2011 International Conference on Management and Service Science
IPEDR vol.8 (2011) © (2011) IACSIT Press, Singapore

The Influence of Soft and Hard TQM Factors on Knowledge Management: Perspective from Malaysia

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Abstract. The management of knowledge in businesses is an important and necessary factor for organizational survival in today's uncertain environment. Organizations need a total quality management approach that views knowledge as a potential source for competitive advantage. This study examines the influence of soft and hard total quality management factors on knowledge management processes. Survey questionnaires were distributed to managers of government-linked companies. Regression analyses were used to test the hypotheses in the study. Analyses show that soft total quality management factors contribute more to knowledge management processes in order to enhance organizational performance. Report shows that these government-linked companies need to focus more on their human capital development since this factor is vital to generate and refresh organizational knowledge and to obtain competitive advantage.

Keywords: soft total quality management, hard total quality management, knowledge management processes, government-linked companies

1. Introduction

[1]A contemporary organization nowadays must not only effectively manage the quality of its products or services, but also need to apply knowledge management (KM) practices. Total quality management (TQM) and KM have great influence on a business's strategic competence. Businesses have always been concerned with how to manage the knowledge they have within their organizations. There are a few examples that show a good combination between continuous and radical improvements which can increase companies' competitive advantages [1]. Many researchers have recognized this view and tried to integrate TQM and KM together [2-4] and analyze its influence on business results [5]. However there is limited quantitative research that investigates the influence of soft and hard TQM factors on KM. This study is conducted to close the research gap by examining the effects of soft and hard TQM factors on KM processes. Specifically this study will identify which TQM factors (soft or hard factors) contribute most to KM processes.

2. Total Quality Management

Total quality management consists of several critical success factors. From the literature review, the critical success factors are top management commitment and leadership, philosophy development, quality measurement, benchmarking, process management, product design, employee training, employee empowerment, supplier quality management, customer involvement and satisfaction, and information analysis [6-10]. It is a set of continuous and improvement processes for individuals, groups and whole

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organizations by understanding and discovering better processes. Much of the perspective and popular literatures on TQM [11, 12] view TQM as universally applicable.

Its major techniques provide a set of general governing principle; delighting the customers, people-base management, continuous improvement and management by fact. These TQM success factors can be categorized into soft and hard factors [13-15].

2.1. Soft Total Quality Management factors

Lewis, Pun and Lalla [16] noted that soft factors of TQM relate to behavioral aspects and generally deal with people aspect such as training and education, loyalty, leadership, teamwork, empowerment, customer focus and satisfaction, human resource utilization, contacts with suppliers and professional associates, integration of the voice of customer and supplier, communication, performance awards, quality culture and social responsibility. Study done by [15] also concluded that soft factors of TQM are behavioral aspects of management of the "human factor" which include workforce commitment, shared vision, customer focus, use of teams, personnel training, and cooperative supplier relations. This was identified by [17] that soft TQM factors put the emphasis on the management of human resources in the organization and lays particular emphasis on the need to change culture. [18] had identified the soft TQM factors as they have been detected in recent studies which are the following: leadership, strategic quality planning, employee management and involvement, supplier management, customer focus, process management, knowledge and education. On the other hand, [19] suggested six soft TQM factors that are related to Malaysian Manufacturing companies that include, management commitment, customer focus, employee involvement, training and education, reward and recognition, and supplier relationship.

2.2. Hard Total Quality Management factors

Lewis, Pun and Lalla [16] concluded that hard factors of TQM are system-oriented and are easier to quantify. It generally deals with benchmarking, flexibility, quality systems, quality assurance, just-in-time, zero defect, continuous improvement and innovation, information and performance measurement, process management, strategic planning, process control and product/service design. It is supported by [15] who suggested that the hard TQM factors include computer based technologies, just-in-time principles, technology utilization, and continuous improvement enablers. However, [18] had identified the hard TQM factor as quality management tools and techniques, such as cause and effect diagram, scatter diagram, affinity diagram, relations diagram, force-field analysis, run chart, control charts, quality function deployment and failure mode and effect analysis.

