

A Theoretical Framework for Soft dimensions of Total Quality Management

Dr Tripti Singh
tripti @mnnit.ac.in

Prof Geetika
geetika@mnnit.ac.in

Mr Rameshwar Dubey
rameshwardubey@gmail.com
School of Management Studies,
Motilal Nehru National Institute of technology
Allahabad-211004, India

Abstract— Total Quality Management (TQM) has evolved as a widely acceptable philosophy and practice for achievement of organisational objectives.

The principal contributions to the analysis of TQM and its operation have come from thinkers in the Operations Management area (Oakland[64], Dale & Plunkett[19], Dale, [18]). This has led to a preoccupation with the so-called “hard” production-orientated aspects of TQM. This has resulted in ignoring “soft” Human Resource Management (HRM) characteristics, which is an important dimension for successful implementation of TQM. This paper attempts to propose a framework for emphasising the role of soft dimensions in successful implementation of TQM. An exhaustive Literature Review is carried to delineate the evolution of TQM, identify the critical success factors for TQM implementation with special attention to soft dimensions, its constructs and items. Important constructs identified are viz: the role of leadership, HR philosophy and systems, role of HR functions and relationship with partners. Definitions of these constructs are presented and items developed to provide an important conceptual background. Finally a theoretical background is proposed, to understand the relationship and role of soft dimensions in effective implementation of TQM.

Keywords- Total Quality Management, Effective

Implementation, Soft dimensions

I. INTRODUCTION

Quality management (QM), also called Total quality management (TQM), evolved from many different management practices and improvement processes (Magutu et.al [52]). It permeates the entire organization. Rather than trying to inspect the quality of products and services after they are complete, TQM instills a philosophy of doing the job correctly the first time. Implementation of the TQM process requires an organizational culture and climate that are often alien to the existing systems and processes and are at times intimidating. TQM is a time taking activity and bears fruits only with passage of time. Luft, [51] says that it may take up to ten years to realize the results of total quality management.

Effective implementation of TQM requires not only hard dimensions like statistical control systems, operational management but also soft dimensions involving Human

skills and functions. Though TQM has emerged as an important “thought revolution” (Ishikawa,[36]), yet there is an increasing evidence that TQM has not fulfilled its promise (see recent surveys and reports eg Kearney, [44], Miller, 1992, Cruise, O’Brien & Voss, 1992, The Economist Intelligence Unit, 1992, Wilkinson et al [89]).

For the most part, however, the principal contributions to the analysis of TQM and its operation have come from thinkers in the Operations Management area (Oakland[63], Dale & Plunkett, [19], Dale, [18]). This has led to a preoccupation with the so-called “hard” production orientated aspects of TQM and resulted in ignoring “soft” Human Resource Management (HRM) characteristics. Furthermore many of the problems arising appear to have been those relating to Human Resource (HR) issues such as management style, attitudes and culture. Thus the limitations of TQM can be at least partially attributed to the neglect of human resource policies in the organization and a failure to align the HR policies with TQM to ensure integration. These critical “soft” issues are apparent from most reports and research yet remain relatively unexplored in comparison with the use of quality management tools and techniques and quality systems (Wilkinson, [90]).

However the past few years has seen a shift in emphasis to human resources within the quality area and the growing interest of personnel specialists.

The present study identifies the role of soft dimensions for effective implementation of TQM.

II. HISTORICAL EVOLUTION OF THE CONCEPT OF QUALITY SYSTEMS

The advent of soft issues in quality management can be explained with the help of a summary of evolution of stages of quality management namely; Quality Inspection, Quality Control, Quality Assurance and Total Quality Management (TQM) (Dahlgaard et al., [17]).

Quality management has its genesis in the factory system that developed as an outcome of the Industrial Revolution. Products were made from non-standardized materials using non-standardized method. The only real standards used were measures of dimensions, weight, and quality. The most common form of quality control was inspection made by the

purchaser where poor quality product found would be separated from acceptable quality product and then would be scrapped, reworked or sold as lower quality. Inspection took place mainly to ensure that the sorting of conformance and non-conformance product can be done and mostly involved visual inspection or testing of the product following manufacture.

