

TOTAL QUALITY MANAGEMENT PERFORMANCE IN OMANI SMALL AND MEDIUM ENTERPRISES (SMES)

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Abstract

Purpose of the study: The objective of the study was to examine the implementation of Total Quality Management (TQM) in SMEs, by enabling them to benchmark their progress, overcome the barriers, and meet the challenges. In contrast to most previous studies, this research examined the TQM practices-performance relationships by investigating the effects of TQM practices on the performance of Omani SMEs.

Methodology: A survey was performed on 200 respondents from selected SMEs in Oman. Statistical software, SPSS 15.0 was used to process the data, which consisted of chi-square test of independence for a contingency table and correspondence analysis. The hypotheses were examined at two significance levels: $\alpha = 0.01, 0.05$. Other statistical tests (e.g., path analysis and structural equation modeling), which are inherently more powerful than those used in the present study, could not be used due to the small population size.

Main Findings: It was revealed that leadership factor was the most critical strategic factor and was vital in ensuring a successful implementation of TQM in an organization. The other elements that were considered as critical are quality goals and policy, continuous improvement, and organizational culture.

Implications of this study: The suggestions from the SMEs allow the relevant Omani agency to design an effective TQM policy to increase the performance.

Novelty of this study: This study demonstrates the steps that need to be taken by the management of Omani Small Medium Enterprises (SMEs) to succeed. The findings enables the Omani SMEs' management to plan the phases ahead of time to be familiar with the circumstances and take suitable action to rise above any obstacle that they would confront in their journey.

Keywords: *Total Quality Management, Small Medium Enterprises, Performance, Oman*

INTRODUCTION

Total Quality Management (TQM) is an example of management practices that is well received for the past two decades ([Wang and Jung, 2006](#)). There are a significant number of articles and journals on TQM. According to past research, the application of TQM indicates that the TQM practices are positively related with the operational performance ([Eboch and Choi, 1998](#)); nevertheless, it slightly influences organizational performance ([Broetzmann et al., 1995](#)). Nonetheless, an analysis done on the present TQM literature has suggested that a significant number of journals and articles are on the application of TQM in big manufacturing firms; however, less attention has been paid on the implementation of Small Medium Enterprises (SMEs) ([Tripathi and Seth, 2005](#); [Rahman, 2001](#); [Petroni, 2002](#)). There is also the problem of scarcity of literature concerning the effect of the TQM application on the performance of SMEs even though there is a positive prospective collaboration among them ([Sila, 2007](#); [Demirbag et al., 2006](#)).

Additionally, because of the nonexistence of a universally acceptable standard measurement instrument, the field of quality measurement lacks consistency in its research. Essentially, past researches on the effect of application of TQM are done on the performance of SMEs, especially in the Far East, Europe, and the USA ([Sila, 2007](#), [Demirbag et al., 2006](#), [Tripathi and Seth, 2005](#)). According to [Koh et al. \(2007\)](#), several studies on TQM application in the SMEs have been done in developing countries. For SMEs, the total number of its employees falls below certain limits. The World Trade Organization, the United Nations, the European Union, and the World Bank have used the SME abbreviation extensively. SMEs are well known for competitiveness and innovativeness and have employed more workers and have bigger number of firms when compared to large companies. The developed and developing countries have acknowledged the reality that Small and Medium Enterprises (SMEs) form the nucleus of any economy ([Green, 2003](#)). There is a universal agreement on their major participation to the economic growth, employment creation, social cohesion, poverty alleviation, and local and regional development.

There are many empirical studies which examine TQM practices-performance relationships in large firms ([Powell, 1995](#); [Ahire and Golhar, 1996](#); [Motwani, 2001](#); [Montes et al., 2003](#); [Brah and Lim, 2006](#); [Kapuge and Smith, 2007](#)) compared to smaller firms as in the SMEs. In contrast to most previous studies found in the literature, this research examined these relationships in a different way by investigating the effects of TQM practices on performance in the SMEs. The importance of this study is that the existing top management of SMEs in Oman is likely to find this study useful in planning and understanding the success factors of SMEs. They will gain information on those factors which potential suggested as critical, such as quality goals and policy, continuous improvement, information technology, team building, problem solving, and employee involvement. Hence, the aim of this study is to facilitate the implementation of TQM in SMEs by: a) enabling SMEs in Oman to benchmark their progress, b) to identify the barriers and challenges faced by SMEs in Oman in their business.

