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Impact of Total Quality Management on Innovation in Service Organizations: Literature review and New Conceptual Framework

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Abstract

Purpose of this paper is to review the literature on the relationship between total quality management TQM and innovation in services organization, and to develop a research conceptual framework on this relationship. The most recent studies investigated the TQM-innovation relationship and involved service industries in its scope have been reviewed. A discussion on the TQM practices in service organization is presented and conceptual framework and model are proposed.

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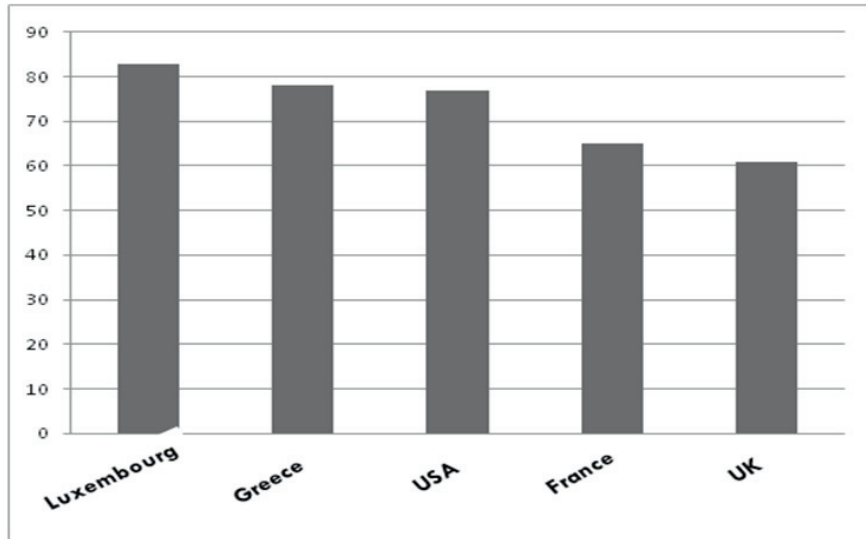
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Keywords: TQM, innovation, relationship, service organization.

1. Introduction

Importance of services industry is significantly increasing in local and international economics. During the last two decades contribution of the service industry to the Gross Domestic Product GDP has been a significantly increasing. According to Directorate for Science, Technology and Industry (STI, 2008) of the Organization for Economic Co-operation and Development (OECD), by 2008 service industry allocated in some countries more than 70 percent of GDP (e.g. Luxembourg 82%, Greece 78%, and USA 77%) (STI, 2008), see figure 1. The increase of competition in local and global markets determined the importance of service innovation as a key source supports firms' growth and development. STI OECD stated "*the importance of service innovation is well-established but many firms are seeking new ways to develop the type of service innovation necessary for success in global value chains.*"

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Source: STI, OECD (2008), *R&D and innovation in services*

Fig. 1. GDP, services as percentage of total industry, 2008.

Similar to OECD countries, services industry and services business in none OECD countries have vital and crucial role in the local economics. Taking Malaysia as an example, in 2009 the Malaysian services industry contribution was 55% of GDP. It has the largest share of GDP and faster growth rate Malaysian Investment Development Authority MIDA, (Malaysian investment performance report, 2011). In 2011, the contribution of services industry increased to be 58.6% of the GDP with growth rate of 6.8 percent and accommodated employment of 6.5 million persons which is 53.3% of total employment in 2011 (Malaysian investment performance report, 2011).

Such a huge economic activity by the service industry involves countless number of organizations, enterprises and firms. For example health care, transportation, education, government service, hotels and restaurants, telecommunication, financial services, social and personal services, retail and wholesale organizations. To compete well and increase their competitive advantage, these organizations need to be providing high quality and innovative services. 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. Both of them seek to integrate organization objectives and functions to satisfy the customers and increase competitive advantage (Kaynak, 2003). They involve all employees within an organization to be apart from the management process and business process. Furthermore, both provide a continual improvement and sustaining development (Oke, 2007; Singh & Smith, 2004; Talib, Rahman, & Qureshi, 2012). Continuous improvement, achieving customer satisfaction and open culture are main shared goals of TQM and innovation (Kaynak, 2003; Kim, Kumar, & Kumar, 2012; D. Prajogo & Sohal, 2003). Thus relationship between TQM and innovation can determines the organization performance and its development.

In the new context of economics and business excellence, TQM and Innovation became core elements in founding and increasing competitive advantage (Abrunhosa & Moura E Sá, 2008; Hurmelinna-Laukkanen, Sainio, & Jauhiainen, 2008; Mushtaq, Peng, & Lin, 2011). TQM and innovation have vital role on service business success. Importance of the relationship between TQM practices and innovation emerges from the importance of TQM and innovation in creating and strengthening competitive. Besides, both of them affect customer satisfaction which is top targeted goal of service organizations' business (Mushtaq, et al., 2011; Pekovic & Galia, 2009).

