

Quality management framework for the SME's food processing industry in Malaysia

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Abstract

Previous literatures have demonstrated a significant research gap in terms of the quality of the management practices in the organizational performances of the SMEs particularly in the food processing industry in Malaysia. Subsequently, an exploratory study is conducted to verify the proposed critical success factors (CSF) and the model constructs for SMEs in the Malaysian food industry that is in line with these practices. Therefore, the purpose of this paper is to identify CSF of quality management practices of the Small and Medium Enterprises (SMEs) in the Malaysian food industry and to develop a conceptual framework of quality management practices based on the Total Quality Management (TQM) in relation to the organizational performance of the SMEs in the food processing industry in Malaysia. The quality management framework consists of leadership, corporate planning, human resource management, customer focus, supplier focus, information management, process management and quality assurance as the CSF. Finding from the exploratory study has supported the proposed constructs and results show that the instrument is reliable in measuring the construct. Thus, this study is important to support the SMEs in the food processing industry in Malaysia to manage and prioritize the implementation of QM in order to improve the organizational performance.

Keywords

Quality management
TQM
framework
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Introduction

In most countries, the SMEs dominate the industrial and commercial infrastructure (Deros *et al.* 2006). SMEs play a very important role in the national economies by providing job opportunities, enhancing exports of the country and also supplying goods to other manufacturing industries (Deros *et al.*, 2006; MITI, 2006). In Malaysia, there are two categories of SMEs and these are the manufacturing and services sectors. According to the Small and Medium Industrial Development Corporation, the SMEs in manufacturing sectors are defined by the number of fulltime employees but it must not exceeding 150 employees. However, it can also be defined based on its annual sales turnover that is not exceeding RM 25 million (SMIDEC, 2006).

As reported by SMIDEC (2006), the number of companies in the manufacturing sector is 40,793 and out of these 39,376 are SMEs. The food and beverage industry, which has been a second manufacturing sub-sector after textiles is dominated by SMEs reaching to around 5,925 business entities from a total of

6,069 companies. However, SMEs are described in literature as business entities that face problems in expending and succeeding in business due to lack of knowledge, skills, business resources, and low quality products (Quazi and Padibjo, 1998; Yusof and Aspinwall, 2000; Idris, 2004; Rahman, 2004; Osman, 2005; Rahman and Tannock, 2005).

As stated in the Third Malaysian Industrial Master Plan (IMP3), the food industry is generally less vulnerable in the world economic changes and therefore it has been estimated that the present global retail sales in food products are worth US\$3.5 trillion and expected to grow at an annual rate of 4.8 percent to US\$6.4 trillion in 2020 (MITI, 2006). The main factors driving the demand of food products include (MITI, 2006): (i) changes in disposable income, lifestyle and demographics, and an increased health consciousness, which influence the demand for convenience health and functional food; (ii) changes in consumer demands, which compel food manufacturers to meet specific requirements and preferences at the regional and domestic levels; and (iii) changes in trade where there is the trend

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for global trade liberalization, through multilateral and regional trade agreements which would expand market accessibility and world trade in food product sector. These identified trends in food industry have created opportunities for investments in the expansion of the market and the development of food products and the Malaysian food industry, especially the SMEs should therefore grasp this opportunity. On the other hand, it is in line with the aspiration of the Malaysian government to achieve the halal hub status in this region especially in the food industry, as explained in the Third Malaysian Industrial Master Plan (IMP3, 2006-2020) and Ninth Malaysian Plan (RMK9, 2006-2010) for food processing and the planning in the development of programmes for the SMEs (MITI, 2006).

According to Shukor (2004), smaller nations like Malaysia are bound to face difficulties in competing in the global trade economy which is mostly dominated by the larger economies, as well as it is a complex process to develop adequate resources in the development of the food industry and trading by Malaysia. In addition, as stated by Salleh and Kuppusamy (2007), "the ever changing competitive business environment often requires firms to adapt quickly to a challenging environment, even more so for small businesses. Small businesses are facing competition not only at their peer level but also from bigger corporations". Thus, the SMEs today need to identify, prioritize and minimize their business challenges in order to be more competitive and relevant in the business world. This scenario is also applicable to SMEs in Malaysia (Salleh and Kuppusamy, 2007). Likewise, the development of the SME sector in Malaysia has been phenomenal thereby contributing significantly to the economic growth process over the years (BNM, 2005).

At the moment, the food industry seems to be one of the potential and an important industry in Malaysia and therefore it is necessary to ensure the conformity, assurance and trustworthiness of the quality of food products. The quality of a food product is referred to be in every single aspect of the food including the safety, nutrition and hygiene (Musa, 2008; Talib *et al.*, 2009). In Malaysia, some consumers are using the halal certification as an important criteria when making a decision in purchasing food by assuming that it is a standard for quality food (Nooh *et al.*, 2007). However, Good Manufacturing Practices (GMP) or Hazard Analysis Critical Control Point (HACCP) and ISO certification is the criteria in the European market as well as in other countries (Nooh *et al.*, 2007). Furthermore, the halal assurance and certification is the important requirement for Muslim consumed

items especially food products. In the nutshell, halal accreditation is currently a comprehensive quality assurance as it covers every aspects included in other food accreditation assessment practices. This is stated by Lokman (2008), that halal assurance encompasses holistic concept of quality including hygiene and sanitary, safety, wholesomeness and is permissible by God Almighty. Moreover, according to Talib and Ali (2009), halal quality assurance in Malaysia (MS1500:2009) has covered the requirement by most of the international standards such as GHP, GMP and HAACP, which indeed are the requirement by world food manufacturers.

Consequently, the entire aspect of quality management, food quality assurance and wholesomeness cannot be disregarded by the food processing industry. The imperative characteristic of quality food products is safety and it should be safe to consume this food, which should be good for health, is in good condition, and with no contamination (Barendsz, 1998; Grigg and McAlinden, 2001; Musa, 2008).

Literature

TQM and business excellence became very popular ideas in the last decade. Moreover, TQM has gained a wide acceptance as a means of gaining and sustaining a competitive edge in the global market (Quazi and Padibjo, 1998; Yusof and Aspinwall, 2000; Lakhali *et al.*, 2006; Sharma and Kodali, 2008; Pinho, 2008). However, when trying to measure their overall performance, to identify strengths and areas for improvement and to prioritise efforts, organisations still face considerable difficulties and problems (Kanji, 2001). Furthermore, organisations need a framework that is comprehensive, flexible and easy to adopt. Since success clearly depends on a combination of factors that are interrelated, the approach must be holistic, important, and at the same time has the impact that any change in one of the components will not have a negative effect on the overall system (Kanji, 2001). Many companies are aware of the necessity to implement quality management (QM) and are trying to attain a status through bagging the national or international awards that are being bestowed these days. Therefore, these also supported that quality management (QM) is not really a new issues in manufacturing, implementation of QM or TQM is not limited to any type or size of the organization (Ahmed and Hassan, 2003). This is also supported by Fenning *et al.* (2008), noted that, quality management is seen as strategic tool to improve organizational performance in both large and small businesses in any part of the world. Therefore,

literatures have shown numerous of suggestion on the QM approaches. The reasons being only to help industries improved its efficiency and competitiveness through quality improvement (Talib *et al.*, 2010).

According to Flynn *et al.* (1994), quality management is defined as an integrated approach of achieving and sustaining high quality output, focusing on the maintenance and continuous improvement of process and defect prevention at all levels and functions of the organization, in order to meet or exceed customer's expectation. This definition was used as a guide in the development of the proposed framework in the study of quality management practices in the SMEs in Malaysian food industry. Moreover, quality management is a key element in the World Class Manufacturing approach of achieving and sustaining a competitive advantage. QM is a critical component in both design and production of products which are superior to competitors' products (Flynn, 1994). One of the most popular and often recommended approaches is the philosophy of Total Quality Management (TQM) that seeks to integrate all the organizational functions, focusing on meeting customers' requirement and organization objectives (Yusof and Aspinal, 2000; Talib *et al.*, 2010).

Meanwhile, TQM can be understood to be a strategic action that focuses on managing the total organization to provide clients with products or services that satisfy them, through the mobilisation of the individuals, management leadership and cohesion of all resources in the firm (Tena, 2004). On that matter, TQM can be defined as holistic management philosophy that strives for continuous improvement in all functions of an organization, and it can be achieved only if the total quality concept is utilized from the acquisition of resources to customer service after the sale (Terziovski *et al.*, 1999; Kaynak, 2003). Thus, according to Santos-Vijande and Alvarez-Gonzalez (2007), TQM is one of the most complex activities that any company can involve itself in; it requires implementing a new way of managing business and a new working culture which not only affect the whole organizational and all employees but also demand the allocation of significant organizational resources.

Therefore, TQM is a management approach to improve the effectiveness, flexibility and competitiveness of a business as a whole. The techniques of TQM can be applied throughout the departments of a company so that people from different departments, with different priorities and abilities will be able communicate and help each other (Hamzah and Ho, 1994). Over the years several research studies have been working on models of business excellence as well as business performances

of large companies and SMEs in general. However, as evidenced by literature very few research findings are reported on food based SMEs especially in Malaysia except on the food sciences and quality assurances which are associated to food safety and hygiene (Rohitratana and Boon-itt 2001; Spiegel *et al.* 2003; Manning and Baines 2004; Kontogeorgos and Semos 2008; Karipidis *et al.* 2009).