Total Quality Management Context

Total Quality Management (TQM) has been identified as the philosophy responsible for enhancing services and production in organizations. TQM, like the concept of quality, has many conceptual and operational definitions. Like the term quality, TQM does not have a universal definition between its users ([Boaden, 1997](#)). In order to have a clearer picture of the foundation or true meaning of the concept, it is important to decipher the terms. Hence, in this section, the definition of TQM will be deciphered by examining a variety of literature sources. Moreover, there have been academic debates by researchers as to what it means and what it entails. Some authors have attempted to define TQM and their definitions are developed from empirical evidence, group thinking, and consensus ([Boaden, 1997](#)). The wide and often confusing use of the term TQM in literature warrants a clarification of its meaning. However, TQM is a multidimensional and complex term.

[Boaden \(1997\)](#) argues that confusion about definition is not confined to the TQM field. He discusses the issue of definition related to quality costs and states firmly that: “without clear definitions or meaningful communication on the topic ... admittedly there are difficulties in finding generic terms to describe tasks or activities having the same broad objectives in different industries.” [Wilkinson and Witcher \(1993\)](#) and [Nwabueze \(2001\)](#) summarize TQM as having three major requirements: a) Total participation of everyone: an organization-wide process, b) Quality: Meeting the exact requirements of customers, and c) Management: Enabling conditions for TQM. Numerous forms of meanings of TQM could be discovered in literature to authenticate the concept of TQM. [Wallace and Kanji \(2000\)](#) described TQM as the culture of an organization committed to customer satisfaction through continuous improvement. In a study, [Kiser and Sashkin \(1993\)](#), described TQM as the organization’s culture is defined by and supports the constant attainment of customer satisfaction through an integrated system of tools, techniques, and training.

While several scholars posit TQM as an integrated approach. [Flynn et al. \(1994\)](#) described TQM as an integrated approach to achieving and sustaining high quality output, focusing on the maintenance and continuous improvement of processes and defect prevention at all levels, and in all functions of the organization, in order to meet or exceed customer expectations. [Oakland \(1989\)](#) described TQM as an approach to improving effectiveness and flexibility of business as a whole. It is essentially a way of organizing and involving the whole organization; every department, every activity, every single person at every level. In another perspective, TQM is viewed as an organizationally wide management process. [Nath and Parzinger \(2000\)](#) described TQM as a management process and organizational-wide process to instill a culture of continuous improvement in an organization to ensure that the organization consistently meets and exceeds customer requirements”. However, [Selladurai \(2002\)](#) described TQM as a continuous management process that aims at quality improvement in all processes and activities in organizations.

The Goal of Total Quality Management

The ultimate goal of TQM is to establish a management system and organizational culture that ensures customer satisfaction (both internal and external) and continuous improvement of all organizational processes. [Simintiras and Zairi \(1991\)](#) viewed TQM as the combination of the socio-technical process towards doing the right things (externally), everything right (internally) first time and all the time, with economic viability considered at each stage of the process.” Socio-economic contexts are so intertwined that they are distinguishable but indivisible ([Pillai and Ahamat, 2018](#)). Nevertheless, few scholars demonstrate TQM as a system. [Dean and Evans \(2003\)](#) believe TQM as a total system approach (not a separate area or program) and an integral part of high-level strategy and it works horizontally and vertically across all functions and departments, involves all employees, and extends backward and forward to include the supply chain and the customer chain. [Klefsjö and Hellsten \(2000\)](#) viewed TQM as continuously evolving management system consisting of values, methodologies, and tools, the aim of which is to increase external and internal customer

satisfaction with a reduced amount of resources. The concepts of TQM have developed into a popular notion globally, as shown with the entire the advantages and significance of TQM, as firms emphasise on enhancing their services or products quality and effectiveness and its importance to their consumers ([Yogesha and Nagaprasad, 2009](#)).

