Evaluation Tools of Total Quality Management in Business Organizations

Amer Al-Kassem[1] Mohammad In'airat[2] Anas Al Bakri[3] *

1. Al-Faisal University, Prince Sultan College for Tourism & Business

   Abha, Saudi Arabia

2. Al-Faisal University, Prince Sultan College for Tourism & Business

   Abha, Saudi Arabia

3. Managemnt and Marketing Department, College of Business and Economics. Qatar University, P.O.BOX

   2713. Doha, Qatar

   - E-mail of the corresponding author: anasbakri@qu.edu.qa

Abstract

Total quality management (TQM) is a strategic commitment to make quality and customer satisfaction a guiding factor in everything an organization does. TQM, which has preoccupied the attention of organizations since the beginning of the industrial revolution, is based on the participation of all members in an organization to improve processes, products, services, and the culture they work in. This conceptual paper addresses the TQM tools used and discusses cases and issues of TQM's execution in organizations. Based on previous studies, it was found that unwillingness to implement quality management and level of quality performance will cost organizations billions of dollars. Thus, an organization must instill the TQM concepts and practices into one's product development process to avoid pitfalls and ensure success during TQM implementation. In general, the organization should sustain management of innovation and change to build competence and competitiveness in this ever-changing environment.

Keywords: total quality management, quality performance, customer satisfaction

1. Introduction

Crosby (1988) identified "four absolutes of quality". These are: (i) quality can be defined as conformance to requirements; (ii) quality comes from prevention. Defects, errors and rework can all be prevented by thinking, planning, proofing and regulating what we do; (iii) an attitude of zero defects. Non-conformances are determined by measurement; (iv) measurement is the price of non-conformance. Through making non-conformances visible, we are directed to take corrective action where necessary. In this way we can continually improve our processes. Deming (1982) defined quality as not just meeting requirements, but surpassing customer needs and expectations throughout the life of the product (Gitlow & Gitlow, 1987). It is thus essential that there is not only focus on meeting expectations, but that there is also a desire to continuously improve, so as to delight the customer (Stuart, 2004).

Quality is considered to be one of the competitive strategic tools, and becoming as important as price in organizations (Al-Assaf & Gentling, 1996; Singh & Deshmukh, 1999). It has become the key slogan as organizations strive for a competitive advantage in markets characterized by liberalization, globalization and knowledgeable customers (Sureshchandar *et al*., 2001). As levels of competition increases and changes occur in the global marketplace, better understanding of quality is essential. Top management needs to understand and apply quality philosophies to achieve high performance levels in products and processes. With increased competition, organizations have recognized the importance of quality systems (Bader, 2001), look for a high level of effectiveness across all the functions and process and choose a total quality management (TQM) as a strategy to stay in the business organizations (Baidoun, 2003).

Before discussing strategy of TQM, it is important to examine and clarify the definition of the term. Every researcher on the subject has their own unique definition of TQM. In the international definition of TQM in ISO 8402 (1994), there is ample evidence that researchers and practitioners do not stick to this definition and create their

own exclusive offering.   Hackman and Wageman (1995) states that "a large number of interventions not related to TQM are being encompassed under the TQM banner" which further complicates the issue of definition and understanding.   Despite the divergence of views on what constitutes TQM, there are a number of common elements running through the various definitions (e.g. top management support, customer and supplier relationships and employee involvement). Several researchers have tried to define the different dimensions that shape TQM, including Ahire *et al.* (1996), Dale *et al.* (1994), Flynn *et al.* (1994) and Saraph *et al.* (1989).