Furthermore, the best quality techniques and TQM will facilitate an SME to acquire a brighter opportunity in the market. This is supported by Lee (2002), where he says that "the core principles of TQM encourage business practices and they help enhance business excellence." In order to face the increasing competition in today's market scenario, the SMEs, especially the Malaysian SMEs in the food industry need to intensify their productivity and quality initiatives. A review of the QM practices in Malaysia shows that little empirical research has been conducted in the area of TQM implementation specifically in the Malaysian manufacturing industry. Most of the research is conducted on industries related to the automotives (Deros *et al.* 2006; Lazim *et al.* 2008), electric and electronics sectors (Agus 2005; Abdullah *et al.* 2008) or on SMEs in general (Thiagaragan *et al.* 2001; Rahman and Tannock 2005).

Nevertheless, until today there is no empirical study on quality management in the food processing industry. Thus, the arising research questions on the aspect of quality management practices of the SMEs in the Malaysian food processing industry are yet to be answered. The research questions that arise are: (i) What is the critical factors for achieving the successful of TQM practices by the SMEs in food processing industry in Malaysia?, and (ii) Will the CSs of TQM practiced by SMEs in the food processing industry enhance the organizational performance. Therefore, the current situation of the TQM implementation in the Malaysian food processing companies remains unclear. This study is conducted with the intention of addressing the gaps in the research work and the unanswered research questions so as to consequently provide the SMEs in the food processing industry in Malaysia with practical assistance in the area of QM implementation. Overall, the study aims to identify the CSFs of TQM constructs and to develop a framework as a business excellence model to determine the success factors of TQM practices by an SME in the food processing industry and its relationship to its organizational performance. Nevertheless, this paper is only focuses on the development of CSF constructs of quality management practices among SMEs in food industry in Malaysia. In order to measure the

quality management practices and organizational performance relationship among SMEs food processing industry in Malaysia, CSF constructs of quality management are proposed based on the total quality management philosophy in order to develop a conceptual framework for this study.

In the meantime, gurus for quality have outlined several approaches to improve company performance (Lakhal *et al.*, 2006). The approaches are embodied in a set of QM practices, known as TQM (Reed *et al.*, 2000; Sila and Ebrahimpour, 2002; Lakhal *et al.*, 2006; Drew and Healy, 2006). TQM provides a vision that focuses on everyone in the organization to be involved in the improvement of quality. The pursuit of quality improvement is not only requested by the market but also driven by the need to survive (Agus, 2005). Moreover, QM practices have a positive impact on organizational performance (Lakhal *et al.*, 2006). TQM allows firms to obtain a high degree of differentiation, satisfying customer needs and strengthening the brand image, and also acts as a tool to reduce costs by preventing mistakes and time wastage, while it allows improvement in the corporation processes (Drew and Healy, 2006).

Many literatures have shown that the empirical findings of studies on TQM have a positive impact on business performance. According to Sila and Ebrahimpour (2005), the importance of TQM factors may be contingent upon factors such as industry environment, firm size, and the original country of the company. Therefore, further research is needed to investigate for the explanation of different performances that result from different environments as well as the importance of TQM in the different environments. A TQM paradigm applies to all enterprises, as QM addresses the needs of both manufacturing and servicing (Brah *et al.*, 2002). While, Prajogo and Sohal (2006) noted that TQM has a strong predictive power against quality performance but however, the harmonization of other implementation of the TQM techniques is appropriate for enhancing the organizational performance. The entrepreneurs, who implemented TQM, achieved better employee relations, higher productivity, higher customer satisfaction, increased market shares, and increased profitability (Quazi and Padibjo, 1998).

TQM should not be regarded as a competitive strategy for only large firms. For the implementation of quality constructs, to be as effective as their large counterparts, small firms should capitalize on their relative strengths in employee involvement and participation (Brah *et al.*, 2002). This is further supported by Yusof and Aspinwall (2000) that the definition of TQM for the large companies is not the

same for SMEs. In addition, they also emphasize that a “full-blown” TQM implementation approach is not suitable for a company with limited resources. However, TQM implementation has become a requirement for the survival of a company, not only for large enterprises but also for the SME’s (Temtime, 2003). This is due to the different characteristics of the SME’s as compared to the large enterprises in terms of finance, skills and knowledge, and as well as the people involved (Yusof and Aspinwall, 2000; Temtime, 2003; Rahman, 2004; Yapp and Fairman, 2006). Thus, topics and discussions related with SME’s as well as the aspects of quality have become an interesting area of study.

In addition, the need of specific framework for food industry is required for measuring their quality management practices towards good performance achievement. Adaptation based on previous quality management framework from various industries and business excellences models has been considered in the development of the research framework. However, there is an urgent need for this industry to have specific framework because of the uniqueness of this industry as opposed to other industries. This is by the fact that the focus of this industry is depictions of the supply of food products that are suitable, safe and diverse. In fact, this industry is a vast industry because it involves a large chain starting from the farm that supplies raw materials to food products to consumers (Dudbridge 2011).

Furthermore, the practices, and organizational structure of the food industry is different from other industries that are often reported by the literature reviews. These differences is also supported by the lack of previous empirical studies report on assessing quality management practices and performance in food industry as employed to other industries such as automotive and electric and electronic base industry. This situation has been recognized by Mann *et al.* (1998, 1999) in studies done on food and beverage industry in the United Kingdom. He found that the level of quality management practices is low among the operators in this industry. He further stressed that this situation may occur because of poor exposure and attention given by previous studies on quality management practices and excellence do not like the exposure given to other industries. Thus, the specific framework for SMEs in food processing industry to enable the measurement of quality management practices and performance relationship is significant to be developed, as there is no concept of “one size fit all” practices for any framework of quality management implementation (Temtime, 2003; Das *et al.*, 2008).

Proposed TQM constructs

The requirement of TQM and its planning varies between one industry to another (Temtime, 2003; Das *et al.*, 2008). Hence, it signifies the requirement of a model of excellence for the Malaysian food processing industry which is based on the TQM approach. Accordingly, the TQM implementation must differ in different organizations and there is no “one-size-fits-all” concept in the implementation of TQM which, should be in good agreement with the quality and model for business improvement (Temtime, 2003; McAdam and Henderson, 2004; Das *et al.*, 2008). Moreover, the model for quality that is implemented in large enterprises will create inconvenience if it is applied in all the SMEs (McAdam, 2000).

A development of a system or the TQM model in agro-food industry requires a good understanding of the food industry as it requires integration of all parties involvement in the agro-food chain (Barendsz, 1998). The conceptual framework proposed in this paper is developed based on the previous models published by other researchers such as Yusof and Aspinwall (2000), Lee (2002), Sila and Ebrahimpour (2005), Tari *et al.* (2007), Pinho (2008) and others. In addition, elements of the international and national quality awards, such as the Deming Prize (Japan), Malcom Baldrige National Quality Award (United State), European Foundation Quality Award (European) and Prime Minister Quality Award/Quality Management Excellence Award (Malaysia) respectively are considered in the proposed conceptual framework for assessing the quality management practices among SMEs in food processing industry in Malaysia.

Moreover, a comparison of award based framework, Sharma and Kodali (2008) as shown in Table 1 have outlined a research or academic-based framework that has been published in various literature and these have been some of the guidelines for the authors to determine the critical success factors in the development of the conceptual framework. The quality award criteria is the most commonly used method for categorizing the TQM elements (Samson and Terziovski, 1999). Thus, further research as to which TQM element is critical for different countries, environments and industries is significant to conduct (Sila and Ebrahimpour, 2003). TQM constructs have been investigated extensively and the critical factors of TQM can be described as best practices or ways in which firms and their employees undertake business activities in all key processes (Sila and Ebrahimpour, 2005). According to Sharma and Kodali (2008), TQM principles support the business practices of cost reduction, enhance productivity and improve quality of products and etc., that helps to support and fulfill

Table 1. Core elements for TQM excellence

Core TQM elements of Excellence Award based frameworks	Core TQM elements of researchers/ academic-based frameworks
Leadership	Leadership/top management commitment
Customer focus/satisfaction	Customer focus/satisfaction
People management	People management
Strategy, policy, planning	Strategy, policy, planning
Process management	Process management
Employee satisfaction	Employee satisfaction
Resources	Supplier focus/management
Quality assurance	Quality measurement/measure
Information management and analysis	SPC/QCC/BS/SQC
Market focus	Process design/product design
Impact on society/responsibility	Employee training/ involvement
Business results	Continuous improvement
	Benchmarking

Sources: Sharma and Kodali (2008)

the concept of excellence in manufacturing. The key for successful QM lies in the intangible factors and the TQM tools and techniques (Brah *et al.*, 2002).