With further industrial advancement, came the second stage of TQM development and quality was controlled through supervised skills, written specification, measurement and standardization. Frederick W. Taylor developed his system of scientific management, which emphasized productivity at the expense of quality such as work-study. Methods of statistical quality control and the development of Shewhart's control chart, acceptance-sampling methods by Dodge-Roming during the period 1924-1931 helped this era to prosper further from the inspection era (Dahlaggaard et al.,[17]).

The third stage of quality evolution is an emphasis of the change from detection activities towards prevention of poor quality or defects. In this stage, called Quality Assurance, aim was to provide sufficient confidence that a product or service will satisfy customers needs by performing systems audit, Failure Mode and Effect Analysis, design of experiment and similar initiatives. Other activities such as comprehensive quality manual, use of quality cost, development of process control and auditing of quality system are also developed in order to progress from quality control to quality assurance.

The last stage of this development, i.e. TQM, involves the understanding and implementation of quality management principles and concepts in every aspect of business activities. Utilization of these activities provides the customer with the best product or service at the lowest cost. The aim should be continued quality improvement, This is because anyone is able to produce or sell a product at a lower cost but not everyone can offer value with that product (Tang, [84]).

The development of TQM can be expressed as follows

- - It was an initiation of Operations management area
- - The initial Quality programs were concentrated on Quality control systems and statistical techniques
- - Cost cutting , waste reduction and Quality products were the basic objective.
- - TQM emerged as a philosophy to implement Quality systems with focus more on soft issues as well.

This paper attempts to propose a conceptual framework for emphasizing the role of soft dimensions in effective implementation of TQM. An exhaustive literature review is

carried out to understand the conceptual development of TQM, to highlight the importance of various contributors and to identify the dimensions that lead to effective implementation of TQM. The focus of the study is on identifying the soft dimensions of TQM and finally to propose a theoretical model for the same.

III. DIMENSIONS FOR EFFECTIVE IMPLEMENTATION OF TQM

Keeping the research objectives in mind an attempt is made to understand the key dimensions which are important for successful implementation of TQM, identified by different researchers and professional bodies (Table 2)

TABLE 2: DIMENSIONS FOR EFFECTIVE IMPLEMENTATION OF TQM

Key Dimensions	Dimensions	Author (Yrs)
Soft Dimensions	Leadership Commitment, total customer, teamwork, satisfaction , Employees perspectives, training and education , reward and recognition, Learning Culture, Adoption and communication of TQM, Partnership and resources People & Society results	Saylor [81] Wilkinson, Godfrey and Marchington [91] Anderson et.al[3] Oschman[67] EFQM criteria[34] MBNQA [53]
Hard Dimensions	Tool and Techniques, Ensuring Conformance to performance standards, Key Performance Results, Flexible Manufacturing, Strategic planning, Continuous Improvement, Zero defects mentality, Knowledge and Process management,	Saylor [80] Wilkinson, Godfrey and Marchington [91] Anderson et.al[3],Oschman[67] EFQM criteria[34] MBNQA[53]

Though these concepts have evolved independently from operations function on one side and Human resource function on the other side, it is proposed that the relationship must be established between the two dimensions cohesively.

The subsequent section further studies the dimensions in detail to understand the variables and their role in successful implementation of TQM. Here researcher focus on Soft dimensions which are Critical Success factors for implementation of TQM. The various dimensions are summarized in Table 3.

TABLE 3: SOFT DIMENSIONS FOR SUCCESSFUL IMPLEMENTATION OF TQM

Constructs	Source	Definition(s)
Leadership	Juran and Gryna [38]	Management role to establish quality policies, goals, and to provide resources, problem oriented training and stimulate improvement.
	Anderson et al.[3]	The ability of top management to establish practice and lead a long term vision for the firm, driven by changing customer requirements as opposed to an internal management control role.
	European Quality Award [53] & MBQA [53]	Leadership is crucial in creating the goals, values and systems that guide the pursuit of continuous performance improvement.