The need for quality and innovation in services organizations became vital for their business excellence and to compete through strengthen their competitive advantage (Juneja, Ahmad, & Kumar, 2011; Karani & Bichanga, 2012). This has driven and motivated many researchers to conduct studies in the relationship between TQM practices and innovation. The existing literature has provided fresh views and various approaches from different prospective into TQM practice-innovation

relationship. However, some shortcoming notes appear from these studies.

First, as most of empirical studies on TQM-innovation relationship conducted in manufacturing industry (Jitpaiboon & Rao, 2007; Teh, Yong, Arumugam, & Ooi, 2009) there is still need for more studies on this field in services industry (Ang, Lee, Tan, & Chong, 2011; Juneja, et al., 2011; Sit, Ooi, Loke, & Han, 2011).

Second, the previous studies concluded contradicted results. Some found TQM has positive influence on innovation (e.g. Abrunhosa & Moura E Sá, 2008; López-Mielgo, Montes-Peón, & Vázquez-Ordás, 2009; Martínez-Costa & Martínez-Lorente, 2008; D. I. Prajogo & Hong, 2008; Sarkees & Hulland, 2009). While others found it has no impact on innovation (e.g. (Moura E Sá & Abrunhosa, 2007; Pekovic & Galia, 2009; Santos-Vijande & Álvarez-González, 2007). Thus, the gap still remains and debate still continuing concurrently with researches investigating the impact of TQM on innovation.

Third, within the existing literature, no such a conclusion recommended a specific TQM practice that lead to achieve both quality and innovation together in service organizations. Most of studies used different sets of TQM practices to examine its impact on innovation in all such as (Abrunhosa & Moura E Sá, 2008) who examined each of autonomy, consultation, supporting people management practices and communication. While Satish and Srinivasan (2009) examined leadership, strategic planning, customer and market focus, information and analysis human resource focus, process management, supplier partnership and business results.

Fourth, the previous empirical studies assessed impact of TQM practices in a specific type of innovation in manufacturing industries such as study of Abrunhosa and Sa dealt technological innovation and study of Prajogo and Sohal (2004) dealt with product innovation. However so far, no such study targeted the link between TQM practices with all different types of innovations in services industries. Thus, many questions emerge from existing literature: are TQM practices have any impact on innovation in service organizations? Which type of innovation that influenced more by TQM practices in service organizations? Are there specific TQM practices has more influence on innovation in services organizations?

2. TQM

Definitions of TQM vary according to the approach. TQM is the continual method, techniques and technical of sustaining the continuous improvement and satisfying customers' demands (Ahire, Golhar, & Waller, 1996; Besterfield, Besterfield-Michna, & Besterfield, 2003; Kanji, 1990; Wolkins, 1996)., Steingrad and Fitzgibbons (1993) described TQM from another approach: TQM is procedures and techniques seek to decrease the effect of a product, service or process to increase the quality and efficiency.

Firms implement TQM to raise the competitive advantage, increase the profits, and become innovative. The positive benefits of implementing TQM presented in enhancing and increasing firm's performance (Abdullah, Uli, & Tari, 2009; Crosby, 1979; Deming, 1993; Hoang, Igel, & Laosirihongthong, 2010; Zakuan, Yusof, & Laosirihongthong, 2008). Soltani, Lai, Javadeen, and Gholipour (2008) analyzed the literature to identify the elements that affect the implementation TQM. They identified each of the integration between everyday business systems and TQM systems; top management commitment; human resource involvement in business processes; and top management's knowledge of TQM to be the most factors that have an influence of the implementation of TQM results. Lewis, Pun, & Lalla (2006) examined TQM factors for ISO 9001:2000 centered on eight quality principles that considered as critical for the TQM implement outcomes. Based on deeper analysis of data collected from 8 countries, they pointed out 12 elements to be the most critical for TQM implementation results. Those elements involved: "*quality data and reporting, customer satisfaction, human resource utilization, management of process control, training and education, management commitment, continuous improvement, leadership, strategic quality planning, performance measurement, customer focus, and contact with suppliers and professional associates*" (Lewis, et al., 2006).

Based on the most well known four excellent models of TQM awards and certifications criteria (Deming Award; Malcolm Baldrige National Quality Award, MBNQA; ISO certification series; and European Foundation for Quality Management EFQM), Abdullah, Uli, and Tari (2009) suggested a list of critical factors that have an impact on the results of the implementation of TQM system. Abdullah et al's list includes: leadership, teamwork, training, organizational learning, communication, and process management.

3. TQM Practices

Gurus of quality management such as Deming (1986); Juran (1988); and Crosby (1979) contributed to the formulization the practices of TQM. Their fundamental frameworks are the underlying basis of the major studies of TQM practices in the literature (Anderson, Rungtusanatham, Schroeder, & Devaraj, 1995; Flynn, et al., 1994; Kaynak, 2003; Powell, 1995; Saraph, Benson, & Schroeder, 1989). Further, gurus' frameworks influenced the practical business excellence awards and certificates (e.g. MBNQA and EFQM).