The Scope of Total Quality Management

TQM is seen as a method to render better products and services linked to processes that have to be developed in order to maximize value for customers and other interest groups ([Nagaprasad and Yogesha, 2009](#)). This statement is supported by [Kanji and Moura \(2003\)](#) who regards TQM as a strategy to improve organizational performance through firstly the commitment of all employees to satisfy the customers' needs as agreed upon at the lowest cost possible, and secondly, through the continuous improvement of products and services, organizational processes, and employees involved. Moreover, TQM is seen as the key strategy for maintaining competitive advantage and a way of managing organizations to improve its overall effectiveness and performance towards achieving world-class status ([Zhang et al., 2000](#); [Nilsson et al., 2001](#); [Chapman; Al-Khawaldeh, 2002](#); and [Chan and Quazi, 2002](#); [Hendricks and Singhal, 2001](#); [Shenaway et al., 2007](#); [Prajogo and Sohal, 2003](#); [Arumugam et al., 2008](#)). It is hence recognized that TQM is not just a program or a group of specific techniques; rather it is "a management approach" and a "culture" that implies a shift in an organization's collective thinking and operation ([Sashkin and Kiser, 1992](#)). [Selladurai \(2002\)](#) also emphasizes that TQM is a philosophy and concept to manage an organization as an integrated system and process. [Ehlers \(2001\)](#) supports him and states that TQM is a management approach that applies to all processes.

Small and Medium Enterprises Success Factors

Many sources have been used to study the reasons for SMEs' being successful and also for their failure during operation. Success is a key term in the field of management, although it is not always explicitly stated. Success and failure can be interpreted as measures of good or indifferent management ([Jennings & Beaver, 1997](#)). In consideration of business studies, the concept of success is often used in referring to a firm's financial performance. However, there is no universally accepted definition of success and, therefore, business success has been interpreted in many different ways ([Foley & Green 1989](#)). Due to the central role played by an entrepreneur in an SME and since different stakeholders may have different objectives and aspirations for a firm, [Jennings and Beaver \(1997\)](#) suggest that it would be more appropriate to regard an entrepreneur as the primary stakeholder and accordingly to begin by considering how entrepreneurs might ultimately define success and failure themselves. In the literature of business research, the term success has many different connotations: in the simplest definition, success is equivalent to continued business operations, whilst the opposite, 'failure', means going out of business ([Simpson et al., 2004](#)). There are at least two important dimensions of success: 1) financial versus other success, and 2) short-term versus long-term success. Hence, success can have different forms, i.e., survival, profit, return on investment, sales growth, number employed, happiness, reputation, and so on ([Vesper, 1990](#)). In other words, success can be seen to have different meanings to different people; however, in spite of these differences, people generally seem to have a similar idea regarding the phenomenon, i.e., of what kind of business is successful ([Kay, 1995](#)). [Simpson et al. \(2004\)](#) argue that every entrepreneur has his/her own perception of business success. Furthermore, they state that success determined from the outside has little relevance if the entrepreneurs do not see themselves as being successful. Consequently, it could be suggested that the entrepreneur's subjective perception of success is a relevant starting point for assessing the degree of either success or failure. Moreover, the reasons for starting a business are, on the other hand, reflected in the success criteria used by the entrepreneur ([Walker & Brown, 2004](#)).

Moreover, according to [Foley and Green \(1989\)](#), whatever the goals for SMEs, many successful firms have similar characteristics. [Watson and Everett \(1999\)](#) consider the successes or failures of a business to be dependent on one or more of the following factors: type of industry, experience of owner, location, size, age of business, and barriers to entry. They measure success of a business according to the continuance of operation or longevity of the enterprise in question. There is a wide range of measures concerning organizational performance ([Brush & Vanderwerf, 1992](#)). Often, performance is measured by growth (turnover, number of employees, market share), profitability (profit, return on investment) and survival ([Dess & Robinson, 1984](#); [Smith et al., 1988](#); [Storey, 1998](#)). However, few studies have sought to determine whether the factors enhancing one measure of performance, such as survival, are the same as those leading to others, such as growth ([Cooper, 1993](#)). The success of SMEs can be measured in various ways; however, success is predominantly measured in terms of continuance in operation or longevity and financial performance, including profitability, sales, and market share. [Wasilczuk \(2000\)](#) notes that small business growth and successes are difficult to assess but can be measured both objectively and subjectively.