	Minjoon et al. [61]	They are expected to set quality as a priority while allocating adequate resources to continuous quality improvement and evaluating employees based on their performance.
Customer Satisfaction	Deming [21] Flynn et al.	Customer is the most important part of the production line; product should be aimed at the needs of the customer
	Feigenbaum [25] Philips Quality [70]	To improve customer focus efforts, customer complaints should therefore be treated with top priority.
	Juran and Gryna [38]	Rely on customer complaint information to identify the "vital few" complaints that demand indepth study in order to discover the basic causes and to remedy those causes.
	EFQM [34]	Customer Satisfaction measures are used to understand the factors that drive market.
People Results	Tenner & DeToro [8]	Educating and training all employees into the mission, vision, direction, and strategy of the organization as well as the skills , to secure quality improvement and resolve problems.
	Bergman & Klefsjo [6]; Tenner & DeToro [6]	People Result is a process designed to empower members of an organization to make decisions and to solve problems related to their level in the organization.
	Irianto [12]	To realize the potential of working capability, and to engender communication, participation, trust, teamwork, empowerment, personal development and pride.
Partnership & Resources	Hong & Satit[32]	The organization plans and manages its external partnerships and internal resources in order to support its policy and strategy and the effective operation of its processes.
	EFQM [34]	External partnerships and finances are managed , performance requirements are carefully defined and used to select suppliers and partnerships.
Human Resource Focus	Mahour, [53]	Quality results are effective by human resources focus and processes management
	Parasat [70]	Total quality management practices relates to product design and development and human resources management focus
	Jones [39]	Investment in training and development; a new values and norms; new definition of reward and promotion system; improving organizational learning and decision-making
	Karia & Asaari [43]	Companies need to invest in the development of the workforce through education, training, and opportunities for continued growth.
	EFQM[34]	Work and Jobs are carefully designed, organized, and managed to provide opportunities for individual initiative and self –directed responsibility
Empowerment	Brymer [63], Ugboro and Obeng [63], Denham Lincoln et al. [63]. Bowen and Lawler (1992)	A process of decentralizing decision making in an organization, whereby managers give more discretion and autonomy to the front lines employee. Sharing with front-line employees information about rewards based on organization performance and enable them to contribute to the organizational performance.
	Cherrington [13]	Acquisition of specific skills or knowledge, to perform particular activities or a specific job.
Training	Brown [63]	Training is the second most commonly used TQM implementation practice in USA.
	Kappelman and Prybutok [63]	Training provides an opportunity to empower and motivate employees, reduces employee resistance and increases chances of TQM success.
	Karia & Asaari [43]	Training and education have a significant positive effect on job involvement, job satisfaction, and organizational commitment
	Karia & Asaari [43] Thiagarajan & Zairi [88] Wilkinson, Godfrey and Marchington [90]; Oschman[67]	The need for effective communication is for the development of awareness and building commitment to quality in an organizations environment.
Communication	Thiagarajan & Zairi [88]	Open two-way communication also helps to foster good employee and employer relationship.
	Oschman[66]; Wilkinson, Godfrey and Marchington ,[91]	Feeling of togetherness, empowered employees, no compromise with success.
Culture	Woods [92]	Shared beliefs, values, attitudes, institutions, and behavior patterns that characterize the members of a community or organization. In a healthy business culture, what's good for the company and for customers comes together and becomes the driving force behind what everyone does.

On basis of Table 3, we can conclude following soft dimensions for successful implementation of TQM. The definitions of the identified dimensions are presented from the researcher perspective:

Leadership is considered as a major driver which has significant influence on implementation of TQM. Leadership refers to how leadership guides, supervises and controls personnel of a firm in an appropriate manner to achieve the objectives of TQM. It draws the Quality vision and mission and its long term objectives. It provides the necessary resources for training employees to meet the new requirements and/or changes that have resulted from TQM implementation, and consequently, creates a quality culture which is conducive for employees' involvement. Leadership directly or indirectly affects the customer satisfaction and business performance result.

