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Exploring soft versus hard factors for TQM implementation in small and medium-sized enterprises

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Abstract

Purpose – This paper aims to rank the emphasis placed on critical factors and quality management principles that determine the success of total quality management (TQM) as it applies to quality management system implementation in small and medium-sized enterprises (SMEs).

Design/methodology/approach – This paper is a synthesis of the literature on TQM implementation in SMEs operating in a developing environment and identifies critical factors. These factors are prioritised according to the frequency in which they appeared by number of articles. The compliance requirements of the ISO 9001:2000 standard is mapped to one or a combination of quality management principles (QMPs) on which the standard is based. These principles are grouped as soft and hard and ranked in terms of the number of compliance requirements they represent.

Findings – The paper identifies critical factors of TQM implementation for SMEs operating in a developing economy. Although exploratory in nature, evidence shows that, while researchers have placed more emphasis on the "soft" factors, the compliance requirements of the ISO 9001:2000 standard stress more on the "hard" factors.

Research limitations/implications – The paper shows that the possibility of enriching the theories and practices of TQM implementation and extending the knowledge and applications of "soft" and "hard" factors need to be explored. Contrasting the eight QMPs of ISO 9001:2000 with the evaluation criteria of quality excellence awards needs to be addressed.

Practical implications – This paper reviews the relative importance of "soft" and "hard" factors, and relates the QMPs and compliance requirements of ISO 9001:2000 to TQM implementation in SMEs. It identifies strengths and weaknesses of the standard, and provides a source of information for top management of SMEs interested in implementing a quality management system.

Originality/value – The findings in this paper link the compliance requirements of ISO 9001:2000 to QMPs, and point to areas that tend to be least addressed by the ISO 9001:2000 standard. The paper also advocates a holistic approach to safeguard proper TQM implementation and continual improvement of people, product and processes in SMEs.

Keywords Total quality management, Small to medium-sized enterprises, Standards

Paper type Research paper

Introduction

It is generally accepted that small and medium-sized enterprises (SMEs) are playing an increasingly important role in global economies and people in countries that are choosing economic systems anchored by highly productive small businesses (Hill *et al.*, 2002). This applies, because firms regardless of their size, industry or location, can compete in global markets on the basis of goods and services (Temtime and Solomon, 2002). However, they are facing the pressure of intensive global competition, and are becoming increasingly aware of the importance of their competitive advantage and

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performance improvement (Forza and Filippini, 1998). Many companies have taken initiatives to employ different quality standards (e.g. the ISO 9000 series, CSA's Z299 series and SA 8000) and various quality excellence awards (e.g. the European Quality Award and the Malcolm Baldrige National Quality Award) in one form or another to document and implement quality assurance practices and verify continued compliance (Pun *et al.*, 1999; Russell, 2000; Tummala and Tang, 1996).

The concepts of Total Quality Management (TQM) have come to the fore in recent times, being adopted by organisations as the means of understanding and satisfying the needs and expectations of their customers (Pun, 2002). TQM represents an integrative approach to pursue customer satisfaction, and has generated a huge amount of interest in many sectors of the economy such as manufacturing, service, government, and education in many countries around the globe (Chin *et al.*, 2001). Although some empirical studies have shown that TQM firms do not constantly outperform non-TQM firms, TQM has become an irrepressible strategic force in today's industrial economy (Powell, 1995). TQM refers to a basic vision of what an organisation should look like and how it should be managed. It includes a stakeholder perspective, customer and people orientation and corporate responsibility (Pun, 2002; van Schalkwyk, 1998). TQM creates an organisational culture that fosters continuous improvement in everything by everyone at all times, and requires changes in organisational processes, strategic priorities, individual belief, attitudes and behaviours (Shin *et al.*, 1998). It can be of strategic significance in providing firms with the required edge to survive in today's competitive environment (Chin *et al.*, 2001).

Despite its importance, knowledge of the impact of TQM practices in SMEs in developing countries is very limited (Temtime and Solomon, 2002). This may be because despite being the most prominent operations improvement approach, TQM has faded in popularity since the early 1990s (Krause, 1997). A joint study on SMEs conducted by Ernst & Young and American Quality Foundation (1992) revealed that in 60 to 70 percent of firms studied, top management felt that quality improvement efforts had not boosted their competitive ability. In addition, they were not able to implement practices associated with TQM, which was ultimately reflected in no significant improvement in their products and services. Shin *et al.* (1998) argued that many TQM initiatives failed, not because there was a basic flaw in its principles, but because an effective system was not created to execute TQM principles properly.