The Measurement of SME Success

Moreover, a firm's profitability can also be a useful measure of success in the case of large companies. The measurement of success is more complicated when studying SMEs for several reasons: first, the central goals and objectives of SMEs may not be financial; second, it is difficult to obtain reliable information relating to the factors affecting the financial performances of SMEs, such as in the case of a family businesses, whereby it is difficult to take into account the inputs of family members which are not recorded by the accounting system; third, organizational form can create artificial differences such as, for example, procedures for handling owner compensation, which present major sources of error ([Dess & Robinson, 1984](#)); fourth, SMEs may be very reluctant to provide financial data on their performance ([Dess & Robinson, 1984](#)); and fifth, it may take several years before a new business venture becomes profitable ([Biggadike, 1979](#)). As a matter of fact, it has been argued that the most important and most challenging business goal is long-term survival ([Simon, 1996](#)). Moreover, at least in the long-term, survival is a prerequisite for success in relation to other aspects, such as market share or profitability. To date, however, studies of firm longevity have focused on large companies: on the one hand, the probability of survival decreases over time, whereas on the other, the probability of the survival of new firms is lower than that of older firms, which therefore refers to their 'liability of newness' ([Aldrich & Auster, 1986](#)).

Critical Success Factors of TQM Practices in the SMEs

The critical success factors (CSFs) can be defined as the critical areas which organization must accomplish to achieve its mission by examination and categorization of their impacts ([Oakland, 1995](#)). Thus, in the current study they can be viewed as those things that must go right in order to ensure the successful implementation of TQM. On the other hand, the review of the literature suggested that there are numerous CSFs that can be identified as being crucial to the successful implementation of TQM (also referred to as contributing variables or critical factors or enablers in the literature). One of the earlier empirical studies in the quality management area that analyzed the TQM CSFs in the SMEs was conducted by [Yusof and Aspinwall \(2000\)](#). This study found that the CSFs for TQM implementation in the SMEs are management leadership, continuous improvement system, measurement and feedback, improvement tools and techniques, supplier quality assurance, human resource development, systems and processes, resources, education and training, and work environment and culture.

More importantly, [Hodgetts et al. \(1999\)](#) found that the CSFs of TQM implementation in the SMEs are top management involvement, customer focus, employees' training, employees' empowerment, and generating new ideas. In this line of work, a study by [Dayton \(2003\)](#) used data from the American industrial companies to determine whether the ten TQM critical factors (i.e., people and customer management, supplier partnerships, communications, customer satisfaction, external interface management, strategic quality management, teamwork structures for improvement, operational quality planning, and quality improvement systems) identified by the [Black and Porter \(1996\)](#) could be considered as important TQM CSFs by small and large companies. He concluded that strategic quality management was the most important TQM critical success factor. The empirical findings from [Rahman's \(2001\)](#) study of 53 Australian SMEs found that the critical factors of successful implementation of TQM are leadership, strategy and planning, employee empowerment and employee involvement, employee training and development, information and analysis, and customer management. [Demirbag et al. \(2006\)](#) carried out an empirical study to identify CSFs of TQM in Turkish SMEs. They concluded that there are seven CSFs of TQM practices, i.e., quality data and reporting, role of top management, employee relations, supplier quality management, training, quality policy, and process management. However, in contrast to the previous studies, organization culture was used as a separate variable in the current study since an organization's culture affects behaviors and attitudes at all levels and it determines, to a large extent, how employees act ([Robbins and DeCenzo, 2005](#)). Nevertheless, how employees act in an institution is a manifestation of the human capital, which is shaped by social equity; hence the wellbeing of individual and the community (local or global) increases institutional-individual relationship ([Ahamat, 2017](#)).