HR Philosophy/ Systems; are designed to empower members of an organization to make decisions and to solve problems related to their level in the organization. The logic is that the people closest to a problem or opportunity are in the best position to make decisions for improvement if they have control of the improvement process quality. If the organization's quality strategy is to be successful, all the organization's employees should be engaged in the work of satisfying the customer by continuously improving the quality. Everybody's commitment means that the continuous improvement should be practiced everywhere in the processes and that the involvement of all people (employees) at every level should be facilitated. HR Philosophy and systems must focus on sticking to Quality core values, Excellence, Integrity, Teamwork and Innovation. There must be shared beliefs, values, attitudes. The work is based on the

skills and participation of every employee and his or her understanding of what is required. Within this perspective, people management can follow three stages, i.e. Identification by people as being consistent with explicit characteristics of the organization, and the willingness to accept values since ‘it is the right thing to do’, Adoption and internalization of the values by people and; Motivation to become involved in achieving the set objectives. The first stage forms attitudes, the second stage forms behavior, and the third stage forms loyalty in terms of willingness to participate, involve and cooperate with little or no supervision. To achieve these conditions, an organization needs to create a supportive climate as an essential part of people management. The effective communication is for the development of awareness and building commitment to quality in an organizations environment. It is therefore effective communication is considered very vital behind creating enthusiasm among employees and high motivation towards successful implementation of TQM.

Relationship Management with partners : It is how the organization plans and manages its external as well as internal partners in order to support its Quality policy and strategy and also defining their role for effective operation of its processes. Partners include, suppliers, associated companies, support staff, customers as well as employees permanent , temporary, contractual and part-time who are associated with TQM directly or indirectly. Companies should seek to build internal and external partnerships and resources to accomplish their overall goals. Internal and external partnerships should seek to develop long-term objectives, thereby creating basis for mutual investment. Partners and resources should address the key requirements for success of the partnership, means of regular communication, approaches to evaluating progress, and means for adapting to changing conditions. Customers as contributors to valuable suggestions feedbacks is a very important aspect of TQM as identification of customer needs and wants and satisfaction is one of the primary goals of TQM.

Human Resource Functions: An organization’s competitive advantage lies in the skills and abilities of its employees. Change efforts directed at human resources include: work and job redesigning, investment in training and development; new values and norms; new definition of reward and promotion system; improving organizational learning and decision-making. Training and Education for Quality

programs reduces resistance and provides positive motivation to work for Quality goals. The effective communication is for the development of awareness and building commitment to quality in an organizations environment. It is therefore effective communication is considered very vital behind creating enthusiasm among employees and high motivation towards successful implementation of TQM.

The researchers have further developed the items for each of the identified dimensions (Table 4).

Variables(Independent	Items and Dependent)
Leadership - vision - commitment - ability to motivate - resource allocation - control	Leaders develop the mission, vision and values. They are role models for a culture of excellence in the organization. Leaders evaluate the needs and expectation of stakeholders and review overall performance
HR Philosophy and Systems - communication - decision making - empowerment - team building - quality mentality	People are involved and empowered The frequency of formal communication with employees regarding operating performance and competitive performance is appropriate. Empowerment, Togetherness feeling No tolerance or scope for failure Focus on individual work
Relationship Management with Partners - Suppliers -Associated companies - Internal and external customers -Stakeholders including community and society	External partnerships and finances are managed The information technology software and hardware are managed and updated Performance requirements are carefully defined and used to select suppliers and partnerships Supplier and partnering process are periodically evaluated and improved.
Human resource functions - HR planning -Recruitment & selection -Training & development -Performance appraisal -Compensation management	Work and Jobs are carefully designed, organized, and managed to provide opportunities for individual initiative and self directed responsibility. Compensation Management. Health, safety and ergonomics. Exit interviews, tracking absenteeism and turnover. Employee wellbeing, satisfaction, and motivation. Formal training programs. Performance appraisal are regular and adequate.

IV. CONCLUSIONS:

This study presents an analysis of existing research on TQM implementation to delineate the soft dimensions. It has helped to conclude the following aspects related to successful implementation of TQM:

- - TQM was an initiation of Operations management area.
- - The initial Quality programs were concentrated on Quality control systems and statistical techniques.
- - Cost cutting, waste reduction and Quality products were its basic objective.
- - TQM further evolved as a philosophy to implement Quality systems with focus more on soft issues as well.
- - Systems and statistical data are considered important tools for planning, control and improvement.
- - There is an increasing role of management and the people behind it for successful implementation of TQM.
- - The recent developments are focused on customer satisfaction as an important parameter for successful implementation of TQM.

TABLE 4: PROPOSED THEORETICAL FRAMEWORK

- - The soft dimensions are critical for successful implementation of TQM; they include the role of leadership, HR Philosophy and Systems, role of HR Functions and relationship with partners.

