supporting an ECL quality strategy. Widespread use of quality cost targets and feedback was also related to a zero defect strategy.

TQM AND ORGANISATIONAL PERFORMANCE.

R. L. Shrivastava et al.(2006) have examined the need to design and test a diagnostic instrument, relating to the factors affecting TQM and organisational performance. Based on the model developed by Mohanty and Lakhe (1998) for Indian organisations, a contingency theory for TQM assessment was made. 18 variables, considering the Indian National setting, were selected to study the factors impacting TQM as well as

Organisational performance. The data collected was factor analysed and multiple regression analysis was conducted to test the causal relationship. Pro-active business orientation emerged as the strongest quality dimension influencing all five measures of organisation performance. Moreover, Organisations desirous of improving their business results and profitability need to concentrate on competitive assessment and pro-active business orientation. However, internal support and participatory orientation do not seem to have significant impact on business performance. Assessment of competitive strategies, benchmarking, risk taking ability and good supplier relations were seen to propel the business results.

Neena Sinha Ajay K. Garg Neelam Dhall (2016) have analyzed the effect of TQM principles on the performance of Indian SMEs by considering the case of automotive supply chain. A sample of 120 Indian Auto component SMEs that are ACMA (The Automotive Component Manufacturers Association of India) members were taken and the questionnaires were answered by the Quality Heads. The measure of Organisational Performance was conceptualized using three variables-customer results, process results and employee results which were measured using 17 performance indicators. The overall mean scores and correlation coefficients were found to analyze the data. The study concluded by recommending implementation of TQM in Indian SMEs as it can greatly enhance their global competitiveness. However, the fact was acknowledged that changes in external factors like industrial unrest may lead to different conclusions for the same study.

Hendricks (2016) have used a sample of quality award winners to empirically test the impact of firm’s characteristics (like firm size,

the degree of capital intensity, the degree of diversification, the timing of TQM implementation and the maturity of the program) on the successful implementation of total quality management (TQM) and its subsequent impact on operating income. The performance change over at least a 4-year period of 435 winners was studied so as to yield results based on the concept of continuous improvement as entailed by TQM. The significant findings of the study included that smaller firms outperform larger firms and firms with awards from independent award givers do better than the supplier award winners. However, no sufficient evidence supported the hypotheses that less capital-intensive firms do better than more capital-intensive firms, and more focused firms do better than more diversified firms.

Bacidore et al(1997) analysed the relationship between Economic Value Added(EVA) and TQM. It was rightly concluded that the goals of TQM and EVA are mutually consistent and both the systems complement each other in ensuring better corporate performance.

Quality circle programmes, as introduced by Ishikawa, are an important ingredient of the success of any TQM programme.

S.R.Devadasan et al(1998) have claimed that lack of financial accountability causes management to underestimate the contribution of quality circles. Thus, an attempt was made to present the present the financial statements of quality circle programme which could inturn help in measuring and analyzing the impact of TQM on financial performance. The adoption of 9 subsystems of QIS was suggested. However, the fact has also been duly acknowledged that developing all the subsystems appears impractical due to networking problem. Thus, it has been

suggested to develop QIS for the most effective quality strategy and replicate its success to others in a phased manner. The study concluded on a positive note by stating that companies may benefit by implementing QIS. However, it was acknowledged that more research needs to be done in this area. Moreover, it was suggested that ISO takes an initiative in this regard by releasing a subsidiary standard on QIS that would further encourage companies or organisation to take this up.

K.M. York, C.E. Miree (2004) have tried to statistically test the link between the implementation of TQM methods and financial performance, i.e., whether there is any cause and effect relation or is it just a matter of co-variance?For the said purpose, the financial performance of each quality award winner was compared against its entire SIC group and the reference group both before and after winning a quality award. Moreover, three sets of financial performance measures (The Hendricks and Singhal (1997) measures, The “Fortune” measures, The Kaplan and Norton (1992) measures) are used to evaluate performance.The study concluded by saying that one must not be tempted to say that since the firms wee TQM managed, it gave them the competitive advantage. Nevertheless, the results found that in general TQM-managed firms were strong performers both before and after winning an award.

Boyne and Walker (2002) have evaluated the available evidence on the impact of TQM on performance with an objective to use such results for public sector organizations. Dean and Bowen's definition of TQM was used for the study. According to Dean and Bowen, a total quality approach to management is characterized three principles-customer focus, continuous improvement (as a process rather

than outcome), and teamwork. The conclusions suggested that TQM is indeed the need of the hour and the same must be taken up by public service organizations. However, the same must be taken up considering the various typical factors associated with one's organization.

Husam Aldeen Al-Khadash and Mete Feridun (2006) studied the impact of Strategic Initiatives (ABC, JIT and TQM) in Management Accounting on Corporate Financial Performance by taking evidences from Amman Stock Exchange of 56 industrial shareholding companies in Jordan. Ordinary Least Squares Regression analysis was used to test the association between the awareness level of the importance of using the initiatives and the level of adopting these initiatives. The research concluded by stating that it is important for management accountants to understand not only how to account for strategic initiatives (e. g., TQM), but also how these initiatives should be implemented and managed to achieve maximum benefit for the firm.