Performance Measures

Generally speaking, performance is defined as the degree to which an operation fulfills the performance objectives primary measures – in order to meet the customers' needs– secondary measures ([Slack et al., 2001](#)). Performance measurement is a critical factor for effective management. This may stem back from the fact that without measuring something, it is difficult to improve it. Therefore, improving the organizational performance requires identifying and measuring the impact of TQM practices on it ([Demirbag et al., 2006](#); [Koh et al., 2007](#)). Several empirical studies have been conducted to establish the link between TQM practices and organizational performance ([Sternan et al., 1997](#); [Choi](#)

and Eboch, 1998; Easton and Jarrell, 1998; Samson and Terziovski, 1999; Brah et al., 2002; Brah and Lim, 2006; Demirbag et al., 2006; Feng et al., 2006). The results of these studies indicated that there are various measures, i.e., organizational performance, corporate performance, business performance, operational performance, financial and non-financial performance, innovation performance, and quality performance. In a similar vein, Ramamurthy (1995); Beaumont et al. (2002); Brah et al. (2002); and Koh et al. (2007) measured performance in two dimensions: operational performance and organizational performance. Operational performance reflects the performance of internal operation of the company in terms of cost and waste reduction, improving the quality of products, improving flexibility, improving delivery performance; and productivity improvement. Accordingly, performance measures suggested in various studies (Ramamurthy, 1995; Beaumont et al., 2002; Brah et al., 2002; Demirbag et al., 2006; Sila, 2007) are used to measure performance in this research. In addition, the current study makes an attempt to bridge the gap left by earlier studies regarding the lack of attention to safety and waste reduction as performance measures.

The Relationship between the TQM CSFs and Operational Performance

There is a common assumption in literature that TQM CSFs have a positive impact on the operational performance (Powell, 1995; Ahire and Golhar, 1996; Brah and Lim, 2006; Sila, 2007). They indicated that TQM firms outperform non-TQM firms in operational performance such as improving delivery performance, reduction in production costs, increasing productivity, improving flexibility, reducing scrap, and improving the quality of products. In order to investigate the previous mentioned relationship, the current study makes an attempt to operationalize the CSFs, not only in terms of the importance of each factor, but also in terms of relative importance that is given to each factor. In this way, those factors can be classified as strategic factors. They are broad in nature and impact the long-term effectiveness of the company (Davis et al., 2003) and they require a significant change in a manner in which the business is conducted (Turban et al., 1999). Moreover, they are dominant factors that play a significant role in the successful implementation of TQM practices. More importantly, they impact the methods and actions that help accomplish the expected benefits of TQM implementation. In other words, they affect the decision made by middle management (Turban et al., 1999).

METHODOLOGY

According to Hussey and Hussey (1997), applied research is designed to apply its findings to solve specific, existing problems, and basic researches, and which can be accordingly classified as research that seeks to clarify problems of a less specific nature, contributing to knowledge on general issues. In the case of basic research, the researcher is less concerned with the application of the study, and its outcome is subsequently considered to be more academic than applied research, contributing to the general rather than the individual good. This conceptual framework can be regarded as a complete research journey for the first objective of the study, where the main components of this framework are shown in Figure 1.

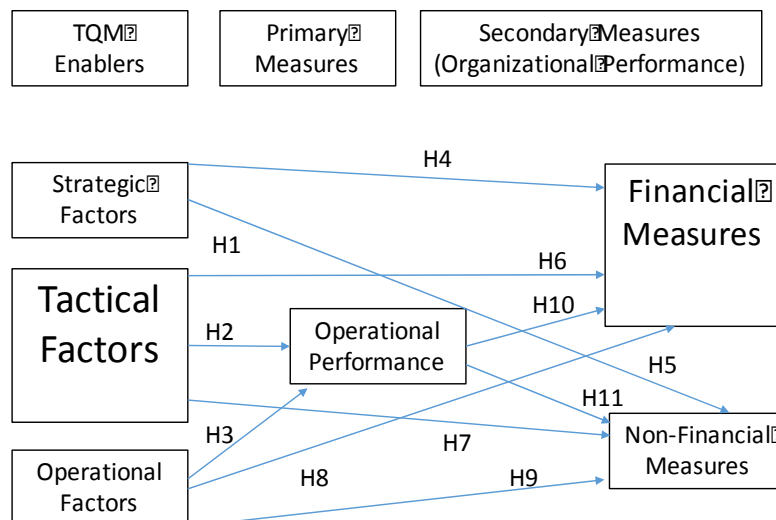


Figure 1. Proposed model for the effects of TQM practices in Omani SMEs' performance