The shift from traditional management to TQM is revolutionary and the implementation of TQM requires a fundamental change in the way in which business is conducted (Pun, 2002). In general, there exists a lack of information about the nature and stages of TQM implementation endemic to specific regions of the world (Sila and Ebrahimpour, 2002). Judging from the number of papers on the subject, the majority of studies have examined these practices in large firms (Ghobadian and Gallear, 1997; Temtime, 2003). Evidence shows that existing TQM frameworks have been primarily developed for large and leading companies, and have focused more on content (i.e. techniques, prescriptions and procedures), rather than process (i.e. how it is done). Many studies failed to give deep insights and rich data into TQM in practice within organizations (Leonard and McAdam, 2001).

TQM stresses top management leadership, continuous improvement, meeting customers' requirements, reducing rework, long-range thinking, increased employee involvement and teamwork, process redesign, competitive benchmarking, team-based

problem-solving, constant measurement of results, and closer relationships with suppliers (Powell, 1995; Whitney and Pavett, 1998). The "soft" factors such as leadership, human resource management, suppliers' relations and customer focus are long-term issues and cannot be switched on or off. These factors are of particular interest to SMEs since it has been established that their ability to sustain continued growth is dependent on the characteristics of its founder or entrepreneur and the culture of its employees in addition to the inherent nature of SMEs (Storey, 1994). On the other hand, the "hard" factors are tools and systems that lend support to the implementation of the "soft" factors (Black and Porter, 1996; Oakland, 2000; Quazi *et al.*, 1998). In an attempt to consolidate recent views on the criteria that determine the success of TQM implementation endemic to SMEs, this paper reviews the "soft" versus "hard" factors of TQM and discusses the links between quality management principles and compliance requirements of the most common quality standard (i.e. the ISO 9000 series). The relative importance of these critical factors is to be determined with respect to:

- The number of research articles which addressed them.
- The matching of compliance requirements of the ISO 9001:2000 standard.

Critical factors affecting TQM implementation

According to Ahire and Ravichandran (2001), the majority of studies on TQM implementation "were not driven by theory, and focused on identifying the relationships among TQM constructs and then interpreted these relationships using a variety of theoretical lens". These shortcomings are particularly relevant for investigating TQM implementation in SMEs. Storey (1994) argues that corporate strategies, characteristics of entrepreneur and employees are components that constitute the framework for TQM implementation of any organisation. These components are largely dependent on the alignment of a firm's inherent characteristics (Maull *et al.*, 2001). Besides, Sila and Ebrahimpour (2002) contend that criteria relating to the implementation of TQM are dependent on country (e.g. culture) and are firm specific (e.g. size and type of firms).

An attempt was made to consolidate a list of 46 criteria of TQM implementation that are derived from a review of the existing literature and empirical evidence based on practitioners' reflections (see Table I). The relative importance of these criteria is mapped to the findings of ten respective recent studies reported in the literature (e.g. Antony *et al.*, 2002; Baidoun, 2003; Quazi and Padibjo, 1998; Tannock *et al.*, 2002). These studies have SME focus and were conducted in different countries and regions, such as Costa Rica, Thailand, Indonesia, Palestine, Singapore, Australia, China, and Hong Kong. Although exploratory in nature, the analysis provides some indication of the importance of the criteria that would determine the success of TQM implementation in SMEs. It was found that 12 criteria:

(1) Quality data and reporting.
(2) Customer satisfaction.
(3) Human resource utilisation.
(4) Management of process quality.
(5) Training and education.

Table I.
Criteria of TQM implementation in SMEs

Item	TQM Criteria	Antony *et al.* (2002)	Quazi and Padibjo (1998)	Chin and Pun (2002)	Lee and Zhou (2000)	Sohal and Terziovski (2000)	Prasad *et al.* (1999)	Tannock *et al.* (2002)	Gotzamani and Tsiotras (2001)	Amar and Zain (2002)	Baidoun (2003)	Total count
1.	Training and education	•			•			•		•		4
2.	Quality data and reporting	•	•				•		•	•	•	6
3.	Management commitment	•	•	•					•			4
4.	Customer satisfaction	•	•				•		•	•	•	6
5.	Role of quality department	•										1
6.	Communication	•		•								2
7.	Continuous improvement	•	•	•							•	4
8.	Leadership		•	•			•		•			4
9.	Information and analysis		•				•		•			3
10.	Strategic quality planning		•	•			•		•			4
11.	Human resource utilisation		•	•			•		•		•	5
12.	Management of Process quality		•				•	•	•	•		5
13.	Business outcomes		•									1
14.	Quality awareness			•								1