Grounded by quality gurus' frameworks, the first attempt to develop a measurement TQM practice through empirical study was done by Saraph et al., (1989). They developed eight TQM practices based on analysis of data collected from comprehensive review of literature and from participation of twenty organizations, see table 1. The study focused on participation of managers and contributed well for the other studies. Saraph and his colleagues examined the relationships between the different practices as well as the relationships among other management fields.

Another significant study on TQM practices was conducted by Flynn et al., (1994, 1995). They develop eight measurable TQM practices for manufacturing plant level. Their TQM practices are comparable to those of Saraph and his colleagues in some factors. The two preceding frameworks of Saraph, *et al.* and Flynn *et al.* have played a significant role in academia. Especially when concerning development of holistic model or set of TQM practices as well as in examining the relationships among different QM practices. However, more than a few points are distinguished between the two studies. Firstly, the practices proposed by Flynn and colleagues concerned more on the insights and awareness of employees working in manufacturing plants. Secondly, Saraph and colleagues' study which only based more on literature while Flynn and colleagues focused on empirical resource from manufacturing industry.

Recently the most popular and widely used TQM practices are based on the criteria of the Malcolm Baldrige National Quality Award (MBNQA) which developed in 1987 by The National Institute of Standards and Technology (NIST, 2012). The award's criteria were mainly developed to measure the level of QM application degree in both manufacturing and service organizations. The MBNQA criteria employ seven constructs that any organization can use to assess their quality application and implementation, see to Table 1.

Table 1. Examples of Some Influential TQM Practices Sources

Saraph <i>et al.</i> (1989)	Flynn <i>et al.</i> (1995)	MBNQA (2007)
Management leadership	Top management support	Leadership
Supplier's quality management	Customer relationship	Customer & market focus
Employee relations	Supplier relationship	
Training	Workforce management	Workforce focus
Role of the quality Department	Work Attitudes	Strategic Planning
Process management	Process flow management	Process management
Quality data and reporting	Statistical and reporting control & feedback	Information & analysis
Design and Measurement control	Product design control process	Business performance

Source: Authors

4. TQM Practices In Service Organizations

Earlier evolution of TQM focused on manufacturing and production industries more than service industries. However, the high level of competition and the raise in service industry share increased the need for TQM in services firms (Juneja, et al., 2011). Jain, Sinha, and Sahney (2011) argue that the debate on the concept of service quality drawn from the main debate on definition on TQM. The authors further argued that principles shaped different definitions by gurus of TQM are based on quality definition: quality is excellence; quality is value; quality is conformance to specifications; and quality is meeting or exceeding customers' expectations.

From TQM implementation approach, services somehow are different from products. The main differences are that service is intangibility and depend more on customers evaluation. The intangibility of service creates measurement problem while dependency on customer evaluation creates lead firms to be customer led (Juneja *et al.*, 2011).

Lenka, Suar, & Mohapatra (2010) assert that TQM practices services firms are different from manufacturing firms, see table 2. Manufacturing organizations vary from service organizations in process, operation, product features and customer relationship. Manufacturing organizations focus on the process and product quality, while service organizations focus more on customer satisfaction. Factors like social responsibility and adoption of environmental management system like the ISO certificate are more found in manufacturing organizations.

Service organizations employ less hard aspects of TQM practices, such as information and analysis and statistical process control. They rely more on customers' judgment on the quality of services. While, manufacturing firms' emphasis focuses more on suppliers and contractors relationships. In manufacturing firms training is more important especially training in advanced statistical methods. In service firms training focuses communication and interpersonal skills (Lenka, et

al., 2010; Talib, Rahman, & Qureshi, 2011; Talib, et al., 2012). However, there is no different in some TQM practices such as top management leadership customer focus and strategic management.

Table 2. TQM Practices in Service and Manufacturing Organizations

TQM Practices in Service Organizations	TQM Practices in Manufacturing organizations
Human focus	Product/technology focus
Focus on top management commitment and visionary leadership	Focus on top management commitment and visionary leadership
Continuous improvement	Continuous improvement
Emphasis is on interpersonal relationship and communication skills	In recruitment and selection, emphasis is on technical skills
Statistical process control is inappropriate in professional services	Statistical process control is prescribed universally
Checks customer defections	Elimination of product defects
Quality measurement through customer satisfaction	Quality measurement by statistical techniques
Physical evidence has an impact on service quality	Physical evidence is not applicable

Source: Adapted from Lenka et al., (2010)

Recent dimensions of TQM practices in service identified by Saravanan and Rao (2007) are: top management commitment and leadership; Benchmarking; customer focus and satisfaction; service marketing; social responsibility; human resource management employee satisfaction; service culture; continuous improvement; and Information analysis. Saravanan and Rao argue that TQM systems in services organization may have slight distinction from TQM systems in manufacturing organizations.