Over the years, different management theories have been discussed, some of which could be argued to be management fads and they have been criticized for having major defects (Carson *et al.,* 1999).   Hoang *et al.* (2010) stated that total quality management (TQM) has played an important role in the development of contemporary management, and become the major business strategy in the 1990s (Witcher, 1994).   The evolution of TQM into an all pervasive philosophy of management took shape through the works of Crosby (1979), Deming, 1982; Feigenbaum (1983), Ishikawa (1972), Juran (1988) and Taguchi (1986).   The primary focus of TQM philosophy is on the hands and minds that employ the tools and techniques rather than the tools and techniques themselves (Anthony, 2002), which are more than ever required for competing successfully in today's global marketplace (Dean & Evans, 1994).   A considerable number of organizations have adopted quality strategies, and made TQM a well accepted part of almost every manager's 'tool kit' (Dow *et al*., 1999).

Total quality management (TQM) is a system that guarantees a stipulated quality, from planning and design through self-inspection, to continual process monitoring for improvement opportunities (Radnor, 2000).   Some argue that TQM is a corporate culture characterized by increased customer satisfaction through continuous improvement, in which all employees in the organizations participate actively (Anvari *et al.,* 2011).   Dale (1999) claims that TQM is both a philosophy and a set of guiding principles for managing an organization.   Principles of TQM focus on control of business processes and customer satisfaction (Deming, 1986). Activities such as improvement, statistical control, supply control and quality engineering are the ingredients of TQM that will generalize the success experience of the advanced enterprises.

Holjevac (2008) claims that TQM system is defined for specific tasks and activities within the organization. All employees and all activities from the most menial jobs to the highest management levels are included. TQM endeavors to secure and create conditions in which all the employees through a joint effort effectively and efficiently to achieve one objective: when, where and how to produce a product and offer a service to the buyer and customer. This conceptual paper addresses the TQM tools used and discusses cases and issues of TQM's execution in organizations.

2. Literature Review

A variety of definitions and descriptions of TQM have been published over the years.   Each author has his or her own definition and each organization has its own implementation (Watson & Korukonda, 1995). Nonetheless, no comprehensive research has been discussed without acknowledging the core ideas of TQM set forth by TQM experts, or 'quality gurus': Deming, Juran, Feigenbaum, Crosby and Ishikawa. They gained significant acceptance and has become something of a social movement (Chang, 2009).   In a recent study, Reed *et al.* (2000) systematically reviewed the core ideas of these TQM experts and pointed out the shared similarities on TQM elements.   Although there are some differences of opinion, they all agreed on the importance of the following evaluation tools or key elements: customer focus, continuous improvement, the culture of teamwork and the scientific approach. These critical factors are the foundation for transformational orientation to create a sustainable improvement culture for competitive advantage on a continuous basis through the 'Joiner Triangle' (Figure 1).
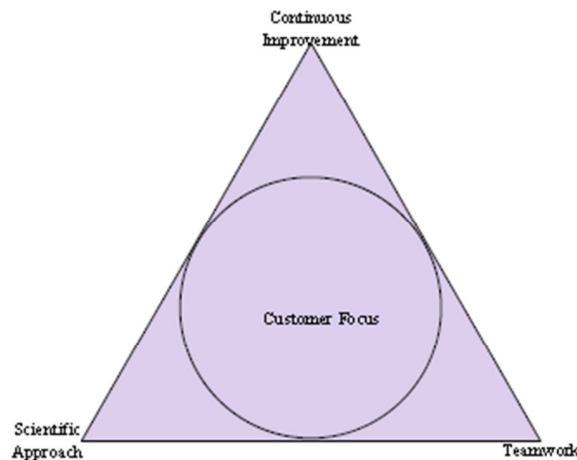
Figure 1: The Joiner Triangle

According to Dean and Bowen (1994), TQM is an approach characterized by principles, practices, and techniques. They pointed out the elements that most quality frameworks had in common. Each element is implemented through a set of practices, and these practices, in turn, are supported by a broad set of techniques. Vuppalapati *et al.* (1995) stated that customer focus is a central to the TQM philosophy of management for the continuous improvement of product and process quality in order to achieve customer satisfaction. Through this approach, TQM described as a new way of thinking about the management of organizations (Chorn, 1991), is a comprehensive way to improve total organizational performance and quality (Hunt, 1993), an alternative to management by control, or a label or platitude (Kelemen, 2000) aimed at galvanizing employee action.