(*continued*)

Item	TQM Criteria	Antony *et al.* (2002)	Quazi and Padilbjo (1998)	Chin and Pun (2002)	Lee and Zhou (2000)	Sohal and Terziovski (2000)	Prasad *et al.* (1999)	Tannock *et al.* (2002)	Gotzamani and Tsiotras (2001)	Amar and Zain (2002)	Baidoun (2003)	Total count
15.	Review status of TQM adoption			•								1
16.	Formation of steering committee			•								1
17.	TQM vision			•								1
18.	Identifying advocates and resistors			•								1
19.	Plan for implementation			•								1
20.	Determining improvement projects			•								1
21.	Competent project teams			•								1
22.	Customer feedback		•	•								2
23.	Internal business performance		•	•								2
24.	Competitive benchmarking			•								1
25.	Modifying organisation structure			•								1
26.	Refining scope, objectives, methodologies			•								1
27.	Firm's characteristics				•							1

(*continued*)

Table I.

Item	TQM Criteria	Antony *et al.* (2002)	Quazi and Padibjo (1998)	Chin and Pun (2002)	Lee and Zhou (2000)	Sohal and Terziovski (2000)	Prasad *et al.* (1999)	Tannock *et al.* (2002)	Gotzamani and Tsiotras (2001)	Amar and Zain (2002)	Baidoun (2003)	Total count
28.	Business characteristics				•							1
29.	Social responsibility		•	•								3
30.	Competitive strategy				•							1
31.	Strategy process				•							1
32.	Performance measures			•	•	•					•	4
33.	Positive attitude towards quality					•						1
34.	Leadership training					•		•		•		3
35.	Integrating the voice of the customer and the supplier					•						1
36.	Performance rewards					•						1
37.	Customer focus	•	•	•			•					4
38.	Operational results						•					1
39.	Structure							•				1
40.	Procedures							•				1
41.	Behaviour							•				1
42.	Contact with suppliers and professional associates							•	•	•	•	4
43.	Cultural barriers							•				1
44.	Financial barriers							•				1
45.	Product quality design								•			1
46.	Resource management									•		1

Note: • Advocated by selected TQM studies

Table I.

(6) Management commitment.
(7) Continuous improvement.
(8) Leadership.
(9) Strategic quality planning.
(10) Performance measurement.
(11) Customer focus.
(12) Contact with suppliers and professional associates, were advocated by many researchers in their studies.

Most of these leading criteria are "soft" in nature, and are rated highly in terms of criticality and emphasis in the process of TQM implementation (Quazi *et al.*, 1998).

Sila and Ebrahimpour (2002) identified 25 critical factors (CFs) using factor analysis of 347 journal articles. These contained both "soft" and "hard" factors of TQM. The "soft" factors are generally difficult to be measured and assessed (Gotzamani and Tsiotras, 2001; Samson and Terziovski, 1999), whereas the "hard" factors are those that are more systems oriented (Oakland, 2000; Samson and Terziovski, 1999). Another attempt was made to compare the similarities and differences of these 25 factors with the list of 46 criteria. Table II depicts the matching of individual CFs to the corresponding criteria. These CFs are ranked in terms of the frequency in which they appeared by number of articles. Two groups of 13 "soft" and 12 "hard" factors could be categorised with respect to the matching analysis of CFs and criteria. It shows that the top ten CFs are composed of seven "soft" factors and three "hard" factors. Customer focus and satisfaction had the highest coverage (i.e. 82.1 percent), followed by people training (i.e. 74.9 percent), top management commitment (i.e. 70.3 percent), teamwork (i.e. 66.6 percent), employee involvement (i.e. 63.4 percent), continuous improvement and innovation (i.e. 62.2 percent), information and performance measurement (i.e. 61.4 percent), supplier management (i.e. 60.5 percent), communication (i.e. 60.2 percent), and process management (i.e. 55.0 percent). This indicates that many researchers stress the greater significance of "soft" factors of TQM. The rankings are in agreement with the common determinants of TQM implementation.