5. Innovation

Organizations look for innovation for different motivations and reasons. The main drives are development and strengthen their competitive advantage. Different definitions of innovation included in the literature. “*Innovation has been consistently defined as the adoption of an idea or behavior that is new to the organization* (Daft & Becker, 1978; Damanpour, 1988; Zaltman, Duncan, & Holbek, 1973; Zammuto & O'Connor, 1992). Hage (1999); Lafley and and Charan (2008) defined innovation as a new idea into benefits, revenues and profits. The most recent comprehensive definition of innovation is that by Crossan and Apaydin (2010): “*Innovation is production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems. It is both a process and an outcome.*”

6. Types Of Innovation

Crossan and Apaydin, (2010) argue that innovation has two parts: (i) a process for creating ideas and properly implementing them, and (ii) outcomes which are the end results of implementation. The process is the manner and techniques by which an idea is created and implemented, while outcomes are the products, services or business processes. There are two main inputs essential for the excepted outcomes. First, Staff of an organization must be able to make and sustain the settings that support innovative ideas and, second, to decide which ideas are worthy (Skarzynski & Gibson, 2008).

Understanding and knowing innovation types are essential for organizations. According to Hurmelinna-Laukkanen, et al., (2008), each type of innovation needs a specific treatment and response from the organization. Kim, Kumar, and Kumar (2012) assert that topology of innovation many and varies between studies. However, there are three topology approach dominant: incremental versus radical innovation; technological versus administrative innovation; and product versus process innovation (Zhao, 2005).

Technological innovation versus administrative innovation

Technological innovation is the adoption of new technologies that are incorporated into processes or products (Damanpour, 1988). Technological innovation provides long-term success in market through high competitive advantages (Grover, Purvis, & Segars, 2007). While administrative innovation refers to the implementation of new ideas improve organizational processes, routines, structures, or systems (Elenkov, Judge, & Wright, 2005). Administrative innovation is associated with internal processes

supporting the delivery of a service or product.

Product Innovation versus Process Innovation

Both of product innovation and process innovation are under technological innovation type. Product innovation is creating a new good or service or improved on existing goods or services (Burgelman, Wheelwright, & Christensen, 2009). Process innovations, on the other hand, are focuses on improving the effectiveness and efficiencies of production (Tarafdar & Gordon, 2007).

Radical Innovation versus Incremental Innovation

Radical innovations are new and diverse from previous innovations while incremental innovations alter existing products (Golder, Shacham, & Mitra, 2009). Radical innovations to be radical it has to be sole and novel and from present innovations or it has influence on the future innovations or both. The most radical innovations are the ones that are new to the world and are exceptionally different from existing products and services. Whereas Incremental innovations involves revisions or alterations to existing products or service (Burgelman, et al., 2009). Incremental innovation includes addition of elements of the service, product, or process. This additions improve the way that achieving and increasing customer satisfaction.

7. Innovation Measurements

More than few studies such as (Liu, Chuang, Huang, & Tsai, 2010; Prasad & Nori, 2008) measured and evaluated innovation in organizations. (Liu, et al.)(2010) developed innovation measurement model to be applied in high-tech enterprises in Taiwan. The basic measurement model prepared in forms of a questionnaire for top and middle management in 150 technologies industry firms. Their model partially associated with Hage (1999) argument that firm innovation measured by: profit or sale percentage resulted from the innovation initiatives; rate new products, service or solutions provided; number of ideas generated; number of patent submissions ; total cumulative working hours set into an innovation initiative; and variety of human resource capital (Gambatese & Hallowell, 2011). Voss (1992) proposed to measure innovation in service firms based on firm's performance. He listed each of financial improvement, development achieved comparing with the competition, useful employment of resource, flexibility of the process, degree of service quality, effectiveness of the innovation , speed of implementation , and cost of the innovation process and program.

Other measurement model proposed by Kanerva and Hollanders (2009) excerpted from European Innovation Scoreboard (EIS) to be specially for measuring service innovation. Kanerva and Hollanders's measurement model comprised of business R&D expenditures, non-R&D innovation expenditures, firms innovating in-house, Innovative collaborating with others, Firm renewal, Resource efficiency innovators, average of share of innovators where innovation has significantly reduced labor costs and share of, new-to-market sales, new-to-firm sales, employment in, knowledge-intensive services, and knowledge-intensive services exports.