P. O'Neill et al (2016) have analysed Quality management approaches and their impact on firms' financial performance in the Australian context. The work of several authors was studied to develop quality orientations for small Australian manufacturing firms (SAMFs). The longitudinal panel data gathered by the Australian Bureau of Statistics growth and performance survey from financial year 1995 to 1998 were used for the study. Capital Labour ratio (CAPLAB) and Value Added Labour (VADLAB ratio) were used for the study. It was reported that slightly more than 55 per cent of firms in the sample had made a step towards some form of quality programme. Moreover, on averaging the two performance variables (CAPLAB and

VADLAB) and the (contextual) covariates over the three years following a quality assurance commitment in the 1995–96 panel showed that there was a significant difference in the performance across groups. Thus, it was concluded by saying that the effect of TQM on financial performance was independent of winning a quality award, but was dependent on QM maturity (i.e. Nil QM, FORMQ, INFRMQ, and EXTQ).

Ali Kurt, Cemal Zehir (2016) have showed the relationship between cost leadership strategy, and Turkish firms' financial performance with the total quality management as the mediator. The study has rightly highlighted the importance of achieving competitive advantage by means of cost leadership. After subjecting the hypothesis to the multiple regression analyses performed with the path analysis method, the study concluded that TQM applications had formed a complete mediator effect at relationship between the cost leadership strategy and financial performance, making the study a must read for those Managers who place cost leadership strategy as their starting point of competitive advantage.

COST OF TQM ACCOUNTING

Paramjit Kaur (2009) has analysed and assessed the status of cost of quality in the Indian context to gain insights into the extent of its use for managerial decision making in the value chain analytical framework. It becomes imperative to ensure quality so as to achieve competitive advantage in the highly competitive world. Following Deming's chain reaction theory, quality ensures that wastages are eliminated leading to lower costs and in turn higher profits. However, to understand the above chain, one first needs to define and measure the Cost of Quality (COQ).

According to Crosby, quality is free as improving more than pays for itself by creating higher profits. What costs money is actually failure to do things right in first time. Therefore, Quality costing is defined as the sum of costs incurred by the company in preventing poor quality, in ensuring that the requirements are met, and any other costs incurred as a result of poor quality products. Accordingly, COQ has been classified into four categories:

- Prevention cost- cost of activities designed to prevent poor quality in goods and services.
- Appraisal cost- costs incurred to ensure products and services confirm quality standards.
- Internal failure cost- cost resulting from products or services not confirming to customer's requirement but which occur prior to its delivery to the customer
- External failure cost- cost resulting from products or services not confirming to customer's needs but which occur after delivery to the customer

Prevention costs and appraisal costs are called conformance costs. Internal failure costs and external failure costs are called non-conformance costs.

The study concluded by highlighting the importance of the Cost of Quality measure in providing financial as well as non financial cost information which inturn shall facilitate implementation of strategic decisions and management of non-value added activities. However, the quality measure must be customer focused because quality failure can be identified only by customers. Moreover, the cost of ignoring quality is very high as is reflected in lost sales

Takehisa Kajiwara(2009) has examined the factors that influence the use of quality cost in TQM (Total Quality Management) environments by using survey data collected from Japanese Manufacturing firms. Field interviews were conducted with quality control staff of ten manufacturing firms which were chosen for their high level of diversity in the use of quality costs. The results of the study indicated that quality costs are used in particular situations even in TQM environments. Specifically, the results showed that firms with a high degree of quality risk, shortened product development cycles, inspections, and interdependence among units were likely to use quality cost in TQM environments.

5. Scope for further research

Analysing the enriching work done in the past was an enriching experience. Useful insights for future research were obtained for future work.

Although, considerable amount of research has been conducted in the area of TQM but a lot can be done in the area of accounting for TQM. Moreover, the number of researches done in the Indian Automobile Sector is also significantly less. Thus, this is one area wherein more detailed study can be conducted.

Moreover, most of the past studies have tried to establish a link between TQM and organizational performance. But the aim of this study is to find out the impact of TQM efficiently the TQM information can be utilised to assist Management in Strategic decision making. Also, a lot of scope for research is seen in the area of establishing a framework that can conduct a cost-benefit analysis of TQM accounting.

A framework can even be designed that can assign monetary values to the various non financial dimensions related to various aspects of TQM. A suitable basis of determining the various aspects of quality and the financial performance would be required for the same as a lot of inconsistency on these matters was found in the Literature Review.

Also, compatibility of accounting softwares with the various dimensions of TQM is one area that can be extensively researched upon. This is even more required in the tech savvy world where the Managers are heavily dependent upon computer softwares for their accounting work. This would surely add to the existing stock of knowledge and can even lead to technological innovation in the field of accounting softwares.