Aligning critical factors with ISO 9000 requirements

Magh and Curry (2003) conducted a critical review of the literature to determine whether TQM and ISO 9000 complemented or contradicted each other. ISO 9000, being a series of international standards for quality assurance and management practices, focuses on assuring a company's efficient operation at its status quo. It forms a baseline for TQM that helps management to review and improve quality of the company's products and services continuously through gradual changes (Lee and Palmer, 1999; Chin *et al.*, 2001). Magh and Curry (2003) contend that ISO 9000 is an important part of TQM, and the implementation of both approaches together will lead to organisational success and competitive advantages. The main conclusion drawn from a summarisation of different views from the literature (e.g. Carlsson and Carlsson, 1996; Russell, 2000; Stephens, 1997; Williams, 1997) is that the long-term effectiveness and real value of ISO 9000 is not based on its content and requirements, but on the way in which these are adopted and implemented.

Table II.
Ranking critical factors and criteria of TQM

Rank	Soft factors		Rank	Hard factors	
	Critical factors[a]	TQM Criteria[b]		Critical factors[a]	TQM Criteria[b]
1	Customer focus and satisfaction (82.1 percent)	Customer satisfaction, customer feedback; customer focus	6	Continuous improvement and innovation (62.2 percent)	Review status of TQM adoption; refining scope, objectives; methodologies
2	People training (74.9 percent)	Training and education; increase awareness; leadership training	7	Information and performance measurement (61.4 percent)	Quality data and reporting; information and analysis; performance measures; operational results
3	Top management Commitment (70.3 percent)	Leadership; TQM vision; modifying organisational structure; management commitment; internal business performance; financial barriers	10	Process management (55.0 percent)	Procedures; management of process quality
4	Teamwork (66.6 percent)	Form steering committee; project teams	11	Strategic planning (52.2 percent)	Strategic quality planning; plan for implementation; determining improvement projects; social responsibility; competitive strategy; strategy process
5	Employee involvement (63.4 percent)	Human resource utilisation	12	Process control (47.3 percent)	Procedures
8	Supplier management (60.5 percent)	Contact with suppliers and professional associates; integrating the voice of the customer and supplier	15	Product and service design (38.0 percent)	Product quality design

(*continued*)

Soft factors			Hard factors		
Rank	Critical factors[a]	TQM Criteria[b]	Rank	Critical factors[a]	TQM Criteria[b]
9	Communication (60.2 percent)	Communication	17	Benchmarking (36.9 percent)	Competitive benchmarking
13	Rewards and recognition (40.6 percent)	Performance awards	20	Flexibility (30.5 percent)	Procedures
14	Human resource management (40.6 percent)	Identifying advocates and resistors; resource management	21	Quality systems (28.8 percent)	Structure
16	Employee empowerment (37.8 percent)	Human resource utilisation	22	Quality assurance (21.6 percent)	Procedures
18	Quality culture (32.3 percent)	Firm's characteristics; positive attitude towards quality; behaviour; cultural barriers	23	Just in time (19.9 percent)	Management of process quality
19	Employee satisfaction (30.9 percent)	Human resource utilisation	25	Zero defect (12.4 percent)	Management of process quality
24	Social responsibility (16.1 percent)	Social responsibility			

Notes: [a] Percentage expressed based on the findings of Sila and Ebrahimpour (2002) study ($n = 347$); [b] Corresponding criteria abstracted from Table I

Table II.

According to the 2003 ISO Survey, over 561,000 certificates of "conformity to" were issued to some 159 countries (NQA, 2004). The ISO 9001:2000 standard is based on the eight quality management principles (QMPs) that are derived from the collective experience and knowledge of the international experts who participate in ISO Technical Committee, ISO/TC 176, which is responsible for developing and maintaining the ISO 9000 series of standards (ISO, 2004). These principles are the fundamental rules and beliefs that can be used by senior management as a framework to guide their organisations towards improved performance. These rules and beliefs are aimed at continually improving performance over the long term by focusing on customers while addressing the needs of other stakeholders (ISO, 2004; Russell, 2000). The eight QMPs are elaborated with respect to TQM implementation in SMEs, as follows:

(1) *Customer focus*: Must understand that their success depends significantly on customers. Therefore, firms should understand and determine customer needs by meeting their requirements and striving to exceed their expectations.

(2) *Leadership*: Top management must establish unity of purpose and direction. They must create and maintain the internal environment in which people can become fully involved in achieving the organisation's purpose.

(3) *Involvement of people*: Employees at all levels must be recognised as the essence of the organisation, and strategies must be put in place to ensure their full involvement, so that the organisation can derive maximum benefits from their abilities.

(4) *Process approach*: A desired result is achieved more efficiently when related resources and activities are managed as a process.