Gambatese and Hallowell (2011) argue that the most imperative element influences innovation is the characteristics top managers and leader and characteristics of the staff. Many scholars have reported that the capacity of an organization for innovation is significantly influenced by: ability to deal with conflicts appears in the organization and level of education (Hausman, 2005), industry experience (Damanpour & Schneider, 2006), age of top managers and senior staff (Damanpour & Schneider, 2006; Huber & Glick, 1993), and willingness to share responsibility and control (Gambatese & Hallowell, 2011). Besides the characteristics of the leaders and staff, other determinants have an influence on innovation and its outcomes such as organizational culture that support innovation, availability of business resources, general political environment, social atmosphere, and technical settings (Gambatese & Hallowell, 2011).

8. The Relationship Between TQM And Innovation

The relationship between TQM and innovation is not comprehensive in the literature. The existing studies asserted a compound relationship (Bon & Mustafa, 2012 *in press*). The complexity appears from the variety of TQM practices and diversity of its dimensions and, on the other hand, from diversity typology of innovation.

Hoang et al (2006) investigated the impact of TQM on innovation in manufacturing and services firms in Vietnam. Their findings indicated that TQM has a positive impact with innovation in term of level of the newness as well as on the number of new products or service provided or developed.

Similarly to the two preceding studies findings, Martinez-Costa and Martinez-Lorente (2008) found a positive link between TQM and innovation. Martinez-Costa and Martinez- collected and analyzed a data 451 manufacturing and services firms in Spain. Their analysis outcomes resulted that TQM has positive influence on both product and process innovations. They asserted that firms have to implement TQM not only for improving the performance through focusing in enabling and easing the innovation culture. Santos-Vijande and Alvarez-Gonzalez (2007) collected and analyzed a data from 93 manufacturing and none manufacturing companies in Spain too. Their research outcomes indicated that TQM has significant influence on the administrative innovation. Their findings also showed that the relation between TQM and technical innovation is subjected to the firm's innovativeness and firm's innovative culture. However, they concluded that

TQM-innovation relationship is also subjects to the market turbulence.

Another study conducted by Sadikoglu and Zehir (2010) in 373 ISO 9001:2000 certified firms in Turkey. Their findings showed that the relationship between TQM and innovation is mediating with the employee performance. Sadikoglu and Zehir argue that employee empowerment and managers' positive attitudes lead to satisfy the employees and motivate them to become innovative in satisfying the customers which will increase competitive advantage of the firm.

Leavengood and Anderson (2011) investigated the link between TQM and innovation in the USA firms. Their analysis results showed that quality oriented firms are not innovative. Their findings claim that firms focus on quality lean to be reactive to the customers needs which will lead to firms to be derived by customers. Innovation oriented firms are proactive to the customers needs.

Table 3. Summary of The Most Recent Studies On TQM-Innovation Relationship That Included Services Firms

Study	Data source	Analysis Tool/technique	Findings
Hoang <i>et al.</i> (2006)	204 manufacturing and service firms in Vietnam	Structural equation modeling	There is Positive link between TQM and innovation but not all TQM practices have the same positive impact.
Martinez-Costa and Martinez-Lorente (2008)	451 manufacturing and nonmanufacturing firms in Spain	Structural equation modeling	TQM has a positive impact on product and process innovation and on the company performance.
Santos-Vijande and Alvarez-Gonzalez (2007)	93 ISO 9000 certified firms (manufacturing and service) in Spain	Structural equation modeling	There is a Significant positive relationship between TQM and administrative innovation.
Sadikoglu and Zehir (2010)	373 firms from different industries in Turkey	Structural equation modeling	TQM has a positive influence on innovation performance whether directly or through mediating role of employee performance.
Leavengood and Anderson (2011)	215 firms in west coast of USA.	Data envelopment analysis (DEA)	TQM with customer focus oriented approach has negative relationship with innovation in quality oriented firms

Source: Authors

To sum up, the general view of the studies on the relationship between TQM and innovation is characterized by various attributes. First, findings are contradicted. Some researchers (e.g. Singh & Smith, 2004) found no relationship, while others (e.g. Prajogo and Sohal, 2001) mentioned that TQM may have a negative influence on innovation due to some practices. However, the majority of the results showed a support the positive function of TQM on innovation. Second, no such a study investigated the impact of TQM on innovation in services firms or in services industry. All the studies followed the typical TQM approaches that linked practices of TQM with manufacturing firms and industry.

9. Theoretical Framework and Hypotheses Development

9.1. TQM Practices

TQM is an integral part of the extensive theory of management. Based on Deming's theory of management 1983, 1993, TQM considered as one the effective management systems and methods. Definition of TQM as a management philosophy seeks to improve overall function of an organization is the most widely considered definition fixes TQM under the management theory (Anderson, et al., 1995; Deming, 1986, 1993; Hoang, et al., 2006; Kaynak, 2003; Kim, et al., 2012; D. Prajogo & Sohal, 2004; Rungtusanatham, Forza, Filippini, & Anderson, 1998). 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. TQM practices developed by Saraph et al 1989 are the most widely used and utilized by many studies such as Flynn et ; al, 1995; Powell, 1995; Kaynak 1997, 2003; Samson & Terziovski, 1999; Hoang et al, 2006; Kim et al, 2012, see table 2.3.