In the absence of any accounting standard on TQM Accounting in India, an attempt can be made in making policy recommendations in this direction. This will intun encourage more and more companies to account for their quality management processes. This will ensure availability of more information to the various interested parties for their decision making. Even the customers will be able to avail more information on quality processes undertaken by their trusted companies and can accordingly make their healthy purchases.

6. Summary and Conclusions

Total quality Management is an effective tool of ensuring quality across the value chain. It is a mechanism which is built upon the concept of teamwork in the organisation which entails a fall in the

amount of wastages and an optimum increase in productivity. But just implementing a TQM program is not enough. One must ensure its efficiency by conducting a cost benefit analysis which intun can be done with the help of TQM accounting.

Thus on the basis of study of the previous research done, one needs to look into the following points:

- Adopting a TQM accounting program brings along a number of benefits. It assists the Management in taking various strategic and pricing decisions.
- Implementation of a system that can account for the cost of quality is equally important. Four costs of ensuring quality have been described in the literature-Prevention cost, Appraisal cost, internal failure cost and External failure cost.
- A number of measures for measuring the organisational performance have been used in the literature. Return on Assets, Return on Investment, operating profit, Value added labour Ratio, Capital added Labour Ratio, Economic Value Added is some of the measures. However, there is no consensus on what actually constitutes an organisation' financial performance.
- On the same lines, a number of measures have been identified to represent quality. This includes reducing the number of defects or reworks, increased customer satisfaction number or reduction in the number of complaints. However, again there is no consistency on what all is included within the realm of the term 'quality'.

- The impact of having international recognition for TQM implementation has also been studied. Getting an award for ensuring TQM surely increases the motivation levels of the staff and the goodwill of the company. But there is no surety that an award winner will perform consistently better in the future. Also, there is no consensus about what constitutes the basic characteristics of an award winner. However, no such awards are prevalent in India.
- Since TQM is multi-dimensional and qualitative in nature, assigning a monetary value to it is a pretty difficult task. Also, there is no clear basis or parameter for assigning such value. Thus, it totally depends upon the discretion of the Accountant to select a
- There is a need to ensure compatibility of accounting softwares with the concept of TQM accounting.

Thus we may conclude that investment in TQM accounting contributes positively. It is recommended that TQM accounting be taken by the Indian automobile industry, this is particularly important because quality is an essential ingredient of their success and a loss of even a single customer can cost them heavily.

References

- [1] Ali KURTand Cemal ZEHİR, The relationship between cost leadership strategy, Total quality management applications and financial Performance, *Doğuş Üniversitesi Dergisi*, 17 (1) 2016, 97-110
- [2] Bruce Gurd, Malcolm Smith And Andrew Swaffer, Factors Impacting On Accounting Lag:An Exploratory Study Of Responding To Tqm, *British Accounting Review* (2002) 34, 205-221.
- [3] Crosby, P. 1992. *Quality is Free*, New York, McGraw-Hill.
- [4] Deming, W.E. 1991. A Seminal thinker takes a detailed Look at the quality of quality, *Automobile Magazine*, October : 106-11.
- [5] George A. Boyne and Richard M. Walker, *Total Quality Management and Performance: An Evaluation of the Evidence and Lessons for Research on Public Organizations*, *Public Performance & Management Review*, Vol. 26, No. 2 (Dec., 2002), pp. 111-131.
- [6] George S. Easton and Sherry L. Jarrell, *The Effects of Total Quality Management on Corporate Performance: An Empirical Investigation*, *The Journal of Business*, Vol. 71, No. 2 (April 1998), pp. 253-307.
- [7] Husam Aldeen Al-Khadash and Mete Feridun, *Impact of Strategic Initiatives in Management Accounting on Corporate Financial Performance: Evidence from Amman Stock Exchange*, *Impact of Strategic Initiatives in Management Accounting*, Volume 4 · Number 4 · winter 2006.
- [8] Jeffrey M. Bacidore, John A. Boquist, Todd T. Milbourn, Anjan V. Thakor, *EVA and total quality Management*, *Journal Of Applied Corporate Finance*, pp 81-92.
- [9] K.M. York, C.E. Miree (2004), *Causation or covariation: an empirical re-examination of the link between TQM and financial performance* , *Journal of Operations Management* 22 (2004) 291–311
- [10] Maja Andrijašević, *Total Quality Accounting*, DOI: 10.2298/EKA0876110A.
- [11] Neena Sinha Ajay K. Garg Neelam Dhall, (2016), "Effect of TQM principles on performance of Indian SMEs: the case of



automotive supply chain", The TQM Journal, Vol. 28 Issue 3.

[12] Paramjit Kaur, Current Cost of Quality Management Practices in India in the Era of Globalization: An Empirical Study of Selected Companies Decision, Vol. 36, No.1, April, 2009.

[13] R. L. Shrivastava , R. P. Mohanty & R. R. Lakhe (2006) Linkages between total quality management and organisational performance: an empirical study for Indian industry,

[14] Production Planning & Control, 17:1, 13-30

[15] Takehisa Kajiwara, Factors influencing the use of quality costs in TQM environments: Evidence from Japan, December 2009