(5) *System approach to management*: Identifying, understanding and managing a system of interrelated processes for a given objective improves the operational effectiveness and efficiency of firms.

(6) *Continual improvement*: The "Plan-Do-Check-Act" cycle is applied to processes. The "Plan" establishes the objectives and processes necessary to deliver results in accordance with customer requirements and the organisations policies; the "Do" implements the processes: the "Check" monitors and measures the processes and products against policies, objectives and requirements and reports on the results; and the "Act" takes actions to continually improve process and system performance.

(7) *Factual approach to decision making*: Effective decisions are based on the analysis of data and information.

(8) *Mutually beneficial supplier relationship*: Firms and their suppliers are interdependent, and a mutually beneficial relationship would enhance the ability of both to create value.

These QMPs comprise the compliance requirements of the ISO 9001:2000 standard. Each requirement could correspond to one or a combination of QMPs. Table III depicts a reference guide that explains the links of QMPs to the compliance requirements of the standard. It is observed that there is an unequal distribution in terms of the number of compliance requirements associated with each QMP. Mapping QMPs with the focal

ISO 9001: 2000 Clauses	QMPs Compliance requirements	CUF	LDP	IOP	PSA	SAM	COI	FDM	MSR
4	Quality management systems								
4.1	General requirements				•	•	•	•	
4.2	Documentation requirements								
4.2.1	General			•	•	•			
4.2.2	Quality manual				•	•			
4.2.3	Control of documents				•	•			
4.2.4	Control of records				•	•			
5	Management responsibility								
5.1	Management commitment	•	•	•	•	•	•		
5.2	Customer focus	•	•						
5.3	Quality policy	•	•	•	•	•	•	•	•
5.4	General								
5.4.1	Planning: quality objectives	•	•	•	•	•	•		•
5.4.2	Planning: quality management system planning		•			•			
5.5	Responsibility, authority and communication								
5.5.1	Responsibility and authority		•	•	•	•			
5.5.2	Management representative	•	•		•	•	•	•	
5.5.3	Internal communication		•	•	•	•			
5.6	Management review								
5.6.1	General		•			•	•	•	
5.6.2	Review input	•	•		•	•	•	•	
5.6.3	Review output	•	•	•	•	•	•	•	
6	Resource management								
6.1	Provision of resources	•				•	•		
6.2	Human resources								
6.2.1	General			•					
6.2.2	Competence, awareness and training			•		•	•	•	
6.3	Infrastructure					•			
6.4	Work environment					•			
7	Product realisation								
7.1	Planning of product realisation				•	•	•	•	
7.2	Customer-related processes	•			•				
7.2.1	Determination of requirements related to the product	•			•				
7.2.2	Review of requirements related to product	•			•				
7.2.3	Customer communication	•			•				
7.3	Design and development								
7.3.1	Design and development planning			•		•		•	
.3.2	Design and development inputs				•			•	
7.3.3	Design and development outputs				•			•	
7.3.4	Design and development review			•	•	•	•	•	
7.3.5	Design and development verification				•	•		•	
7.3.6	Design and development validation				•			•	
7.3.7	Design and development changes				•			•	
7.4	Purchasing								
7.4.1	Purchasing process				•	•	•	•	•
7.4.2	Purchasing information			•	•	•		•	•
7.4.3	Verification of purchased product	•			•	•		•	•
7.5	Production and service provision								

(*continued*)

Table III.
Mapping QMPs with compliance requirements of ISO 9000

ISO 9001: 2000 Clauses	QMPs Compliance requirements	CUF	LDP	IOP	PSA	SAM	COI	FDM	MSR
7.5.1	Control of production and service provision				•	•	•	•	
7.5.2	Validation of processes for production and service provision					•		•	
7.5.3	Identification and traceability					•		•	
7.5.4	Customer property	•				•			
7.5.5	Preservation of product								
7.6	Control of monitoring and measuring devices							•	
8	Measurement, analysis and improvement								
8.1	General					•	•	•	
8.2	Monitoring and measurement								
8.2.1	Customer satisfaction	•					•	•	
8.2.2	Internal audits						•	•	
8.2.3	Monitoring and measurement of processes						•	•	
8.2.4	Monitoring and measurement of product						•	•	
8.3	Control of nonconforming product						•	•	
8.4	Analysis of data	•			•	•	•	•	•
8.5	Improvement								
8.5.1	Continual improvement					•	•		
8.5.2	Corrective action					•	•	•	
8.5.3	Preventive action					•	•	•	

Table III.