Researchers who are developing their frameworks are considering TQM as an important parameter or construct as an enabler for achieving manufacturing excellence. Hence, this agrees to the view that TQM excellence is a fundamental criterion or element for achieving manufacturing excellence (Yusof and Aspinwall, 2000; Temtime, 2003; Sharma and Kodali, 2008; Pinho, 2008). However, TQM implementation should be unique for an organization (Temtime, 2003; Das *et al.* 2008). However, the critical factors in TQM reported in the literature varies from one author to another, although there are common themes formed by its own requirements such as top management commitment, employee involvement, customer focus, process management and others (Samson and Terziovski, 1999; Conca *et al.*, 2004; Drew and Healy, 2006; Das *et al.* 2008). Besides that, Tari (2005) addresses three significant conclusions of his empirical study on the TQM practices among ISO 9000 certified firms in Spain and these are: (i) that the critical factors of TQM differ from one author to another, although there are common issues, (ii) in practice, manufacturers may tend to follow the known and accepted standard models as quality management guidelines, and (iii) TQM is much more than a number of critical factors which include its tools and quality improvement techniques.

Various studies have been carried out to identify successful quality management elements from three different areas and they are: contributions from quality leaders, formal evaluation models and empirical research. These elements may be grouped into two dimensions; the management system, or soft TQM element, and technical system, or hard TQM element (Tari, 2005; Lewis *et al.*, 2006; Abdullah *et al.*, 2008; Fotopoulos and Psomas, 2009; Gadenne and Sharma, 2009). Thus, in this paper, the authors identified the construct/s of the critical success factor by adapting and comparing the concept of total quality management presented in various literature. Table 2

Table 2. Constructs proposed by literature

Proposed Constructs	Some Related Constructs
Leadership	Top management commitment and support (Rao et al., 1999; Lakhali et al., 2006); Management commitment and consistency of purpose (McAdam, 2000); Top management commitment (Motwani, 2001; Sohail and Hong, 2003; Lewis et al., 2006); Leadership (Samson and Terziowski, 1999; Brah et al., 2002); Genuine top management commitment (Rahman and Tannock, 2005); Management support and commitment (Samat et al., 2006); Leadership and top management commitment (Sharma and Kodali, 2008; Su et al., 2008); Management vision and leadership (Marwa and Zairi, 2008)
Corporate planning	Strategy quality planning (Rao et al., 1999; Gotzamani and Tsiotras, 2002); strategy and policy planning (Tan, 2002); Strategy and planning (Rahman, 2001; Sohail and Hong, 2003); Strategic planning (Samson and Terziowski, 1999; Sila and Ebrahimpour, 2005; Prajogo and Sohal, 2006); Strategy, policy, planning (Sharma and Kodali, 2008); Mission/corporate planning (Brah et al., 2002)
Human resource management	Employee participation and understanding all levels (McAdam, 2000); Employee training and empowerment (Motwani, 2001; Sohail and Hong, 2003); Human resource management (Gotzamani and Tsiotras, 2002; Tari et al., 2007); People management (Samson and Terziowski, 1999; Tan, 2002; Prajogo and Sohal, 2006; Sharma and Kodali, 2008); Employee involvement (Lewis et al., 2006; Su et al., 2008); People involvement (Arumugam et al., 2008); Human resources focus (Brah et al., 2002); Human resources development (Marwa and Zairi, 2008)
Customer focus	Customer understanding and satisfaction (McAdam, 2000); Customer involvement and satisfaction (Motwani, 2001; Sohail and Hong, 2003); Customer relations (Gotzamani and Tsiotras, 2002); Customer management and satisfaction (Tan, 2002); Customer focus (Samson and Terziowski, 1999; Samat et al., 2006; Prajogo and Sohal, 2006; Tari et al., 2007; Arumugam et al., 2008; Abdullah et al., 2008); Customer focus and satisfaction (Lewis et al., 2006; Sharma and Kodali, 2008; Su et al., 2008); Customer and market focus (Marwa and Zairi, 2008); Customer focus (Brah et al., 2002); Customer Orientation (Rao et al., 1999)
Supplier focus	Supplier quality management (Motwani, 2001); Supplier relation (Gotzamani and Tsiotras, 2002; Abdullah et al., 2008; Arumugam et al., 2008); Performance and management of supplier (Tan, 2002); Supplier management (Lewis et al., 2006; Tari et al., 2007); supplier focus (Sharma and Kodali, 2008); Supplier performance (Brah et al., 2002); Relationship with supplier (Singh and Smith, 2004)
Information management	Information management (Sila and Ebrahimpour, 2005); Quality data and analysis (Gotzamani and Tsiotras, 2002); Information and analysis (Samson and Terziowski, 1999; Brah et al., 2002; Tan, 2002; Prajogo and Sohal, 2006; Arumugam et al., 2008); Information and communication (Samat et al., 2006); Information and performance measurement (Lewis et al., 2006); Quality information and performance measurement (Su et al., 2008)
Process management	Process management (Samson and Terziowski, 1999; Motwani, 2001; Gotzamani and Tsiotras, 2002; Tan, 2002; Sohail and Hong, 2003; Lewis et al., 2006; Prajogo and Sohal, 2006; Tari et al., 2007; Sharma and Kodali, 2008; Abdullah et al., 2008; Arumugam et al., 2008); Statistical process control (Su et al., 2008); Product and process design (Rao et al., 1999); Process, product and services (Rahman, 2001); Business process (Singh et al., 2006); Process focus (Brah et al., 2002)
Quality assurance	Procedures, standards, practices (Zairi and Youssef, 1995; Lewis et al., 2006); Compliance or pre-requisite (Grigg and McAlinden, 2001); Quality assurance - due diligence in relation to hygienic requirements (Manning and Baines, 2004); Use of standards (Marwa and Zairi, 2008); Quality Assurance (Rao et al., 1999)

presents, for each generic construct, a list of similar practices proposed by other authors. To understand the relationship of each TQM practice as the CSF on organizational performance of the SMEs in the Malaysian food industry, the following hypotheses will be used and tested.

TQM element as the critical success factor

In this study, the TQM element is presented as the Critical Success Factor (CSF) in quality management practices, which are purposely developed for small and medium enterprises in the Malaysian food industry. The constructs of the CSF and the hypotheses that have been formulated are described below. Besides the individual related hypotheses, it is predicted that all the dimensions of the CSF simultaneously affect

the organizational performance of the SMEs in the Malaysian food industry.

Leadership - This element is considered as a major driver for the TQM practices which examine senior executive leadership and personnel involvement in building, maintaining and supporting the total quality environment implementation that facilitates high organizational performance, individual development, and learning organizations. Many studies claim that top management dedication to be crucial to the success of quality programmes. Sila and Ebrahimpour (2005) in their study found that leadership plays a significant role in shaping the focus on the quality of a company. This is also supported by Tari et al. (2007), who says that management leadership is necessary for the effectiveness of the TQM because leadership is

directly related to quality planning, human resource management, learning and customer focus. Moreover, these elements are in the control of the top leaders in driving the organization towards total quality (Sharma and Kodali, 2008). Then, leadership and top management acts as drivers for quality management implementation, creating values, goals and systems to satisfy customer expectations and to improve the performance of an organization (Ahire *et al.*, 1996). It also noted that leadership is the fundamental driver of business excellence (Kanji, 2001).

Corporate planning - This element is significant as to whether a company has a clear quality vision and has communicated with every employee in the company. Corporate planning is important to examine how the company develops, communicates, implements and improves its strategies and policies to achieve excellence in the company performance and to establish a strong competitor position (Tan, 2002). Effective strategic business planning and deployment of plans, along with the focus on the requirements of customers, suppliers, and other stakeholders are crucial to the success of the implementation of TQM (Brah *et al.*, 2002). In addition, leadership has an indirect effect on customer focus through strategic planning (Sila and Ebrahimpour, 2005). Thus, TQM should not be branded as a competitive strategy for only large firms (Brah *et al.*, 2002).

Human resource management - The main issue addressed in this construct is to what extent has the workforce been developed and realized through the human resource practices, employee involvement, teamwork and training in the company. According to Tari *et al.* (2007), the management of human resource is the factor that has a greater effect on quality outcomes. This opinion may indicate that people are a key factor in the success of TQM. In addition, employee empowerment is important for quality improvement because it facilitates a sense of ownership. Employee empowerment practices can improve internal and external quality results (Yoo *et al.*, 2006). According to Samson and Terziovski (1999), a commonly heard statement from the top management is, "people are our critical resources" and "people are everything". As a result, it led to an expectation that this construct will have a significant effect on the organizational performance. On the other hand, human resource development is one of the CSFs in benchmarking a practice, which helps in improving business and management processes (Deros *et al.*, 2006).

Customer focus - Customer focus is measured by the commitment of the organization to satisfy their customer needs. It will integrate the level of customer

satisfaction to the company's corporate planning, the understanding of customer needs and expectations, customer feedback, customer satisfaction in the monitoring system, and the level of interaction between the company and its customers (Piskar and Dolinsek, 2006). Customer focus has a direct effect on financial performance (Lakhal *et al.*, 2006). While Boon *et al.* (2007) note, that customer focus is found to be significant and it does contribute to the job involvement of employees. Moreover, customer satisfaction lies in the core of the marketing concept through which the profits are made by the process of satisfying consumer demands (Dubrovski, 2001). This is supported by Pinho (2008), where he says that the TQM has a positive link with the customer orientation and that strong consumer orientation encourages the firm to consistently identify new customer needs and expectations that lead to a better performance.