Table 4. TQM Practices Basedon Saraph Et Al's Constructs

Saraph <i>et al</i> (1989)	Flynn <i>et al.</i> (1995)	Powell (1995)	Samson & Terziovski (1999)	Kaynak (2003)
Top management leadership	Top management support	Executive commitment	Leadership	management leadership
Supplier's quality management	-Customer relationship -Supplier relationship	Customer & supplier relationships	Customer focus	Supplier quality
-Employee Relations and Training		Employee empowerment	People management	Employee relations
	Workforce management		Strategic Planning	
Role of the quality department	Work Attitudes management	-Adoption and Communication		Employee training
Process management	Process flow	Process improvement	Process management	Continuous Support Quality system improvement
Quality data reporting			Information analysis	Information analysis
Design and control	Statistical control and feedback -Product design	-Zero defect -Measurement -Flexible manufacturing		Statistical quality techniques use
		Quality training		
		Benchmarking		

Source: Adapted from Kaynak, 2003

As discussed earlier in part 2.7 in this chapter, implementation of TQM in services firms has some differences from implementing them on manufacturing firms. Service organizations focus more on customer satisfaction and employ less hard aspects of TQM practices (e.g. statistical process control and process management) and rely more on customers' judgment on the quality of services. Furthermore, service firms focus more on human resource management, human resource training, communication, and interpersonal skills (Lenka et al., 2010). Accordingly, and based on a comprehensive literature review, TQM practices that have more effect in service organizations are shown in Table 2.4.

It can be clearly observed from the table, management leadership; employee involvement; employee empowerment; customer focus; and training are human resource HR management practices. HR, or people management, practices are dominating in services organizations applied TQM. Rahman (2001) and Rahman & Bullock (2005) categorized TQM practices into two types: soft and hard. The soft TQM practices are related to the people management practices, while the hard TQM practices are related to the practical and numerical quality control tools in manufacturing organizations.

TQM practices will be used in this study are based on the practices that developed by Saraph et al 1989 and followed by many researchers (e.g. Flynn et al, 1995; Powell, 1995; Kaynak 1997, 2003; Samson & Terziovski, 1999; Hoang et al, 2006; Kim et al, 2012), refer to table 2.3. Hard TQM practices will be excluded as it related more to the manufacturing operation, inspection and quality control. The soft TQM practices that will be used in this study are top management leadership, employee involvement, employee empowerment, customer focus, and training. In addition, continuous improvement and information and analysis are widely discussed in the literature of TQM in service organizations. Continuous improvement is one of the main element in quality systems (Anderson, et al., 1995; Dean & Bowen, 1994; Motwani, 2001; Powell, 1995; D. Prajogo & Sohal, 2001; Rönnbäck & Witell, 2008). Martínez-Costa and Martínez-Lorente (2008) asserted continuous improvement as one of the main elements of TQM. They argue that the process of continuous improvement will lead to change in the organization and this change will have directly effect on innovation.

Information and analysis practice also is widely discussed and considered in TQM practices literature on services (Hoang, et al., 2006; D. Prajogo & Sohal, 2004). Information and analysis serves the purpose of TQM implementation and continuous improvement process through gathering information from customers and analyze it for the purpose of improving the service and satisfying them, and gathering about competitors for the purpose of strengthen the competitive advantage against them.

Besides the theoretical literature, the TQM practices that will be used in this study are considered and included by many well known quality and business excellence models and criteria such as MBNQA, EFQM, and Malaysian Quality Management Excellence Award (QMEA), see table 2.4.

These practices, namely top management leadership, employee involvement, employee empowerment, customer focus, training, information analysis, and continuous improvement will be the independent variable in this study model, see figure 2.2.

Table 5. TQM Practices That Related More To Service Organizations Business Nature