Note: •Elements of compliance requirements associated with QMPs

emphasis of ISO 9000 helps SMEs to identify their strengths and weaknesses in addition to areas for improvement.

Criteria associated with QMPs could be identified and included in the implementation plans. Table IV arranges the QMPs in descending order with respect to the number of compliance requirements. The four leading QMPs are System approach to management (i.e. SAM = 35), Factual approach to decision-making (i.e. FDM = 31), Process approach (i.e. PSA = 28), and Continual improvement (i.e. COI = 24). These QMPs could be classified as "hard" factors, indicating that the standard places greater emphasis on more systems-oriented factors of TQM. The top "soft" factor (i.e. customer focus and satisfaction) that is analogous to Customer focus is only ranked fifth (i.e. CUF = 15). Other "soft" factors, such as people training, teamwork, employee involvement, communication, rewards and recognition, employee empowerment, employee satisfaction, quality culture, human resource management, and social responsibility are grouped under Involvement of people and is ranked sixth (i.e. IOP = 12). Besides, Leadership (LDP) comprises two "soft" factors (i.e. top management commitment and strategic planning) and is ranked seventh. Mutually beneficial supplier relationships (MSR) with supplier management is ranked last. The results are opposite to that of the previous sections based on the literature analysis, where more emphasis was placed on the "soft" rather than "hard" factors of TQM.

Conclusions

This paper has explored the "soft" and "hard" factors of TQM endemic to SMEs. A synthesis of studies identified 46 criteria that are relevant to ascertain the success of

Quality management principles	No. of compliance requirements	Soft and hard factors of TQM
System Approach to Management (SAM)	35	Quality systems; quality assurance; flexibility
Factual Approach to Decision Making (FDM)	31	Benchmarking; Just-in-Time: zero defect
Process Approach (PSA)	28	Process management; information and performance measurement
Continual Improvement (COI)	24	Continuous improvement and innovation; product and service design
Customer Focus (CUF)	12	Customer focus and satisfaction
Involvement of People (IOP)	15	People training; teamwork; employee involvement; communication; rewards and recognition; employee empowerment; employee satisfaction; quality culture; social responsibility; human resource management
Leadership (LDP)	11	Top management commitment; strategic planning
Mutually Beneficial Supplier Relationships (MSR)	6	Suppler management

Table IV.
Contrasting among QMPs, CFs and compliance requirements

TQM implementation. These criteria were ranked in terms of the number of selected articles in which they were addressed. These criteria were grouped under 13 "soft" and 12 "hard" factors garnered from TQM-based research. "Soft" factors are those intangible and difficult to be measured, while "hard" factors are more systems-oriented. Although exploratory in nature, evidence shows that the critical factors of TQM for SMEs in developing countries are very similar to those found in the literature.

In light of the findings from the literature review, the most frequently covered CFs are considered to represent the "soft" factors. Customer focus and satisfaction had the highest coverage followed by issues related to people training, top management commitment, teamwork, employee involvement, continuous improvement and innovation, information and performance measurement. The emphasis placed by the ISO 9001:2000 standard was assessed based on the number of compliance requirements corresponding to QMPs. These principles represent the rules and beliefs aimed at achieving continual performance improvement over the long term. Each compliance requirement represents one or a combination of QMPs. By contrasting QMPs, CFs and compliance requirements of ISO 9001:2000, it shows that the standard stresses more on the importance of "hard" factors than "soft" factors. This indicates that there exists a diverted view towards the relative importance of "soft" versus "hard" factors of TQM as advocated in the literature and as required by the ISO 9001:2000 standard.

SMEs adopting the ISO 9001:2000 standard as a means for TQM implementation should incorporate the critical factors into the compliance requirements. A holistic approach of incorporating the top ranked "soft" and "hard" factors into QMPs should be stressed. This would help SMEs to attain continual compliance and improvement of

people, product and processes. With respect to this, the possibility of enriching the theories and practices of TQM implementation and extending the knowledge and applications of "soft" and "hard" factors need to be explored. Contrasting the eight QMPs of ISO 9001:2000 with the evaluation criteria of quality excellence awards (e.g. the European Quality Award and the Malcolm Baldrige National Quality Award) needs to be addressed. Future research could validate critical factors and criteria identified for SMEs of different operational natures. In order to reveal sector-specific characteristics, case studies and comparative evaluations of TQM implementation in SMEs should be conducted across various industry sectors in developing countries.

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