One of the elements of TQM is continuous improvement. Gustafson and Hundt (1995) suggest that element is the central to successful innovation and improvement, although not all tools are equal importance in predicting success. Some argue that continuous improvement should require standardization (Imai, 1986). He proposes a combined approach between improvement cycle and standardization cycle. As such, it requires a regulatory standard and activities that are sufficiently routine to be well understood. Therefore, control and stability are the core of the continuous improvement process (Jha *et al.,* 1996). A study by McAdam *et al.* (1998) in comparing TQM as represented by continuous improvement to innovation in 15 companies in Ireland. The result, showed that continuous improvement could act as a solid foundation on which to build an innovative organization. Baldwin and Johnson (1996) find that the adoption of TQM as a management strategy contributes significantly in differentiating the more-innovative organizations from the less-innovative ones.

The next element of TQM is related to the concept of teamwork (Conti & Kleiner, 1997; Waldman, 1994; Wilkinson *et al.,* 1992). Teamwork is defined as collaboration throughout an organization as well as with customers and suppliers (Hoonakker *et al.,* 2000). In the context of TQM, the work content of teams is usually quite well designed and rich (Hackman & Wageman, 1995) and used as part of a TQM program to facilitate information sharing, problem solving and to develop employee responsibility for managing quality performance (Cordery, 1996; Coyle-Shapiro, 1995). Teams are generally viewed as more powerful and effective work entities than individuals. According to Lawler (1994), teams should be broad, including employees from all the hierarchical levels, layers, and from all the departments of the enterprise. Scholtes (1992) argues that teams are needed for all organizations in order to make them work more flexibly and to develop mutual trust among members. There are a variety of teams that are used in conjunction with TQM and the attributes may vary greatly. Explanations for the diversity of teams highlight the role of management policy, the history of employment relations at the firm, the type of production system, the nature of technology and the length of time that the firm has been using teams, as factors explaining the diversity (Bacon & Blyton, 2000; Cutcher-Gershenfeld *et al.,* 1994; Harman *et al.,* 2002; Tanskanen *et al.,* 1998; Wilkinson *et al.,* 1997).

Mohamed *et al.* (2008) stated that "the application of systematic approach is to view the quality management as a big and holistic system". They mentioned that it is a critical part of the management of quality to achieve an organization's vision, mission, and goals. This process, called strategic planning or strategic management, includes the formulation of a strategic plan that integrates quality as a core component. Some of the factors to be taken into account in the strategic planning process are: environmental factors, financial strength of the organization, marketing strategy, organizational design and organizational climate (Shadur, 1995). Other research pointed to the importance of the integration of TQM into strategic planning processes (Albrecht, 1993; Godfrey, 1993; Perry *et al.,* 1995; Peters, 1994; Redman, 1995; Shani *et al.,* 1994; Timmers and Van der Wiele, 1992). The Baldrige Award acknowledges the importance of such integration (Dean and Evans, 1994). Although there is a need for integration of quality thinking with planning, research effort has been directed towards this issue (Hemmasi *et al.,* 1994; Pruett and Thomas, 1996). Harding (1995) states that successful TQM programs share four characteristics: an emphasis on tangible results; an insistence on performance measurement; an integrated program; and a clear commitment from top management. These elements: customer focus, continuous improvement, teamwork, and scientific approach are selected because they represent the core principles of TQM as suggested by such scholars as Gobeli and Brown (1994), Sitkin *et al.* (1994), and Kim and Chang (1995).