RESULTS

Demographic Profile

As shown in Table 1 below, a total of 200 respondents participated in this survey where the majority were males (84.5%) and 15.5% of them were females. The biggest age group was in the range of 26 to 35 years old (46.5%). Most of the respondents were managers (47%), followed by executives (20.5%). Majority of the respondents had worked for more than 10 years (41.5%) while 46.5% of the respondents had either Bachelor's or Master's degree.

Table 1: Demographic profile (n=200)

No.	Variable	n ^a	% ^b
1.	Gender		
	Male	169	84.5
	Female	31	15.5
2.	Age groups		
	20 – 25 years	22	11.0
	26 – 35 years	93	46.5
	36 – 45 years	66	33.0
	46 – 55 years	13	6.5
	56 years and older	6	3.0
3.	Job		
	Senior manager	26	13.0
	Manager	94	47.0
	Senior executive	39	19.5
	Executive	41	20.5
5.	Marital Status		
	Single	18	8.9
	Married	181	89.6
	Divorced	3	1.5
6.	Academic Qualification		
	Secondary	47	23.5
	Diploma	56	28.0
	Bachelor	38	19.0
	Master	55	27.5
	PhD	4	2.0
7.	Experience		
	Less than a year	12	6.0
	2 – 3 years	23	11.5
	4 – 6 years	44	22.0
	7 – 9 years	38	19.0
	10 years and above	83	41.5

a:n= frequency, b:%= percentage

In Table 2 shown below, as high as 65% of the respondents believe that leadership is a CSF (strategic factor) in implementing TQM in an organization, while 55.5% of the respondents have the perception that organizational culture is an important influence in determining whether TQM will be implemented successfully in an organization. Other factors that are crucial in applying TQM in an organization are top management support (45%), continuous improvement (62.5%), benchmarking (44.5%), and quality goals and policy (63%).

Table 2: Critical Success Factors: Strategic Factors (n=200)

No.	Question	VL ^a n(%)	L ^b n(%)	N ^c n(%)	H ^d n(%)	VH ^e n(%)
1.	Leadership	6(3.0)	18(9.0)	46(23.0)	91(45.5)	39(19.5)
2.	Organizational culture	3(1.5)	23(11.5)	63(31.5)	92(46.0)	19(9.5)
3.	Top management support	13(6.5)	47(23.5)	50(25.0)	71(35.5)	19(9.5)
4.	Continuous improvement	9(4.5)	26(13.0)	40(20.0)	93(46.5)	32(16.0)
5.	Benchmarking	9(4.5)	35(17.5)	67(33.5)	69(34.5)	20(10.0)
6.	Quality goals and policy	6(3.0)	29(14.5)	39(19.9)	98(49.0)	28(14.0)

Mean total score (sd^f) = 20.79 (4.94)

a:Very low, b:Low, c:Neutral, d:High, e:Very high, f:standard deviation

The Usage of Information Technology in Organization

A total of 62.5% of the respondents believe that the use of information technology is high and very high in their organization in implementing TQM while 58% of the respondents regards employee involvement is high or very high in their enterprise in successfully applying TQM and the same also could also be said of 58.5% of the respondents who agreed that team building and problem solving is also high and very high (as shown in Table 3 below). Employee training (53%) is high and very high in their organization in implementing TQM and the same goes to employee empowerment factor (50%). In order to answer the first research question of this study, it was found that only 18% of the respondents with regards to the reality of the application of TQM in Omani SMEs were high and very high in implementing TQM. Hence, it is evidenced in a similar study that social media is developing opportunities to the growth of SMEs' industry and offers many benefits as well as problems that SMEs need to be aware of and to efficiently deal with it (Ahamat et al., 2017).

