



# TQM: A facilitator to enhance knowledge management? A structural analysis



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## ABSTRACT

This study aims to examine the multi-dimensional relationship of total quality management (TQM) and knowledge management (KM) in both service and manufacturing firms in Malaysia. Six key practices of TQM originated from the Malcolm Baldrige National Quality Award (MBNQA) were chosen; whereas the KM elements were made up of knowledge acquisition, distribution and application. Data were gathered from small, medium and large firms from both manufacturing and service sectors. Structural analysis was carried out for the hypotheses and the theoretical model testing. Findings show that strategic planning and human resource management have a positive and significant relationship with the dimensions of KM; whereas process management has significant effects on knowledge acquisition and knowledge distribution. Practically, the findings provide a useful direction for the management team in the manufacturing and service sectors by adopting the relevant TQM practices to further improve the firms' knowledge management processes. Through a deeper comprehension on the association between TQM practices and the KM dimensions, the management team of these firms can focus their attention, efforts and resources on the specific TQM practices that can ensure successful KM process.

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## 1. Introduction

Many organizations recognize knowledge as a vital element in managing the production process because of its ability to determine an organization's failure or success. Hence, in today's business world, organizations are focusing on knowledge management (KM) as their main determinants for success (Lim, Ahmed, & Zairi, 1999). According to McAdam and Reid (2001), developed knowledge are being created, shared and used in various ways by large organizations for their benefits. An investigation was conducted in Japan, a high-tech industrialized country, found strong emphasis of KM in mega firms such as Matsushita, Canon, and Honda (Nonaka & Takeuchi, 1995). In addition, other firms such as British Petroleum, Anderson Consulting, and Boeing (Davenport & Prusak, 1998) are also focusing on KM. The ability of a firm to use its intellectual capital, especially its human assets, helps a firm create value. As such, the KM process holds a significant role in the firm which creates value, contributing to performance of the firm in terms of profitability (Gloet & Berrell, 2003; Lee & Yang, 2000; Prasad, 2001).

In the past, TQM is internationally recognized as a mechanism that has the ability to improve an organization's performance. As of today, due to the competitive environment, the significance of TQM has been dubbed generally as the key element in attaining achievement and sustainability in both service and manufacturing companies (Claver-Cortes, Pereira-Moliner, Tari, & Molina-Azorin, 2008). Various studies showed that TQM is able to improve a company performance if it is effectively practiced (Anderson & Sohal, 1999; Flynn, Schroeder, & Sakakibara, 1994; Prajogo & Sohal, 2004; Samson & Terziovski, 1999). It will result in lowering production cost while increasing the productivity (Garvin, 1983), uplifting employee's job satisfaction (Ooi, Bakar, Arumugam, Vellapan, & Loke, 2007) while minimizing their role conflict (Teh, Yong, Arumugam, & Ooi, 2009). From this, it is evident that TQM is vital in achieving sustainable competitive edge (Yang, Chen, & Su, 2003).

In an arena where competition is getting more intense, it is essential for firms to value the principles of TQM and KM as well as the association between them. Companies which incorporate both the important concepts of past TQM and existing KM into their business processes have an extra edge to outperform others and emerge as the market leaders. Researchers are being encouraged to integrate the relationship of TQM-KM constructs as they are able to influence the strategic capabilities of a firm. Numerous researchers have discovered the intrinsic linkage between TQM and organizational learning (Colurcio & Mele, 2006; Fine, 1986),

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which encompasses KM. Nonaka and Takeuchi (1995) believed that TQM practices are primary source of competitive advantage since they possess the ability to create and share knowledge among the members of the organization.

Not many academic researchers have examined the relationship between the key practices of TQM and KM in spite of the significance of these two concepts and in fact, their relationship has yet to be completely ascertained (Molina, Montes, & Fuentes, 2004). Previous studies that relate TQM and KM behaviors were insufficient and the research findings were limited or inaccurate. On the other hand, in-depth review of literature and case studies (e.g. Adamson, 2005; Hsu & Shen, 2005), have been extensively conducted to conclude such research findings. There are insufficient empirical researches conducted that utilized inferential statistics, specifically multivariate statistical techniques, as indicated by Ngai and Cheng (1997). Originated from Harry Roberts of University of Chicago, based on the statement by Hogg and Hogg (1993) stated that: "TQM incorporates more than just statistics. However without it, it creates a lot of smoke and mirrors" (as cited in Ngai & Cheng, 1997, p. 406). Furthermore, there are very little empirical studies that employed Structural Equation Modeling (SEM) to examine the causal relationships between a set of TQM practices and KM among both the manufacturing and service firms in Malaysia, in which these firms become the focal point of this research study. Recognized as one of the key contributors of the Malaysian economy, the manufacturing industry contributed 25% and more to the economic growth of Malaysia (Economy Watch, 2008). The service industry was also chosen to be researched in this study as it is also making significant contributions, in particularly on the healthcare and tourism side, as highlighted by Daljit (2009). Apart from that, it is worthy to note that TQM implementation differs significantly between these two sectors for two reasons. The first being that service firms provide output that is intangible and heterogeneous as compared to the manufacturing sector that provides more standardized products (Silvestro, 1998; Sureshchandar, Rajendran, & Anatharaman, 2001). The second reason was highlighted by Prajogo (2005), whereby the operating systems differ between these two industries. Unlike manufacturing, the service sector's delivery and consumption processes carry out concurrently and hence the service firms may encounter complications in the service output quality control prior delivery to the customers (Prajogo, 2005). Such issues remain unresolved in the past empirical studies.