Supplier focus - This construct is examined as to how companies select and manage their suppliers to ensure they attain the expected quality specifications set by them. This construct will also conceptualize the supplier selection criteria, number of suppliers, information exchange and services, supplier involvement and the length of the relationship between a supplier and a company (Quazi *et al.*, 2002). Furthermore, the relationship between buyer and supplier is an important factor in the organizational performance. Effective supplier quality management is facilitated by a cooperative relationship with the suppliers. According to Tari *et al.* (2007), firms must reinforce their relationship with suppliers in order to manage their processes more efficiently. This is supported by the study conducted by Temtime and Solomon (2002) that the use of supplier management and relationship will consequently lead to achieving a competitive advantage in long run.

Information management- This construct focuses on the management of quality information that influences company performance (MPC, 2010). In the areas of information and analysis, an organization must have the strong capabilities in the use of measurement and information for business performance such as performance measurement, quality data and benchmarking in order to evaluate the business competitiveness. However, information and analysis have an indirect effect on business results that are mediated through the human resource management and process management (Sila and Ebrahimpour, 2005). Most literature on TQM suggests that an organization that consistently collects and analyzes information will be more successful than those that do not (Samson and Terziovski, 1999). However,

the core practice of information and analysis has a direct and significant effect on both operational and financial performances (Lakhali *et al.*, 2006).

Process management - This element of the TQM is concerned with the way the organization manages a combination of machines, tools, methods, materials and people engaged in a production process (MPC, 2010). Process management encompasses the systems and procedures for establishing quality in the many shop floor activities involved in manufacturing. Additionally, this element is given a lot of attention by a management by using various tools and techniques (Sharma and Kodali, 2008). This construct is also concerned with how the organization manages, evaluates and improves its key processes for quality output. This is supported by Tari *et al.* (2007), process management influences continuous improvement and leads to quality outcomes. In addition, the integration of process management together with the continuous quality improvement will lead to quality products and services (Tata *et al.*, 2000).

Quality assurance - Generally, quality assurance practice is measured by: (i) new product design review procedures, (ii) design for manufacturing procedures, (iii) control of product/s and work specifications and procedures, (iv) preventive maintenance activities, and (v) quality control activities along the value added chain (Rao and Raghunathan, 1997). Consequently, this construct is also concerned about the quality assurance practices, consist of guidance, manual, standard, and etc., in the aspects of their implementation in the organization. Hence, according to Drew and Healy (2006), a quality system is more than an organizational structure or registration/system, but, quality assurance is a culture approach achieved through training and participation in the organization (Drew and Healy, 2006). Nowadays, organizations are increasingly seeking and succeeding in being awarded of quality standards implementation and most notably ISO 9000 (Drew and Healy, 2006; Srivastav, 2010). However, the pre-requisite for other quality assurance practices in the food industry are food hygiene and safety, the GHP and the GMP must be fulfilled by the manufacturers (Barendsz, 1998; Nooh *et al.*, 2007). Referring to Baines (2002) as cited by Manning and Baines (2004), the quality assurance system is to assure that the products are safe. In addition they highlight that, the quality assurance schemes have evolved out of a need to demonstrate the due diligence in relation to the hygienic requirements and they may also be used to gain access into quality food markets. The implementation of the quality assurance system in the global food market strengthens a company's position and improves its competitiveness (Karipidis

et al., 2009). Quality assurances also provide benefits to companies so as to create consumer and customer value (Nooh *et al.*, 2007). Furthermore, a standard is important as a management tool in a company, and in addition, the standard promotes indicators which measure effectiveness and the efficiency of business processes (Piskar and Dolinsek, 2006). Quality assurance is important and gives a significant impact to the business performance. To enable the business to succeed in the global competitive market, food manufacturers must comply with various international and local quality standard requirements (Spiegel *et al.*, 2003; Ogden and Grigg, 2003; Talib *et al.*, 2009).

According to Spiegel *et al.* (2007), quality systems are applied to assure food quality. Thus, food manufacturers have to decide which QA system is most suitable to their specific situation. In the food industry, particularly in Malaysian scenario, quality assurance systems, such as GMP, GHP, HACCP, Halal Standard-MS1500:2004, ISO-series and etc., are applied voluntary to ensure food quality and food safety. The purpose of those is to build and maintain consumers' trust (SIRIM, 2005; Achilleas and Anastasios, 2008). However, effective quality assurance system will lead to the quality conformance and it becomes a primary goal to manufacturers (Achilleas and Anastasios, 2008). These are supported by the finding that quality assurance implementation is significant to the performance improvement (Gotzamani *et al.*, 2007). The same finding found by Heras *et al.* (2002), that companies having ISO 9000 certification, are more profitable than the non-certified companies

Performance measures

Organizational performance measurement has become more crucial for the survival of companies in today's globalization market (Brah *et al.*, 2002). Thus the development of the performance measurement system that satisfies the company's business requirement is necessary to enable the company to achieve its desired business performance. Performance measurement will allow companies to pay more attention to the area they are lacking (Skrinjar *et al.*, 2008). Therefore, there is an extensive amount of literature on performance measurement, frameworks and systems.

Business performance in the TQM literature has been calibrated with financial measures, operational measures, service performance and customer satisfaction measures by including multiple aspects of performance. The measurement contrives a scale for the organizational performance containing

Table 3. Performance measure proposed by literature

Author(s)	Measure	Variables
Chong <i>et al.</i> (2001)	Performance improvement	Quality (internal quality; external quality); Productivity (labor productivity; employee behavior; throughput time; inventory levels; Unit cost)
Husain <i>et al.</i> (2001)	Total performance	Revenue; profit; market share; image
Brah <i>et al.</i> (2002)	Quality Performance	Product/service quality; Employee and service quality; Process quality; Supplier performance
Ahmed and Hassan (2003)	Performance measure	Sales; overall competitiveness; cash flow; exports; market share
Naser <i>et al.</i> (2004)	Financial performance	Economic value added; return on sales; free cash flow
Agus (2005)	Financial performance	Total assets; Net profit
Sila and Ebrahimpour (2005)	Business result	Customer focus result; Human resource results; Financial and market results; Organizational effective result
Lakhal <i>et al.</i> (2006)	Organizational Performance	Financial performance; Operational performance; Product quality
Tari <i>et al.</i> (2007)	Quality outcomes	Customer results; people result; society results; quality performance
Feng <i>et al.</i> (2008)	Organizational performance	Operational performance (cost reduction; increased productivity etc.); Business performance (increase market share, corporate image etc.)
Arumugam <i>et al.</i> (2008)	Quality performance	Quality of product and service; customer relations, customer satisfaction with product quality; level of quality performance relative to industry norms
Škrinjar <i>et al.</i> (2008)	Organization performance	Financial ; Non financial
Su <i>et al.</i> (2008)	Organizational performance	Quality performance ; business performance; R&D performance
Jusoh and Parnell (2008)	Performance measurement	Financial measure; customer measure; internal business process measures; learning and growth measures
Fotopoulos and Psomas (2009)	TQM result	Customer satisfaction; employee satisfaction; impact on society; business result
Zakuan <i>et al.</i> (2010)	Organizational Performance	Business Result Level of Satisfaction

organizational and operational performance measures (Jung and Hong, 2008). Furthermore, according to McAdam and Bannister (2001), performance measurement in the modern business environment has to reflect on a certain level of consistency both internally and externally in all organizations.

Several authors have proposed different quality measures that affect business performance. Literature has identified different variables used for measuring organizational performance as shown in Table 3. Many variables are used for measuring organizational performance; however, they still measure the aspects of financial and non-financial performances. By adopting the methods published by previous researchers, the authors decided to study the multiple measures of the organizational performance, including financial and non-financial outcomes. Thus, for this study, organizational performance, ORGP, will be measured in two categories, which is

operational performance and business performance as suggested by Feng *et al.* (2008). Referring to Feng *et al.* (2008) the performance measurement is divided into two: (i) operational performance measurement that consists of the organization's internal operation such as productivity, product quality and customer satisfaction and (ii) business performance measured by the enlarged domain of performance related to financial and marketing aspects such as sales growth, profitability and market shares.

Accreditation as a moderating variable in the quality management framework

In food business, quality and safety are very essential and critical; moreover, quality of products is essential for realizing customer satisfaction and as a weapon (strategy) for successes in the competitive environment nowadays. The quality assurance or system is related to the accreditation.

However, when the QA implementation is fulfilled in the organization, then it will be consequence with the award of the certification. This is similar to the award of ISO-series where the ISO 9000 certification will only be given when the system, process and procedures satisfy the requirement of the standard document and put into practice and the practice outcomes are recorded and presented as evidence of the implementation (Srivastav, 2010). No food production, processing, distribution company or organization can be self sustained unless the issues of food safety and quality are properly recognized and addressed (Musa, 2008). Consequently, this paper distinguishes the organizational accreditation element into two dimensions which are the quality certification and excellence award recipient.

Firstly, the entire conceptual framework for the implementation of TQM elements can also be used as a process or system for achieving quality awards (Musa, 2008; Das *et al.*, 2008). According to Holleran *et al.* (1999), the need of quality certification is not only to fulfill customer requirement but also to stimulate the opportunity in expanding the business and competitive advantage (Musa, 2008; Feng *et al.*, 2008). Winning quality awards offers significant publicity opportunities, particularly to the organizations that use its quality to achieve a marketing edge (Lee, 2002; Kontogeorgos and Semos, 2008). An award raises the profile of the organization and generates pride in the employees and also becomes a symbol of quality and business excellence (Lee, 2002).