2.2 Cases of TQM Implementation

TQM is about continuous performance enhancement of individuals of groups and of organizations (Kanji & Asher, 1993; Claver-Corter *et al.,* 2008; Teh *et al.,* 2009). As long as TQM elements is adopting fully and practiced effectively in an organization, many advantages will be delivered. It will strengthen the organizational business performance and competitive advantage (Seth & Tripathi, 2006). The successful implementation of TQM will result in: improved employee involvement (Chiu, 1999), improved communication (Kanji & Asher, 1993), increased productivity (Sriparavastu & Gupta, 1997), improved quality and less rework (Yeung & Lau, 1997), improved customer satisfaction (Forza & Filippini, 1998), and reduced costs of poor quality (Sinclair & Zairi, 2001).

Samson and Terziovski (1999) proposed TQM practices in order to explore the firm's organizational performance. They indicated that quality practices are categorized based on Kruger's (1998;2001) proposition, that TQM is a combination of both people (soft element) and technical systems (hard element). Constructs such as workforce commitment, shared vision, customer focus, use of teams, personnel training, cooperative supplier relations were considered as the soft elements while computer base technologies, just-in-time principles, technology utilization, and continuous improvement constructs as the hard elements of TQM. In a recent study, Rahman and Bullock (2005) examined the link between TQM practices and organizational performance with the survey of 261 Australian manufacturing companies. The results suggested, in general, that soft TQM are significantly related to organizational performance and have an indirect effect on performance through their effect on hard TQM elements. The study has evidence that certain hard TQM elements have a significant impact on performance and suggested that hard TQM elements need a support from opposite elements. These findings are generally the same to Powell's (1995) research framework.

Total quality management means different things to different people. It has been described as a management practice and philosophy of management aimed at satisfying the customer (Hill, 1991). According to study conducted by Khamalah and Lingaraj (2007) to 550 small businesses of various types of services in northeastern Indiana regarding TQM deployment and practices used: 67.4% of the firms reported that the top management was totally committed to TQM, 55.9% has a formal TQM program, 45.4% has internal quality standards benchmarked on operations, 43.5% uses TQM tools, and 42.5% uses team building techniques. A study of Hong Kong supply chain managers suggested that a company can sustain its performance by extending TQM to successful partnering with its suppliers (Wong, 2002).

Previous studies reveal that principal ownership (Swamidass & Kotha, 1998) relates to management practices in the implementation of TQM. For example, organizational culture such as attitudes, beliefs, and situational interactions are influenced by the type of corporate ownership (Yavas & Rezayat, 2003; Hui *et al.,* 2004). Therefore, management needs to understand how TQM strategy could be implemented effectively. Noronha (2002) studied the impact of cultural values of TQM implementation in 385 companies in China, Hong Kong and Taiwan. The result of analysis shows that the underlying Chinese values of abasement, addictiveness, harmony with people, harmony

with the universe, interdependence, and respect for authority influenced the dimensions of TQM. Feng (2006) compared the experience of organizations in Australia and Singapore with respect to the multidimensionality of TQM and its relationship with quality performance and innovation performance.   They found significant differences of TQM implementation between Australian-owned and Singaporean-owned companies.

2.3 Issues of TQM Implementation

Despite the benefits of TQM implementation in business organizations as mentioned above, the widespread misuse of TQM tools and techniques will affect some aspects of quality management and organizational business performance. A study of manufacturing industries in one country in Southeast Asia revealed that lack of methodical analysis was a major weakness of small and medium industries (Ahmed & Hassan, 2003).   Chinese small manufacturing firms reported size-related difficulties in implementing TQM (Lee, 2004).   Inefficiency exists in every organization. Errors add cost, and reduce customer satisfaction (Nagaprasad & Yogesha, 2009).   A survey of manufacturing firms in Georgia, reported a 95% failure rate for initiating TQM implementation programs (Burrows, 1992); has uncertain or even negative effects on performance (Tornow & Wiley, 1991), and indicated that achieving high product quality and pursuing successful TQM implementation are highly dependent on top management support (Longenecker & Scazzero 1993).