These identified soft dimensions are theoretically concluded from secondary literature references and are well supported in all the major research references related to TQM implementation. The contribution of this study is to highlight the importance of soft dimensions in a hard core operations management aspect. Further, the identified dimensions can be tested empirically in various industries as well as across different countries and cultures to understand the relevance of each of the identified dimensions in effective implementation of total quality management.

REFERENCES

- [1] Anderson, J. C., Rungtusanath, M. and Schroeder, R.,(1994), A theory of quality management underlying the Deming management method, *Academy of Management Review*, 19,3,472-509.
- [2] Anderson, C. and Martin, M. (1995). *Why employees speak to coworkers and bosses.* *Journal of Business Communication*,32(3), pp. 249-65.
- [3] Bergman, B. and Klefsjo, B. Quality (1994), McGraw-Hill,London
- [4] Blackford, M. (1991), A History of Small Business in America, Twayne Publisher, New York.
- [5] Chew, S.S. Zuraidah, M.Z. (2000), Supplier Quality Assurance: The Malaysian Way, RESQUA 2000, Regional Symposium on Quality & Automation, May4th, Penang.
- [6] Cherrington, David J. (1995). The Management of Human Resources. Englewood Cliffs, NJ: Prentice-Hall.
- [7] Crosby, Philip (1979), Quality is Free, New York, McGraw Hill.
- [8] Dahlgard, Kristensen, Kanji (1998), (1st ed) Fundamentals of Total Quality Management, Chapman & Hall, London.
- [9] Dale, B.G (1994) Managing Quality (2nd ed), Prentice Hall, New York.
- [10] Dale, B.G. & Plunkett, J.J. (1990). *Managing quality*. London: Philip Allan.
- [11] Deming, E (1986), "Out of the Crisis" MIT Press
- [12] Feigenbaum, Armand V. 1991. Total Quality Control, 4th ed. New York, NY: McGraw-Hill
- [13] Hong & Satit (2005), "The Impact of ISO 9000 Certification on Quality Management Practices in Thailand". *Journal of Industrial Technology*,21(1),pp.1-6.
- [14] EFQM (European Foundation for Quality Management), The EFQM Excellence Model, Brussels, 2003.
- [15] Ishikawa, K (1989), Introduction to quality control, JUSE Press Ltd, Tokyo.
- [16] Juran, J.M. (1951), Quality Control Handbook, New York, McGraw Hill.
- [17] Jones, D.T. (2004). "The Lean Service Opportunity". Lean Service Summit. Amsterdam, June 2004.
- [18] Karia, N. and Asaari, M.H.A.H. (2006). The effects of total quality management practices on employees' work-related attitudes. *The TQM Magazine*, 18(1), pp. 30-43.
- [19] Kearney, A.T. (1992) *Total Quality- Time to Take off the Rose- Tinted Spectacles*. IFS Publications, London.
- [20] Luft, J.(2007) "Lifetime contribution to management accounting award" *Journal of Management Accounting Research* (19):169
- [21] Magutu et.al (2010), "Management Through Effective Information Quality Management (IQM) in Banking Services", *AJBUMA* Vol.1pp.96-111.
- [22] Mahour Mt., and Lester A. D. (2007), "A framework for quality management practices in strategic alliances", Vol.45, No. 4, pp.802 – 818
- [23] Minjoon, J., Shaohan, C and Hojung, S., (2006). TQM practice in Maquiladora: Antecedents of employee satisfaction and loyalty. *Journal of operations management*. Vol 13 pp 791-812.
- [24] Njije, T. et.al. (2008), "Top Management Commitment and Empowerment of Employees in TQM implementation", unpublished work.
- [25] Oakland, J. S. (2001) Total Organizational Excellence: Achieving world-class performance, Oxford : Butterworth-Heinemann
- [26] Oakland, John S., Peter Morris. (1997) TQM : a Pictorial Guide for Managers. Oxford : Butterworth-Heinemann.
- [27] Oschman, J. J. 2002. Kwaliteitbestuur in die Toetsvlieg- en Ontwikkelingsentrum in die Suid-Afrikaanse Lugmag. Pretoria: University of South Africa.
- [28] Parkin, M.A. (1996) The impact of TQM in UK SMEs, *Industrial Management and Data Systems*, No.4, pp. 6-10.
- [29] Parast, M. M., Adams, S. G., Jones, E. C., Rao, S. S., and Raghunathan, T.S. (2006). Comparing Quality Management Practices between the United States and Mexico. *Quality Management Journal*, 13(4), 36-49.
- [30] Porter, L.J., Parker, A.J., (1993), Total Quality Management the critical success factors, *Total Quality Management*, Vol. 4 No.1, pp. 810-829.
- [31] Siti Zaleha bte Omain (2000), Kajian Terhadap Pengamalan Pengurusan Penyelenggaraan oleh industri terpilih di Malaysia, Unpublished Master's thesis, Universiti Teknologi Malaysia.
- [32] SPSS Training: Introduction to SPSS v6.1 And Statistics (1996), SPSS UK Ltd.
- [33] Tang, Victor & Bauer Roy, (1995) Beyond strategic advantage & TQM, *Competitive Dominance*: New York, V.N Reinhold.
- [34] Wilkinson, A., Redman, T., Snape, Ed (1994), What is happening in Quality Management? : Findings from an IM Survey, *The TQM Magazine* , Vol. 6 No.1, pp.55-58.
- [35] Wilkinson, A., Marchington, M. and Dale, B. (1992) Manufacturing More Effective TQM: Implications for the Management of Human Resources. *Human Resource Management Journal* , vol. 2 no. 1, 69-88.
- [36] Wolkins, D.O. (1996), Total Quality: A framework for Leadership, Productivity Press.
- [37] Woods, J. (1998), "The Six Values Of a Quality Culture", The Quality year Book, 1998 Edition. CWL Publishing Enterprises.
- [38] Yusof S.M. (1999), Development of a Framework for TQM Implementation in Small Business, Unpublished Ph.D. thesis, University of Birmingham.
- [39] Yusof, S.M. & Aspinwall, E.M. (1999) Critical Success factors for total quality management implementation in small and medium enterprises, *Total Quality Management*, Vol. 10, pp. 803-809.
- [40] *Total Quality Management*, Vol 11, pp. 448- 462.
- [41] TQM implementation frameworks: comparison and review, *Total Quality Management*, Vol. 11, pp. 281-294.
- [42] TQM implementation issues: review and case study, *International Journal of Operation & Production Management*, Vol. 20, pp. 144 -357.
- [43] Zhang, Z., Waszink, Ab., Wijngaard, J. (2000) An instrument for measuring TQM implementation for Chinese manufacturing companies, *International Journal of Quality & Reliability Management*, Vol. 17 No. 7, pp.730-755.