However, several other studies have shown that implementing quality certification, such as the ISO 9000, does not appear to have led to improved financial performance of organizations (Terziowski *et al.*, 1997). On the other hand, ISO certified organizations do not automatically have a good product quality. For example, Singels *et al.* (2001) found that in their empirical research that ISO certification alone does not lead to an improvement of the performance of the organization. Furthermore, he noted that, they did not find a positive relationship between ISO certification and performance of the organization. While according to Abraham *et al.* (2000) certification provides a little guarantee of high performance outcomes unless accompanied by substantial changes in leadership, structure and communication. These ideas are also supported by Heras *et al.* (2002).

Most of the relevant quality assurance practices in the Malaysian food industry are the same as the practices that are outlined by the world food industry requirements such as, Good Hygiene Practices, Good

Manufacturing Practices and the Hazard Analysis Critical Control Point (Grigg and McAlinden, 2001; Spiegel *et al.*, 2003; Nooh *et al.*, 2007) but, in the case of the domestic requirement, the Government of Malaysia encourages food product manufacturers to abide to the Halal standards, MS 1500:2004 (SIRIM, 2005; Musa, 2008; Talib *et al.*, 2009). However, in Malaysia any quality assurance practices and their accreditation and other accreditation schemes (excellence awards) are on voluntary basis (SIRIM, 2005). Moreover, the number of certified food companies with those quality assurances and other accreditations in Malaysia do not seem to be encouraging (Ahmed and Hassan, 2003; DSM, 2007; JAKIM, 2008; MOH, 2009; MPC, 2008). Besides, in the quality assurance practices and accreditations, the company needs to compromise with various factors, most importantly, the cost. Thus, this requires the company's willingness in the execution of quality assurance and the accreditation process. Although there is a cost incurred in the implementation process, but, in the long term it will benefit and strengthen the company's competitive edge and thus gain leadership among competitors (Leat *et al.*, 1998). Consequently, the decision made for accreditation as moderating variables is based on these Malaysia quality certification scenarios. The quality assurance and their certifications are voluntary basis as discussed before. For this research therefore, an accreditation is proposed to be the moderating variable which may moderate the relationship among the CSFs and the SME's performance in the Malaysian food industry. Furthermore, this causal relationship will be analyzed using the structural equation model (SEM). The concept of moderating is more appropriate to investigate the accreditation impact on the relationship of CSF and ORGP in the context of Malaysian food SMEs.

Moderating variable has a contingent effect on the relationship between two variables (Sekaran, 1992; Hair *et al.*, 2006). Moreover, according to Baron and Kenny (1986), moderator is a qualitative or quantitative variable that influence the direction and strength of the relationship, between an independent variable and a dependent variable. Hence, the measurement of moderating variables can be in the types of continuous variables or categorical variable. However, in this study accreditation will be tested using categorical variables, based on accreditation status and number of accreditation awarded. In order to evaluate the moderating relationship of the CSF towards ORGP, multi-group SEM will be used. The purpose of multi-group SEM analysis is to identify any differences between two SMEs food in term of

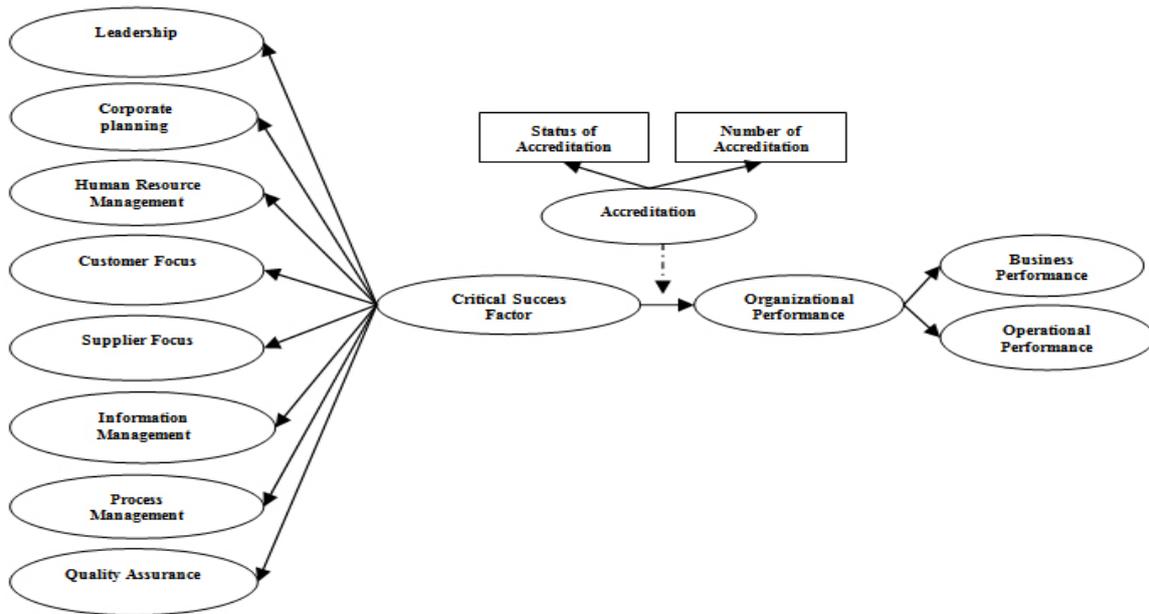


Figure 1. A quality management framework for SME's in food processing industry in Malaysia

status and number of accreditation awarded. This is in line with Yang and Jolly (2008), in order to identify the measurement invariance across group, multiple group analysis was conducted using AMOS. In addition, the statistical analysis must measure and test the differential effect of the independent variable against the dependent variable as a function of the moderator (Baron and Kenny, 1986). If the result indicates there are any significant differences between these two groups of companies, it means, accreditation as moderating is indicated (Burca et al., 2006).

For this research therefore, an accreditation is proposed to be the moderating variable which may influence the relationship among the CSFs and the SME's performance in the Malaysian food industry. The measurement will be based on the status and the numbers of quality accreditations and excellence awards received. Therefore, in order to test the relationship between the TQM and the organizational performance there has to be moderation standard by an accreditation board and the measurement is by the status and number of accreditations received, for the SMEs in food processing industry in Malaysia.

Assessing the relationship of CSF, accreditation and ORGP using SEM

In order to investigate the relationship between the CSF element and the organizational performance of the SMEs, a preliminary Structural Equation Model (SEM) which is considered significant will be used to analyze the structural effect of the CSF of TQM on the business performance in relation to the

role and impact of accreditations. The SEM is one of the advanced tools used to carry out the analysis in measuring the relationship of the latent variables (Yuan et al., 2000; Hair et al., 2006; Fotopoulos and Psomas, 2009). Substantively, the use of the SEM has been growing in business and technology including in studies on quality management. It can be used in determining the relationship of implemented QM practices on the organizational performance (Lin et al., 2005; Prajogo and Sohal, 2006; Abdullah et al., 2009; Fotopoulos and Psomas, 2009; Bou-Llugar et al., 2009; Zakuan et al., 2010).

Due to the limitation in assessing previous literature on quality management in the food industry, the proposed SEM model has adapted the conceptual model proposed by previous studies on quality management and the organizational performance mainly from Tena (2004), Prajogo and Sohal (2006), Tari et al. (2007), Bou-Llugar et al. (2009), Pinho (2008), Feng et al. (2008), Zakuan et al. (2010), and other research. However, some modifications have been made to simplify the process of establishing the relationship between the CSF and the organizational performance measures and constructs that are purposely developed for the SMEs in the Malaysian food industry.

Referring to the comprehensive review of the previous study, a conceptual model has been developed to represent the relationship between three latent variables and the performance as presented in Figure 1. There are several indicators that have been identified as appropriate for the SMEs to adopt for measuring the implementation of TQM and its

consequence to the business performances in the Malaysian food processing industry. These latent indicators are categorized into three parts which are: (i) An independent variable - CSF (measured by TQM elements); (ii) a dependent variable - organizational performances (measured by operational and business performance) and (iii) a moderating variable – accreditation (measured by the status and number of accreditations received by the SMEs' in food processing industry in Malaysia).

Figure 1 summarizes a quality management conceptual framework based on the above discussion. The conceptual framework is linked to the organizational performance. The critical success factors proposed for the Malaysian food industry SMEs consist of eight elements, which are: leadership, corporate planning, human resource management, customer focus, supplier focus, information management, process management and quality assurance. The role of the top management leadership would in turn affect the corporate planning, human resource management, information management, customer focus, supplier focus, process management and quality assurance implementation in the organization. The implementation of these constructs has a great influence on the performance of the SMEs in the food industry. Thus, more attention is needed to be given by the management of the company to well plan the constructs for enhancing organizational performance of the company. As discussed above, accreditation is recommended as a moderating variable that may influence the relationship of the CSF practices on the organizational performance. Thus, consequently, the authors believe that the element of accreditation would moderate the organizational performance in the Malaysian food SMEs. This moderated relationship is illustrated by the broken arrows in Figure 1.