In managers' awareness, the distinctive elements of TQM are well documented, little has been said about how one can assess managers' awareness and understand them (Psychogios & Priporas, 2007).   The present literature consists of a few qualitative studies that have examined managers' attitudes towards TQM (Brennan, 1991; Hill, 1995; Tsiotas & Gotzamani, 1996).   For example, an earlier study of Taylor (1995) among executives in Northern Ireland, 32% had heard   of the quality systems standard ISO 9000 which is very low awareness towards TQM.   He also mentioned that activities related to quality were frequently misunderstood, and often the quality was equated with the checking activity of quality control or interpreted in the context of product grade or excellence.

The failures of TQM implementation have been well documented (Foley, 2004; Eskildson, 1994; Nwabueze, 2001). In more detail, Harari (1997) states that, after studying all the independent research conducted by consulting firms, the conclusion is that only about one-fifth, or at best one-third, of the TQM programs in the USA and Europe have achieved significant or even tangible improvement in quality, productivity, competitiveness or financial results. In a survey approach among some UK-based organizations in association with the TQM Magazine, Kearney (1992) concluded that only 20% of 100 British companies surveyed believed their quality programs had achieved tangible results.   They recognized that many of TQM programs were considered 'unsuccessful' by the managements who had instituted them (Smith *et al.,* 1994; Wilkinson *et al.,* 1998). Various literature seems to suggest the following elements to be the roadblock and major challenges to TQM implementation efforts in organizations (Lakhe & Mohanty, 1994; Macdonald, 1995; Kanji, 1995): lack of senior management, overlapping of responsibilities, limited resources, fear of change, work overloads, and others.   Research by TQM scholars identified low commitment of senior management as a roadblock and major challenges to TQM success (Wilkinson *et al.,* 1993; Dale & Cooper, 1994; Gudim & Meer, 1995; Soltani *et al.,* 2003).

Yui (1995) surveyed Japanese companies, 57 out of 138 respondents agreed that they do not understand what is required to introduce and implement TQM, even though they understood its concepts.   This reflects the total quality paralysis described by Kanji (1990), where organizations attempting to implement TQM are confused where to start. This is because they are overwhelmed by so many concepts, principles, models and prescriptions (Juran,1993; Oakland, 2000). Organizations' top management is questioning the lack of empirically sound model to assist in effective quality management. They recognize that currently available approaches to implementation are organizationally and politically naive. Therefore, a model development explains effective quality management implementation by organizing, synthesizing, and empirically validating the various key quality factors should serve the needs of practitioners (Thiagarajan, 1996).

3. Conclusion

TQM is a continuous process that organizations use to improve the quality and performance which will meet customer expectations.   It can be attained when properly planned and implemented quality activities include managing quality design and development, quality control and maintenance, quality improvement, and quality

assurance. Once ingrained as the way of doing things, the organization can obtain substantial benefits of TQM including a healthier bottom line. However, failure to meet the requirements in any part of quality may create problems elsewhere that leads to the situation exacerbated. In general, organizations should cultivate a long-term comprehensive approach to strategic management, and aimed with a rigor to have an edge in achieving these quality assurance goals that are part of TQM to increase its competitive advantage for better market acceptance.

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Amer Al-Kassem[1]

Mohammad In'airat[2]

Anas Al Bakri[3] * Assistant Professor Department of Management and Marketing, Qatar University. Teaching area: Principles of Management, International Business, Entrepreneurship & Small Business Management . PhD of Business (Management) 2010, University of Southern Queensland (USQ), Australia. PhD candidate of Economics and Finance (SEF) 2012, University of Western Sydney (UWS), Australia. The Outstanding Academic Achievement Award 2009 (UWSPA) and UWSTop-Up Award 2009 (UWS) Australia. Worked as Assistant Professor and Supervisor at the College of Business in several Universities within Australia, Jordan, KSA and Syria for ten years. Research Area: SME Management, Entrepreneurship Performance and Evaluation, Small and Micro Enterprises and its influence on Economic, Technology Adoption and Its Influence on SME Performance. Published and Submitted on These Research Topics At the International Conferences Proceeding and Reviewed Journals.

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