3. Knowledge management

Knowledge management is widely regarded as the way an organization can leverage the tacit and explicit knowledge of its employees, trading partners, and outside experts for the benefit of the organization. Ahmed et al. [20] proposed that KM is about the collection of knowledge and connection of people. KM is also about the process of creation, sharing and use of knowledge within the organization. The foundation of KM is based on these processes; knowledge acquisition, knowledge conversion and knowledge application [21]. Varieties of KM frameworks have been proposed [22-24], and all of these KM frameworks are based on these three components. The success of the KM initiatives is dependent on the presence and interaction of all three components supported by Nonaka and Takeuchi [25] who remarked that KM requires a commitment to "create new (task-related) knowledge, disseminate it throughout the organization and embody it in products, services and systems".

Knowledge acquisition deals with the processes of creating, generating, developing, building and constructing knowledge internally. These terms refer to the process of deriving new and useful insights and ideas while knowledge conversion is the process that deals with organizing and applying knowledge that has been created or acquired in ways that make it formalized and accessible. On the other hand, knowledge application refers to the processes of sharing, transferring, disseminating and distributing knowledge once it has been organized and stored. Knowledge that is kept solely in an individual's domain is of little value to an organization. As stated by Bhatt [26], applying and sharing knowledge means making it "more active and relevant for the organization in creating values".

An organization needs to generate new knowledge on a continuous basis, facilitate its sharing within the organization and apply knowledge to gain competitive advantage. Knowledge management processes assist an organization in acquiring, storing, and utilizing knowledge to support problem solving, dynamic learning, strategic planning, and decision-making [27]. Academics and practitioners are recognizing that knowledge management processes are becoming prerequisites for success in organizations [28-31]. Some authors suggest that an organization's ability to generate knowledge is vital [25, 31, 32].

4. The relationship between soft and hard TQM factors with knowledge management

Zetie [33] suggested that the concept of TQM and KM are closely linked together through a fundamental concept of organizational development. Zetie [33] also stressed that the recognition of the linkage between TQM and KM has both theoretical and practical significance. At the theoretical level, the implication is a possible explanatory model while at the practical level it increases the implementation options for those seeking to bring about organization change. Both TQM and KM are the work process of organizational improvement. The similarities of them include; result orientation, people-base management, teamwork, leadership and delighting customers, while the differences are distinctive focus; approach of TQM is improvement based on fact, and KM is based on building a culture to support knowledge creation and sharing.

Ju et al. [2] suggested that top management commitment, adopting philosophy, quality measurement, benchmarking, process management, product design, employee training, employee empowerment and customer involvement contribute to a certain degree in knowledge creation, storage, distribution and application. In addition, Ruzevicius [34] suggested that any business actions taken by top management must be aligned to support KM in order to gain benefits and advantages in TQM and KM implementation. This researcher also proposed that knowledge sharing should become one of the essential values within an organization and managers should regard employee training and passing knowledge on to others as one of the most important priorities of an organization. Zhao and Bryar [35] proposed that KM concepts to be integrated into TQM critical factors in order to enhance organizational excellence. It is through knowledge acquisition, conversion and application that an organization can address the critical issues as well as obtain competitive advantage. Acquiring new sources of information helps organization to stand out in gaining market share in terms of their products and services. Knowledge of and understanding customers needs and requirements are the pre-requisite for customer satisfaction which represents the major reason why organizations implement TQM [6]. In addition TQM helps organization to transfer its internal knowledge effectively [3]. It is hypothesized that KM processes were influenced positively by implementing soft and hard TQM factors.

H1: Soft TQM factors influence KM processes positively
H2: Hard TQM factors influence KM processes positively

5. Research Design

A cross sectional methodology was employed in this study and managers in government-linked companies were selected as respondents for this research. A survey instrument that had a 1-7 Likert scale was designed and it consisted of three main sections. Section A focused on soft and hard TQM factors, Section B on KM processes, and Section C focused on respondents' profile. The soft TQM factors discussed in this study were top management leadership and commitment [16, 18, 19], strategic planning [15, 18], customer focus [15, 16, 18, 19], human resource management and involvement [15, 16, 18, 19], and supplier management [15, 16, 18, 19]. The hard TQM factors include technology utilization and benchmarking [15, 16], and process management and innovation [15, 16]. The KM processes comprise knowledge acquisition, knowledge conversion and knowledge application [21, 23, 36]. All variables were checked on the reliability and validity criterion and all meet the validity and reliability requirements. A series of regression analysis were used in data interpretation.