Methodology

For the preliminary study, there are three steps that need to be taken before proceeding to the actual study in order to address the hypotheses and research questions. Firstly, exploratory studies have to be conducted to ensure that the proposed independent and dependent variables in the conceptual research model developed are in line with the practices. Secondly, the research instrument has to be developed as well as obtaining the opinions and testimonies of experts for the multi-item scale measurement in gaining content validity and lastly, conducting a preliminary study to test the prepared instrument. These steps are explained in the next section.

Exploratory study

Initially, literature was reviewed on topics leading to the development of the latent variables on quality management, the CSF, the organizational performance and the quality certification where accreditation had been bestowed. With the aid of the literature review, the research framework was formulated. Several interviews with the owners or the managing directors of the companies were conducted based on the research framework developed. Structured and open-ended question approaches were used as a guideline to obtain the relevant information, covering the aspects of quality management practices and the critical element/s to enhance the business performance. These companies were selected on the basis of convenience; comprising five SMEs in the Malaysian food processing industry. Appointments were made with the company representative to agree on time and venue of the interviews. The purpose of the exploratory study is to confirm/double check, whether the factors presented in the literature are in agreement with opinions and practices of the factory owners, particularly in the context of the Malaysia food processing industry.

Furthermore, this technique leads to the exploration of relevant ideas pertaining to the issues of the SMEs in the food industry. As there is very little published literature on quality management practices in the food industries, the exploratory study provides some significant understanding on the actual problems in the industry and this would verify the constructs of the proposed model. The interview sessions were recorded with the permission of the respondents and each interview took approximately from one to one and half hour. The exploratory study demonstrates leadership, company strategy, employee relationship, customer focus, supplier relationship, method of manufacturing processes which were the factors that were highlighted by respondents and are most important for the business performance. They also agreed, to the fact that accreditation plays a significant role for stimulating the business competitive edge. However, to what extent its influence is on the business performance of SMEs in the food processing industry in Malaysia need further empirical investigation.

Instrument development

The survey instrument used in this study is largely derived from reviewing of various conceptual and empirical quality management related studies, such as by Powell (1995), Agus (2000), Brah *et al.* (2002), Conca *et al.* (2004), Tari *et al.* (2007), Feng *et al.* (2008), and others. However, as discussed

above, most of TQM or quality management research is conducted in the heavy industries such as the automotive and the electrical and electronic industries, therefore, the authors used the previous studies for developing their item of measurement for the CSF and ORGP constructs for measuring the quality management practices in the Malaysian food SMEs. Multi-item scales from previous research were adapted to measure each of the variables in the research model. The questionnaire developed was modified and suitably adapted to the background of the Malaysian food industries. The five-point Likert scales, were ranged from 1 (strongly disagree) to 5 (strongly agree), was used in order to verify the agreement statement of the respondents.

Furthermore, the research instrument went through fine validation by four academicians, two Malaysian food companies and one Malaysia accreditation body. Besides that, PhD students in the related field also moderated and validated the questionnaire. Most of the comments and suggestions received were carefully analyzed. The comments and feedback from the reviewers were very useful in rectifying and improving the research instrument. Most of the experts and the companies gave positive remarks and commented that this study was an interesting research especially on the quality management system in a different industry i.e. the food industry. The questionnaire developed is mainly in Bahasa Malaysia, the national language. In order to reduce the ambiguity of the technical terms, the Bahasa Malaysia questionnaire was translated to the English Language.

Result and Discussion

First of all, for this study, the definition of the SME is referring to the number of employees, where 1 to 4 employees in a company is considered as a micro enterprise, 5 to 50 employees is considered as a small enterprise and where there are more than 50 employees it is categorized as a medium enterprise (BNM, 2005; SMIDEC 2006). The moderated questionnaires (after considering expert reviewers' comments) were distributed to the selected 100 SMEs of food-processing companies by convenient sampling. Convenience sampling practices is involves a collecting of information from population members who are conveniently available to provide the information needed (Sekaran, 1992). According to Cooper and Schindler (2001), convenience sampling is the easiest to conduct, whereas, researchers have the freedom to choose whomever they find. Subsequently, the selection of companies in the preliminary study

was chosen based on their willingness to cooperate in giving the response. However, the respondent of this survey will also be the part of the real survey respondents. The same approach was done by Teijlingen *et al.* (2001) who use the preliminary survey results from similar target population. However, according to Cooper and Schindler (2001), respondents of the preliminary study do not have to be statistically selected. Convenience technique is more appropriate and efficient in collecting the preliminary survey data. In convenience sampling, the most easily accessible respondents are chosen as subjects (Sekaran, 1992; Cooper and Schindler, 2001). Therefore, convenience sampling is considered the best sampling approach for preliminary study (Zikmund, 2003; Hamid, 2006).

Preliminary studies are the crucial steps in any research process. The result of the preliminary studies will help researcher to reflect on the possible outcome of the real survey (Teijlingen *et al.*, 2001). The preliminary study will evaluate the survey instrument in term of the ability of respondents to understand the questionnaires, these include identifying any ambiguities and difficult questions, rewording or re-scaling questions those are not answered as expected, detecting any question design weaknesses, wordings, and etc. before they are distributed for the real study (Cooper and Schindler, 2001; Teijlingen *et al.*, 2001). However, the preliminary study result is not reliable to support any judgment with regards to the actual populations. This is due to the small sample size, and the actual purpose of the preliminary study is only to check the validity and reliability of the survey instrument (Molinari *et al.*, 2008). This is supported by Tijlingen *et al.* (2001) which noted that the preliminary study do not have a reliable statistical foundation, because they are nearly always based on small numbers. Thus, it findings may offer some indication of the likely size of response rates of the main survey, but they do not guarantee success as it consists of small-scale exploratory research technique that uses sampling but does not apply rigorous standards (Zikmund, 2003).

Questionnaires were sent to the managing directors of the companies or to a person who was considered to be knowledgeable on quality management practices and performance of the companies. In order to increase the responses, questionnaires were also distributed by mail, electronic mail and given to respond at personal interviews. Thirty-three questionnaires were returned and they represented about 33% of the respondents, however, only 30 samples were acceptable for the preliminary study. This is in line with Cooper and Schindler (2001)

Table 4. Results of internal consistency analysis (n=30)

Construct	No of items	Alpha value (α)	Items for deletion	Alpha if item is deleted
Leadership (LS)	7	0.879	No	0.879
Corporate Planning (CP)	7	0.839	No	0.839
Information Management (IM)	7	0.898	No	0.898
Human Resource Management (HRM)	9	0.870	HRM5	0.893
Customer Focus (CF)	8	0.838	CF8	0.846
Supplier Focus (SF)	7	0.720	SF6	0.818
Process Management (PM)	8	0.871	PM6	0.889
Quality Assurance (QA)	8	0.890	QA7	0.901
Operational Performance(OP)	6	0.759	OP1	0.830
Business Performance(BP)	8	0.875	No	0.875

Table 5. Ranking of CSF constructs based on overall mean

Constructs	Mean	Standard Deviation
Customer Focus (CF)	4.26	0.44
Quality Assurance (QA)	4.26	0.57
Leadership (LS)	4.20	0.56
Process Management (PM)	4.15	0.60
Supplier Focus (SF)	4.09	0.53
Corporate Planning (CP)	4.05	0.54
Human Resource Management (HRM)	3.87	0.66
Information Management (IM)	3.82	0.79

and Malhotra *et al.* (2008) where 25-100 samples are considered enough for conducting a preliminary study. Another three returned questionnaires from respondents were rejected as they were identified to contain invalid information and responses that were biased.

Next, the authors conducted a series of reliability tests on the research instrument using the SPSS version 16.0. The value of each variable, as measured by each statement on the scale of 1 to 5 was computed using the reliability analysis procedures. The minimum alpha value of 0.7 for such variables indicates that the variables converge and are a good measure for a conceptual study (Nunnally, 1978; Sekaran, 1992; Eng and Yusof, 2003). Results of the reliability test are shown in Table 4 demonstrating the alpha values ranging from 0.720 to 0.898 for the CSF construct and the ORGP alpha values ranging from 0.759 to 0.875. This indicates an internal consistency in the alpha value of more than 0.70, thus no items were dropped from each variable. Overall, the instrument has proven to be an acceptable and reliable instrument and thus it is suitable for conducting the actual study.

The first aspect investigated was the general background of the respondents, which includes company size based on the number of employees and the accreditation status of the company or the product

certification. Results show that most of the respondent companies were micro and of a small category; where, 36.7% are micro, 60% are small and 3.3% are medium enterprises. This is not surprising because most of the players in the Malaysian food industries are of the SME status. Furthermore, SMEs in the food industry still require labor-intensive manufacturing processes in producing the food products.

In addition, with regards to the accreditation status, about 56.7% of the respondents are certified with at least having received one type of quality certification or other excellence award for their products or for their company. However, 43.3% of respondents have yet to be certified or receive any accreditation. These results are not startling since any accreditation scheme practices are on voluntary basis in Malaysia (SIRIM 2005). The next item analyzed was the overall mean for the CSF constructs. It is important to calculate the values of an overall mean for each construct as perceived by the respondents as shown in Table 5. When these constructs are arranged in the order of magnitude, Customer Focus (CF) and Quality Assurance (QA) are the constructs that are perceived to be the most critical ones. These results indicate that the CF and QA practices in the SMEs of the food industry are the two important aspects of the organizational performance. On the other hand, Information Management (IM) was the least important. The authors believe that, this may probably be due to fact that the SMEs of the food-processing companies do not have a systematic information management system due to the nature of the business.