The evolution of Total Quality Management (TQM) and most of its derivatives can be traced back to the period when American quality pioneers developed quality management frameworks, taught them, and supported their application in the Japanese industry. The automotive sector is a prime example for quality management principles, illustrating both positive and negative implications of quality paradigms. This paper focuses on the automobile industry and evaluates the different quality approaches common in this industry. Theoretical Quality Management Frameworks. Implementing these quality strategies into effective operational practices comprises a focus on employee empowerment. The present research proposes a soft TQM framework and empirically tested the impact of soft dimensions of TQM on its performance in context to Indian cement industry to understand how soft TQM can help Indian cement industry to sustain competitive advantage in long term. The chapter concludes with a statement that soft dimensions of TQM are critical for sustainability which enable cement firms to achieve superior performance. Keywords. Singh T, Goyal G, Dubey R (2011) A theoretical framework for soft dimensions of total quality management. IPEDR 4:529-533 Google Scholar. Spencer BA (1994) Models of organization and total quality management: a comparison and critical evaluation. Acad Manage Rev 19(3):446-471 Google Scholar. Implementation of a Total Quality Management (TQM) system enhances the innovation process in organizations due to TQM elements such as continual improvement or customer focus (Baldwin & Johnson, 1996; Flynn, Schroeder, & Sakakibara, 1994, 1995). Both TQM and innovation have the same purposes and importance in organizations performance, especially in service industry. The literature on the theories of TQM based management provides a comprehensive prototype theoretical ground. Many studies on TQM were based on this hypothetical ground.