6. Results and Discussion

6.1. Respondents' profile

A total of 700 questionnaires were distributed to managers of government-linked companies throughout Malaysia and 221 completed questionnaires were received for this study, i.e. a total of 32% response rate. Majority of the companies (38%) participating in this survey were located in Eastern region. Half of these companies are holding companies or parent companies that consist of more than 50 employees. The questionnaires were filled up by middle and lower management which comprise 32% and 49% respectively. Majority of these managers are male (63%) and holding first degree qualification (40%).

6.2. Reliability analysis

Table 1 presents Cronbach alpha value for each dimension used in the study. All of the Cronbach alpha values were more than 0.7 which indicate that the dimensions used for each variable are highly reliable [37, 38].

Table 1: Cronbach Alpha Value

Dimensions	No. of items	Cronbach Alpha
Soft TQM Factors		
• Top management leadership and commitment	5	.859
• Strategic planning	5	.838
• Customer and market focus	6	.888
• HRM and involvement	6	.836
• Supplier management	5	.870
Hard TQM Factors		
• Technology utilization and benchmarking	5	.850
• Process management and innovation	6	.874
KM processes		
• Knowledge acquisition	6	.880
• Knowledge conversion	4	.888
• Knowledge application	5	.897

6.3. Regression Results and Hypotheses Testing

Table 2 presents regression results for regression model examined in the study. The model was significance and standardized beta values for both soft and hard TQM factors were positive with p-value = 0.000. This result support H1 and H2 in the study. The result also showed that soft TQM factors contribute more to KM processes as compared to hard TQM factors.

Table 2: Regression Results

Model	R^2	AdjR^2	F-stat	Sig. F	Std β	Sig.
Soft and Hard TQM on KMP	.827	.584	234.284	.000*	-	-
• Soft TQM					.492	.000*
• Hard TQM					.353	.000*

Further analyses were conducted to identify which soft TQM factors contribute most to KM processes. Results showing the beta value for soft TQM factors were as follows:

- HRM and involvement (β= .475)
- Supplier management (β= .162)
- Customer and market focus (β= .161)
- Strategic planning (β= .094)
- Top management leadership and commitment (β= .020)

From the result, it showed that human resource management and involvement is the main factor that influences KM processes followed by supplier management, customer and market focus, strategic planning, and top management leadership and commitment. It shows that in order for an organization to acquire new knowledge and update or refresh existing knowledge, organization needs to have strong HRM and good employee involvement. Good employee teamwork will help to cultivate a knowledge sharing culture that would eventually lead to an increase in innovation performance in the organization.

Analyses were also done to investigate which hard TQM factors influence most KM processes. Beta values for hard TQM factors were as follow:

- Process management and innovation (β= .647)
- Technology utilization and benchmarking (β= .195)

Results showed that process management and innovation contribute most to KM processes. It shows that organization needs to focus more on product/service design, process control, and innovation and continuous improvement of processes in order to enhance KM processes. Apart from that, technology utilization and benchmarking also contribute to successful KM processes.

7. Conclusion

This research shed some light into practical implications for organizations that they need to give more attention to soft TQM factors as compared to hard TQM factors in order for them to acquire, generate and apply new knowledge in their organization. These organizations need to appreciate and value their human capital since they are the main contributors to KM processes. Without them, these organizations cannot move forward or achieve their objective even though they have very advance technology or knowledge. Beside that these organizations also need to have good relationship with suppliers and customers in order to get latest information about their products or services. On top of that, top management leadership's role as a helper in supporting the KM processes is vital for the development and enhancement of collective learning ability in the organization. The effectiveness of soft and hard TQM factors to achieve quality improvement and increased organizational performance will be enhanced if KM processes are effectively taken care of. In today's uncertain environment, organizations face critical issues of adaptation, survival and competence, it is through creating, acquiring, converting, and applying knowledge that organizations can address the critical issues as well as obtain competitive advantage.

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