Conclusion

The Malaysian food industry has taken a paradigm shift and it is at present not regarded as an agriculture or agro-product based related sector any longer. The contributions made by this sector are apparently better appreciated now, especially as it has helped to improve the Malaysian economy. However, a major challenge is faced by the SMEs due to the lack of financial support and the shortage of skills, knowledge or the actual know-how. These constraints therefore are retarding the productivity, innovation and financial benefits of the SME's. Regardless of the size and limitations faced, SMEs will be able to succeed in achieving business excellence if they are able to convert their weaknesses into strengths and become more open, seek opportunities and take advantage of existing situations to turn around their own businesses. Many research studies are conducted over the years pertaining to a business excellence

model especially in large companies. There are also studies carried out on the SMEs but the focus is less on the food industries.

In order for the SMEs in the food industries to acquire brighter opportunities in the market, it is essential that the best quality techniques and TQM approaches be applied. Consequently, the important contribution of this paper is to identify the CSF of the quality management practices by the SMEs in the Malaysian food industry using the TQM approaches. Furthermore, the conceptual framework for accessing the relationship among the CSF and the food processing SMEs performance is yet to be proposed. Moreover, this is also supported that, many studies have been conducted to identify the CSF for the success on quality management or the implementation of the TQM practices in organizations. However, little and most likely no previous studies have tried to investigate the relationship between the TQM practices and the organizational performance particularly in the Malaysian food processing SMEs. Therefore, the model developed is purposely designed for SMEs in the Malaysian food processing industries.

Numerous studies have examined as to what constitutes quality management, what the common barriers to the implementation of quality management are, and what factors are critical for the success of quality management (Samson and Terziovski, 1999; Yusof and Aspinwall, 2000; Temtime and Solomon, 2002; Conca *et al.*, 2004; Rahman and Tannock, 2005; Sila and Ebrahimpour 2005). Although these studies have provided different results such as the critical factors, they have also identified a common set of practices considered essential to the success of the implementation of quality management. Here, the TQM constructs are reviewed extensively and in order to generate distinct generic constructs, a list of constructs proposed in a large set of articles have been analyzed to examine the similarities and differences of the constructs proposed by the various authors.

This process resulted with a proposed set of eight constructs which are: Leadership, Corporate Planning, Human Resource Management, Information Management, Customer Focus, Supplier Focus, Process Management and Quality Assurances. These eight constructs have been derived from the comparison of quality management practices from studies of the several different literature and as well as combining the constructs in the top National Quality Awards such as the Malcom Baldrige National Quality Award Criteria (MBQA), the European Foundation Quality Award (EFQA), the Deming Prize (DP) and in addition the Malaysian awards

such as the Prime Minister Quality Award (PMQA) and the Productivity Award (PA) are also considered. Consequently, the authors identified the constructs to be as follows: (i) constitute practices that represent the hard and soft aspects of quality management, (ii) cover the most prestigious quality awards criteria, (iii) have been considered as critical practices in quality management, and (iv) correspond to the Malaysian quality awards.

The next step would be to conduct the empirical study by using the proposed conceptual model tested by the preliminary study and to verify the research questions. Furthermore, because the proposed framework is highly conceptual, even the identified constructs as listed above that have been combined from reviewed literature have to be validated empirically through a questionnaire and then analyzed by statistical evidence by using the SEM. In addition, the reliability test for internal consistency has shown that the alpha value ranges from 0.720 to 0.898. This indicates that, overall the instrument has proved to be an acceptable instrument and suitable for conducting the actual study. Therefore, further research will focus on collecting more data and analyzing the relationship between the quality management practices, CSF, accreditations and the organizational performances of the SMEs chosen as respondents for the actual study.

Consequently, the impact of the hard and soft elements of quality management factors in the Malaysian food SMEs to the organizational performance will be investigated empirically. The next stage of this study is to propose a structural model relationship of the CSF and the organizational performance that is moderated by an accreditation board by using the SEM. Also, the CSF will be carefully examined throughout the organization in order to identify the critical or the most significant areas that lead to the success of the implementation of QM that contributes to excellence performance of SMEs in food industry especially in Malaysia. Finally, this enables managers in the food industries to pay more attention to the most significant CSF for their organizational performance.

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References

- Abdullah, M.M., Uli, J. and Tari, J.J. 2009. The importance of soft factors for quality improvement and organizational performance. *International Journal Productivity and Quality Management* 4(3): 366-382.
- Abdullah, M.M., Ahmad, Z.A. and Ismail, A. 2008. The importance of soft factors for quality improvement: a case study of electrical and electronics firms in Malaysia. *International Journal of Business and Management* 3(12):60-69.
- Abraham, M., Crawford, J., Carter, D. and Mazotta, F. 2000. Management decisions for effective ISO9000 accreditation. *Management Decision* 38(3):182-193.
- Achilleas, K. and Anastasios, S. 2008. Marketing aspects of quality assurance systems: The organic food sector case. *British Food Journal* 110(8):829-839.
- Agus, A. 2000. Total quality management practice in public listed manufacturing companies in Malaysia. A thesis of Doctor of Philosophy. Universiti Kebangsaan Malaysia. Selangor, Malaysia.
- Agus, A. 2005. The structural linkage between TQM, product quality performance, and business performance: preliminary empirical study in electronic companies. *Singapore Management Review*. 27(1): 87-105.
- Ahire, S. L., Golhar, D.Y. and Waller, M. A. 1996. Development and validation of QM implementation constructs. *Decision Sciences* 27(1):23-55.
- Ahmed, S. and Hassan, M. 2003. Survey and case investigations on application of quality management tools and techniques in SMIs. *International Journal of Quality and Reliability Management* 20(7): 795-826.
- Arumugam, V., Ooi, K.B. and Fong, T.C. 2008. TQM practices and quality management performance: An investigation of their relationship using data from ISO9001:2000 firms in Malaysia. *The TQM Magazine* 20(6):636-650.
- Bank Negara Malaysia (BNM), Small and Medium Enterprise Annual Report 2005. <http://www.bnm.gov.my> on 3 Feb 2010.
- Barendsz, A.W. 1998. Food safety and total quality management. *Food Control* 9(2): 163 – 170.
- Baron, R.M. and Kenny, D.A. 1986. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology* 51(6):1173-1182.
- Boon, O.K., Arumugam, V., Safa, M.S. and Bakar, N.A. 2007. HRM and TQM: association with job involvement. *Personnel Review* 36(6):939-962.
- Bou-Llusar, J.C., Escrig-Tena, A.B., Roca-Puig, V. and Beltrain-Martin, I. 2009. An empirical assessment of the EFQM excellence model: Evaluation as a TQM framework relative to the MBNQA model. *Journal of Operations Management* 27: 1-22.
- Brah, S.A., Tee, S.S.L. and Rao, B.M. 2002. Relationship between TQM and performance of Singapore companies. *International Journal of Quality and Reliability Management* 9(4): 356-379.
- Burca, D.S., Fynes, B. and Brannick, T. 2006. The moderating effects of information technology sophistication on services practices and performance. *International journal of operation & production management* 26(11):1240-1254
- Chong, H., White, R.E. and Prybutok, V. 2001. Relationship among organizational support, JIT implementation, and performance. *Industrial Management and Data Systems* 101(6): 273-280.
- Conca, F.J., Llopis, J. and Tari, J.J. 2004. Development of a measure to assess quality management in certified firms. *European Journal of Operational Research* 156: 683 – 697.
- Cooper, D.R. and Schindler, P.S. 2001. *Business Research Methods*. 7th Edition. McGraw-Hill. Irwin. United State of America.
- Das, A., Paul, H. and Swierczek, F.W. 2008. Developing and validating total quality management (TQM) constructs in the context of Thailand's manufacturing industry. *Benchmarking: An International Journal* 15(1): 52-72.
- Department of Standard Malaysia (DSM). 2007. Positioning Malaysia as Halal Hub to Promote Tourism in Standards and Accreditation News. Issue 21st September 2007: 8-9.
- Deros, B.M., Yusof, S.M.M. and Salleh, A.M. 2006. A benchmarking implementation framework for automotive manufacturing SMEs. *Benchmarking: An International Journal* 13(4): 396-430.
- Drew, E. and Healy, C. 2006. Quality management approaches in Iris organizations. *The TQM Magazine* 18(4): 358-371.
- Dubrovski, D. 2001. The role of customer satisfaction in achieving business excellence. *Total Quality Management* 12(7&8): 920-925.
- Eng, Q.E. and Yusof, S.M. 2003. A Survey of TQM practices in the Malaysian electrical and electronic industry. *Total Quality Management* 14(1):63-77.
- Feng, M., Terziowski, M. and Samson, D. 2008. Relationship of ISO9001:2000 quality system certification with operational and business performance. *Journal of Manufacturing Technology Management* 19(1): 22-37.
- Fenning, F.A., Pesakovic, G. and Amaria, P. 2008. Relationship between quality management practices and the performance of small and medium size enterprises (SMEs) in Ghana. *International Journal of Quality and Reliability Management* 25(7):694-708.
- Flynn, B.B. 1994. The relationship between quality management practices, infrastructure and fast product innovation. *Benchmarking for Quality Management and Technology* 1(1): 48-64.
- Fotopoulos, C.B. and Psomas, E.L. 2009. The impact of "soft" and "hard" TQM elements on quality management results. *International Journal of Quality and Reliability Management* 26(2): 150-163.
- Gadenne, D. and Sharma, B. 2009. An investigation of the hard and soft quality management factors of Australian SMEs and their association with firm performance. *International Journal of Quality and Reliability*