TQM practice	Studies/theories	Business excellence awards	Description
Top management leadership	(Ahire, et al., 1996; Crosby, 1979; Deming, 1986; Flynn, et al., 1994; Powell, 1995; D. Prajogo & Sohal, 2003; Saraph, et al., 1989).	EFQM, MBNQA, QMEA	Top management leadership is the degree of which leaders and top management assign TQM objectives, provides the required resources, furnish to quality improvement efforts, and evaluate TQM implementation.
Employee Involvement	Lawler, (1992); Flynn et al., 1994; Prajogo and Sohal, 2003; Samat et al 2006; EFQM, MBNQA	EFQM, MBNQA, QMEA	The level of which employee are committed, included, and concerned with the TQM activities.
Employee Empowerment	Lawler, (1992); Saraph et al., 1989; Flynn et al., 1994; Powell, 1995; Ahire et al., 1996; Prajogo and Sohal, 2003; Samat et al, 2006.	MBNQA, EFQM, QMEA	The degree of autonomy that employee are acquired in order to do their job and missions.
Information & Analysis	Sila and Ebrahimpour, 2002; Prajogo and Sohal, 2003; MBNQA	MBNQA, EFQM, QMEA	The degree of which information and data are collected, gathered and analyzed for the purpose of improving the TQM performance and implementation.
Training	Deming, 1982; Saraph et al., 1989; Flynn et al., 1994; Powell, 1995; Ahire et al., 1996; Black and Porter, 1996.	MBNQA, EFQM, QMEA	Training involves education and description organization goals, operation, the TQM activates, TQM tools, TQM methods, and TQM details.
Customer Focus	Saraph et al, 1989; Crosby, 1979; Deming, 1982; Saraph et al., 1989; Flynn et al., 1994; Powell, 1995; Ahire et al., 1996; Black and Porter, 1996; Prajogo and Sohal, 2003; EFQM; MBNQA.	MBNQA, EFQM, QMEA	organization need to be customer orientated in order to achieve high customer satisfaction level through studying and understanding customers' needs and demands
Continuous Improvement	(Anderson, et al., 1995; Grandzol & Gershon, 1997; Kanji, 1990; D. Prajogo & Sohal, 2001; Rungtusanatham, et al., 1998)	MBNQA, EFQM, QMEA	Increasing and sustaining improvement in all organization functions, operations, and departments

Source: Author

9.2. Innovation Typology

Based on the previous studies and researches reviewed and discussed earlier in this chapter, there are many studies proposed different types of innovations. All of proposed typologies are not more different from the two main dimensions of innovation: technological and none technological. In the empirical studies there are five types of innovation: radical product, incremental product, radical process, incremental process, and administrative innovation (Herrmann, Gassmann, & Eisert, 2007; Kim, et al., 2012). Oslo Manual of OECD (2005) classifies innovation into four types: process, product, marketing, and organizational innovation.

In view of that, this study is going to follow an extensive topology of innovation to be tested. The proposed types are combines from the literature and Oslo Manual (2005) which are: radical product, incremental product, radical process, incremental process, administrative, and marketing innovation. Considering these types help to characterize this study to be comprehensive in term of examining the innovation. These types of innovations will be the dependent variable in the model of this study, see figure 2.1.

10. Hypotheses Development

10.1. Management Leadership

Management leadership contributes significantly to the success TQM implementation. Executives need the following skills: executive-quality leadership knowledge, ability to prioritize, executive knowledge of systems, executive knowledge of quality, and executive knowledge of change management (Antonaros, 2010). When top manager reveal all these skills, TQM implementations are deemed more successful (Antonaros, 2010). Antonaros emphasized the need to not only train top

managers in system planning and thinking but also provide deep training in quality systems. Yet with top managers being able to communicate and value TQM systems as holistic scheme, the top managers' qualities become vital for maintenance of a combined TQM model with a focus on innovation (Skarzynski & Gibson, 2008). Additionally, Antonaros demonstrated that most leaders consider TQM implementations as short-term development for competitive advantage. Antonaros found that most organizational leaders needed 24 months for TQM implementation, while it takes 3 to 5 years in MBNQA implementation.

Leadership is needed to drive the focus on quality and innovation, to define the role and responsibilities of each team, and to make final decisions regarding the allocation of resources. The senior team needs to be very clear in expectations and in their ability to balance between process and innovation, centralization and decentralization. Companies lacking strong leadership can have hostile relations between functional areas and innovative teams (Govindarajan, Kopalle, & Danneels, 2011). Top management leadership as TQM practice has a positive impact on various service organization aspect (Ab Wahid, James Corner, & Tan, 2011; Ang, et al., 2011; Ibrahim, Amer, & Omar, 2011; Jusoh, Zien Yusoff, & Mohtar, 2008; NoorHazilah, 2009; Rohaizan & Tan, 2011; Sit, Ooi, Lin, & Chong, 2009)

H1: Management leadership has positive impact on innovation.

10.2. Employee Involvement

Employee empowerment is one of main factors affects the organizational performance and outcomes of business (Abdullah, et al., 2009; Lewis, et al., 2006; Schroeder, 2008; Wehnert, 2009; Zakuan, et al., 2008). They argue that the contribution and involvement of the employees in the process of TQM implementation boosts their, commitment, self-sufficiency and inventiveness which lead to the organization innovation.

H2: Employee involvement positive impact on innovation.

10.3. Employee Empowerment

Employee empowerment is a key TQM practice that managers count on to increase the success of TQM implementation. That is because TQM emphasizes on the culture of involving all employees in the process and contributing to the work performance development (Lawler, 1992). Employee empowerment has been linked with the prominence of firm's quality culture (Howard & Foster, 1999). Thus, from managerial cognizance perspective, empowering employee leads to achieve the best of TQM implementation. Utilizing and revealing the empowerment practices within the management process in organization provokes and necessitates the concept of *total employee empowerment* (Vouzas & Psychogios, 2007).