Hence, in attempting to close the gap in the literature and provide proper guidelines to firms in handling the impact of TQM towards KM processes, TQM practices based on MBNQA was suggested. A multivariate analysis technique, the SEM, was applied as the statistical tool to investigate the effects of TQM practices on KM behaviors in both manufacturing and service companies in Malaysia. This technique served as a profound insight on the effectiveness of TQM in enhancing KM and subsequently increasing the firm's competitiveness in today's challenging business environment.

## 2. Theoretical foundations

### 2.1. MBNQA model

Six TQM dimensions, obtained from the Malcolm Baldrige National Quality Award (MBNQA) model are adopted as the TQM practices for the present study. The six TQM concepts consist of leadership, strategic planning, customer focus, human resource management, process management and information and analysis. The MBNQA model has been adopted for several reasons:

- (1) The six dimensions of TQM are adopted by numerous researchers and academicians (e.g. Dean & Bowen, 1994; Prajogo & Sohal, 2003; Samson & Terziovski, 1999) to signify the TQM practices for their own studies.
- (2) Such TQM model has been proven vital for many private and public firms in the US to develop and revolutionize their management principles, helping firms to gain competitive advantage (Terziovski, Howell, Sohal, & Morrison, 2000).
- (3) The MBNQA model incorporates both the soft and hard elements of TQM (Yong & Wilkinson, 2001).
- (4) The MBNQA model is also adopted by many high-tech industrialized countries, such as the United States, Europe, Japan and Australia, in which it helps the firms in these countries to attain sustainable advantage (Samson & Terziovski, 1999).

### 2.2. KM theory

Knowledge, as described by Lim et al. (1999), is an intangible asset that is close to impossible to imitate and it is viewed as a competitive instrument that should be managed effectively by every organization. There are basically two forms of knowledge – explicit and tacit. In accordance to Yang (2008), KM can also be defined as transforming tacit into explicit knowledge, so that such knowledge can flow freely throughout the entire organization. In the present study, three dimensions comprising of knowledge acquisition, dissemination, and application were selected in this study. Firstly, it is vital that firms acquire knowledge from suppliers, employees and customers consistently to ensure continuous improvement in both product and service quality (Yang, 2008). By doing so, companies can also better understand the financial status of the firms, the skills and experiences of their employees and customers' product preferences (Darroch, 2003; Yang, 2008), which in turn assists firms to store up knowledge and at the same time ensuring that assurance in quality is met in every single aspect. In order to ensure that quality is maintained within a firm, it is essential that employees involved themselves in the dissemination of knowledge (Yang, 2008). It is mainly through the involvement of every employee can only quality be improved to its maximum (Hsu & Shen, 2005). Lastly, knowledge gained and shared needs to be applied and responded, according to Darroch (2003). Organization needs to respond to knowledge obtained from customers as well as knowledge shared among employees in order to improve the overall company processes and the final products they produced (Darroch, 2003).

## 3. Relationship between TQM and KM

### 3.1. Leadership

Several researchers (e.g. Bryant, 2003; Davenport & Volpel, 2001) have acknowledged the prominent role played by leaders in inculcating a healthy KM atmosphere to ensure KM initiatives are implemented successfully. It is essential for top management to be conscious that they are in a position of influence, at the same time they need to possess the ability and authority to implement and improve the KM activities in their firms. Such a relationship between leadership and learning organization has been empirically assessed by Lee, Ooi, Sohal, and Chong (2012) among the Malaysian manufacturing firms and has been concluded to be a positive and significantly related. Thus, a strong proposition has been made of managers to submerge themselves in the distribution, acquisition and application of knowledge to demonstrate their fervent support towards their companies' KM programs and policies (Guns & Valikangas, 1998).

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