- Management 26(9): 865-880.
- Gotzamani, K.D. and Tsiotras, G.D. 2002. The true motive behind ISO 9000 certification: Their effect on the overall certification benefits and long term contribution towards TQM. *International Journal of Quality and Reliability Management* 19(2): 151-109.
- Gotzamani, K.D., Tsiotras, G.D., Nicolaou, M., Nicolades, A. and Hadjiadamou, V. 2007. The contribution to excellence of ISO9001: The case of certified organization in Cyprus. *The TQM Magazines*. 19(5):388-402.
- Government of Malaysia. 2006. Small and Medium Industrial Development (SMIDEC), 2006. SME Annual Report.
- Government of Malaysia. Ministry of International Trade and Industry (MITI) (2006). Third Industrial Master Plan: 2006-2020. Percetakan Nasional Malaysia Berhad. Malaysia.
- Grigg, N.P. and McAlinden, C. 2001. A new role for ISO 9000 in the food industry? Indicative data from the UK and mainland Europe. *British Food Journal* 103(9): 644-656.
- Hair, J.J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. 2006. *Multivariate data analysis : 6th Edition*. Pearson Printice Hall. New Jersey.
- Hamid, N.R.A. 2006. An assessment of the internet's potential in enhancing consumer relationships. Thesis of Doctor of Philosophy. Victoria University of Technology. Australia.
- Hamzah, A. and Ho, S. 1994. TQM training for small and medium industries in Malaysia. *Training For Quality* 2(2):27 – 35.
- Heras, I., Casadesus, M. and Dick, G.P.M. 2002. ISO 9000 certification and the bottom line: a comparative study of the profitability of Basque region companies. *Managerial Auditing Journal* 17 (1/2): 72-78.
- Heras, I., Dick, G.P.M. and Casadesus, M. 2002. ISO9000 registration's impact on sales and profitability: A longitudinal analysis of performance before and after accreditation. *International Journal of Quality and Reliability Management* 19(6): 774-791.
- Holleran, E., Bredahl, M.E. and Zaibet, L. 1999. Private incentives for adopting food safety and quality assurance. *Food Policy* 24: 669-683.
- Husain, N., Abdullah, M., Idris, F. and Sagir, R.M. 2001. The Malaysian Total Performance Excellence Model: A conceptual framework. *Total Quality Management* 12(7&8): 926-931.
- Idris, N.A.H. 2004. Cabaran industri pemprosesan makanan halal bersaiz kecil dan sederhana menghadapi AFTA. Laporan IRPA. Universiti Kebangsaan Malaysia, Bangi, Selangor Darul Ehsan.
- Jung, J.Y. and Hong, S. 2008. Organizational citizenship behavior (OCB), TQM and performance at the Maquiladora. *International Journal of Quality and Reliability Management* 25(8): 793-808.
- Jusoh, R. and Parnell, J.A. 2008. Competitive strategy and performance measurement in the Malaysian Context: An exploratory study. *Management Decision* 46(1):5-31.
- Kanji, G.K. 2001. Forces of excellence in Kanji's Business Excellence Model. *Total Quality Management* 12(2), 259 – 272.
- Karipidis, P., Athanassiadis, K., Aggelopoulos, S. and Giompliakis, E. 2009. Factors affecting the adoption of quality assurance systems in small food enterprise. *Food Control* 20: 93-98.
- Kaynak, H. 2003. The Relationship Between Total quality management practices and Their Effects on Firm Performance. *Journal of Operations Management* 21:405-435.
- Kontogeorgos, A. and Semos, A. 2008. Marketing aspects of quality assurance systems: The organic food sector case. *British Food Journal* 110(8):829-839.
- Lakhal, L., Pasin, F. and Limam, M. 2006. Quality management practices and their impact on performance. *International Journal of Quality and Reliability Management* 23(6): 625-646.
- Lazim, H.M., Ramayah, T. and Ahmad, N. 2008. Total productive maintenance and performance: A Malaysian SME experience. *International Review of Business Research Papers* 4(4/August – Sept): 237-250.
- Leat, P., Marr, P. and Ritchie, C. 1998. Quality assurance and traceability- the Scottish agri-food industry's quest for competitive advantage. *Supply Chain Management* 3(3): 115-117.
- Lee, P.M. 2002. Sustaining business excellence through a framework of best practices in TQM. *The TQM Magazine* 14(3): 142-149.
- Lewis, W.G., Pun, K.F. and Lalla, T.R.M. 2006. Exploring soft versus hard factors for TQM implementation in small and medium sized enterprises. *International Journal of Productivity and Performance Measurement* 55(7): 539-554.
- Lin, C., Chow, W.S., Madu, C.N., Kuei, C.H. and Yu, P.P. 2005. A structural equation model of supply chain quality management and organizational performance. *International Journal of Production Economics* 96: 355-365.
- Lokman, Ab. Rahman. 2008. Shariah and Malaysia halal certification system. Paperwork presented at Halal Food Seminar 2008-9 January 2008. Universiti Sains Islam Malaysia.
- Malaysia Productivity Corporation (MPC). List of Quality Management Excellence Award: 2000-2007 <http://www.mpc.gov.my> on 25 December 2008.
- Malaysia Productivity Corporation (MPC). Quality Management Excellence Award. 2010. <http://www.mpc.gov.my> on 4 February 2010]
- Malaysia. Department of Islamic Development (JAKIM). Hub Halal Department. 2004-2007 Halal Certification Report. [Unpublished Document – February 2008]
- Malaysia. Ministry of Health (MOH). Food Safety and Quality Division. HACCP, GMP and GHP Certification Report: 2004-2008 [Unpublished Document –January 2009]
- Malhotra, N.K., Hall, J., Shaw, M. and Oppenheim, P.

- (2008). *Essentials of Marketing Research: An Applied Orientation*. Pearson Education. Australia.
- Manning, L. and Baines, R.N. 2004. Effective management of food safety and quality. *British Food Journal* 106(8): 598-606.
- Marwa, S. and Zairi, M. 2008. Towards an integrated national quality award in Kenya. *The TQM journal* 20(3): 249-264.
- McAdam, R. and Henderson, J. 2004. Influencing the future of TQM: internal and external driving factors. *International Journal of Quality and Reliability Management* 21(1): 51-71.
- McAdam, R. 2000. Quality models in an SME context: A critical perspective using a grounded approach. *International Journal of Quality and Reliability Management* 17(3):305-323.
- McAdam, R. and Bannister, A. 2001. Business performance measurement and change management within a TQM. *International Journal of Operation and Production Management* 21(1/2): 88-107.
- Molinari, L.K., Abratt, R. and Dion, P. 2008. Satisfaction, quality and value and effects on repurchase and positive word-of-mouth behavioral intentions in a B2B services context. *Journal of Service Marketing* 22(5):363-373.
- Motwani, J. 2001. Critical factors and performance measures of TQM. *The TQM Magazine* 13(4): 292-300.
- Musa, N. 2008. Innovation and competitiveness through Halal certification. Thirteen International Conference on ISO9000 and TQM, Kuala Lumpur. Malaysia. paper 03-08.
- Naser, K., Karbhari, Y. and Mokhtar, M.Z. 2004. Impact of ISO9000 registration on company performance: Evidence from Malaysia. *Managerial Auditing Journal* 19(4): 509 – 516
- Nooh, M.N., Nawai, N., Dali, N.R.S.M. and Mohammad, H. 2007. Halal Branding: An Exploratory Research among Consumers in Malaysia. Third UNITEN International Business Management Conference, Melacca, Malaysia. 16-18.
- Nunnally, J.C. 1978. *Psychometric Theory*. New York: McGraw Hill.
- Ogden, S.M. and Grigg, N.P. 2003. The development of sector-based quality assurance standards in the UK: diverging or dovetailing? *The TQM Magazine* 15(1): 7-13.
- Osman, N.H. 2005. *Keefisinenan dan Amalan Perniagaan Usahawan Kecil Bumiputera di Negeri Kedah Darul Aman*. Thesis of Doctor Philosophy. Fakulti Sains dan Teknologi. Universiti Kebangsaan Malaysia. Selangor, Malaysia.
- Pinho, J.C. 2008. TQM and performance in small medium enterprises: The mediating effect of customer orientation and innovation. *International Journal of Quality and Reliability Management* 25(3): 256-275.
- Piskar, F. and Dolinsek, S. 2006. Implementation of the ISO 9001: from QMS to business model. *Industrial Management and Data System* 106(9):1333-1343.
- Powell, T.C. 1995. Total quality management as competitive