H3: Employee empowerment has positive impact on innovation.

10.4. Information and Analysis

Gathering information and data from customers and about competitors and analyzing them presents useful results can be utilized to increase services and products quality (Hoang, et al., 2010; Ibrahim, et al., 2011) Information and analysis also is one of the main criteria included in the most recognized quality award– MBNQA.

H4: Information and analysis has positive impact on innovation.

10.5. Training and Education

Training and educating managers and staff eases the implementation of TQM system. Many authors emphasized on training and education as a vital TQM practices. Sandru and Sandru (2009) claim that managers, employees and workers need to be familiar with the tools and techniques of TQM in order to success the implementation.

H5: Training and education has positive impact on innovation.

10.6. Customer Focus

argues that all organizations need to consider customer focus as key TQM practice in order to achieve TQM implementation goal (Klefsjö, Bergquist, & Garvare, 2008). MBNQA; ISO 9000 series, Soltani *et al* (2008); and Zakuan *et al.* (2008) identified customer focus as essential TQM factor that reflects TQM implementation results. Dean and Bowen, 1994 asserted that customer focus is one of the three main principles of QM systems.

H6: Customer focus has positive impact on innovation.

10.7. Continuous Improvement

Continuous improvement is one of the three main principles of QM systems, the other two are customer focus, and teamwork (Dean & Bowen, 1994; Rönnbäck & Witell, 2008). Those authors further argue that continuous improvement help to satisfy the customers and increases the competitive advantage of the form.

H7: Continuous improvement has positive impact on innovation.

11. Conceptual Model Of The Study

The theoretical base of the study framed the conceptual model to be comprised of TQM practices (top management leadership, employee involvement, employee empowerment, customer focus, training, information analysis, and continuous improvement) to be the independent variable. The dependent variable is the six innovation types: radical product, incremental product, radical process, administrative innovation, incremental process, administrative innovation, and marketing innovation (see figure 2.1).

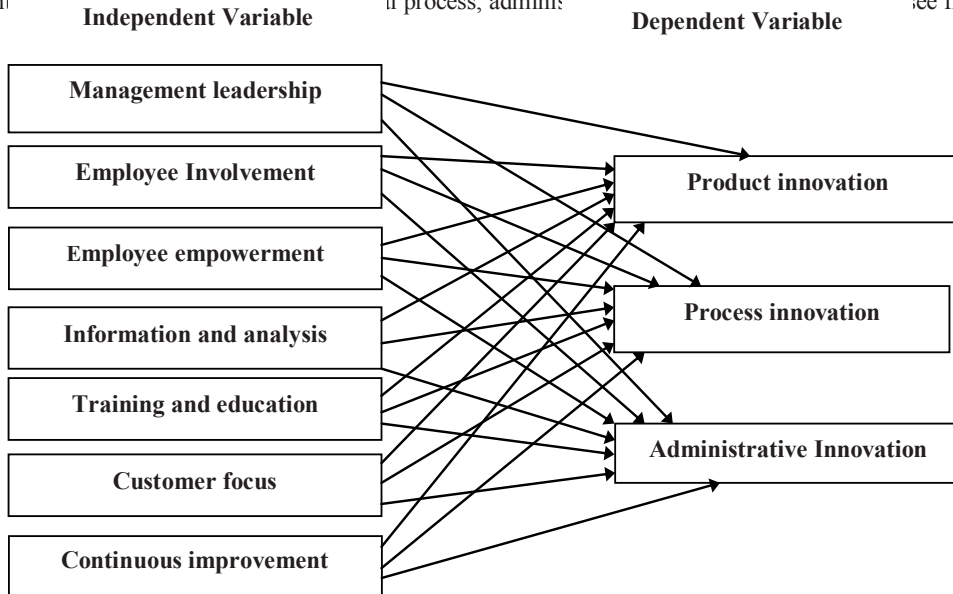


Figure 2: Conceptual model of the study

12. Conclusion

The purpose of this paper was to review the literature on the relationship between TQM and innovation in services organizations, and to develop a research conceptual framework and initial conceptual model. Studies on TQM and innovation relationship are still scarce in the literature. While service industries role in economics becoming more important, all studies investigated the link between TQM and innovation conducted in manufacturing or in both manufacturing and service organizations and no such a study focused on only service organizations. The theoretical framework that drawn from the literature grounded by the perspective of TQM as a management philosophy within the extensive management theory. The paper hypothesized and conceptualized the relationship between TQM practices and innovation in a model comprised of top management leadership, employee involvement, employee empowerment, customer focus, training, information analysis, and continuous improvement as independent variable, and radical product innovation , incremental product innovation, radical process innovation, incremental process innovation, administrative innovation, and marketing innovation as dependent variable.

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