Perception and Availability of TQM Requirements

Alarmingly, 30% of the respondents viewed the reality of the application of TQM in the Omani SMEs at a low level and 11% at a very low level. Next, to answer the second research question of this study, it was found that only 26.5% of the respondents deemed that the availability of TQM requirements in the Omani SMEs was high and only 6.5% considered it to be very high. A majority of the respondents (36.5%) perceived that the availability of TQM requirements in the Omani SMEs was at a low level while 9% at a very low level. Besides that, in order to answer the third research question of this study it was found that only 18% of the respondents with regards to the dissemination level of TQM culture in the Omani SMEs was at a high level while a mere 3.5% considered it to be very high. Again, a majority of the respondents (39%) perceived that the dissemination level of TQM culture in Omani SMEs was at a lower level and 12% at a very low level. Finally, to answer the fourth research question of this study, it was found that only 17.5% of the respondents believed TQM as a strategy to overcome barriers while 5.5% considered it to be very high. Once again, a majority of the respondents (28.5%) deemed that the notion that TQM as a strategy to overcome barriers was at a low level while 7% at a very low level.

Table 3: Critical Success Factors: Tactical Factors (n=200)

No.	Question	VL ^a n(%)	L ^b n(%)	N ^c n(%)	H ^d n(%)	VH ^e n(%)
1.	Team building and problem solving	12(6.0)	18(9.0)	53(26.5)	86(43.0)	31(15.5)
2.	Employee empowerment	10(5.0)	46(23.0)	47(22.0)	82(41.0)	18(9.0)
3.	Employee involvement	9(4.5)	32(16.0)	43(21.5)	89(44.5)	27(13.5)
4.	Employee training	8(4.0)	42(21.0)	44(22.0)	67(33.5)	39(19.5)
5.	Use of information technology	6(3.0)	24(12.0)	45(22.5)	81(40.5)	44(22.0)
6.	Supplier quality	3(1.5)	27(13.5)	74(37.0)	71(35.5)	25(12.5)
7.	Supplier relationships	1(0.5)	35(17.5)	77(38.5)	66(33.0)	21(10.5)
8.	Assessment of performance of suppliers	5(2.5)	49(24.5)	72(36.0)	55(27.5)	19(9.5)
9.	The current situation in application of TQM in the Omani SMEs	22(11.0)	60(30.0)	82(41.0)	23(11.5)	13(6.5)
10.	The availability of TQM requirements in the Omani SMEs	18(9.0)	73(36.5)	43(21.5)	53(26.5)	13(6.5)
11.	The dissemination level of TQM culture in the Omani SMEs	24(12.0)	78(39.0)	55(27.5)	36(18.0)	7(3.5)
12.	The TQM strategy to overcome barriers	14(7.0)	57(28.5)	83(41.5)	35(17.5)	11(5.5)

Mean total score (sd)^f = 38.35 (8.48)

a:Very low, b:Low, c:Neutral, d:High, e:Very high, f: standard deviation

Implementation of TQM

Realistic TQM implementation schedule factor was perceived to be an important element in implementing TQM in an organization whereby 53.5% of the respondents thought highly of this statement (as shown in Table 4 below) while 53.5% of the respondents perceived that inspection and checking work is vital in determining a successful implementation of TQM in an organization. Furthermore, the factors that respondents deemed as crucial success factors were management of customer relationships (51.5%), process control (51.5%), and customer orientation (50%). Nonetheless, there were four factors which obtained less than 50% endorsement from the respondents as elements deemed as critical in ensuring a successful implementation of TQM in an organization, which were resources

conservation and utilization (37%), product and service design (42.5%), department performance metrics for TQM (42%), and resources value addition process (42%).

Table 4: Critical Success Factors: Operational Factors (n=200)

No.	Question	VL ^a n(%)	L ^b n(%)	N ^c n(%)	H ^d n(%)	VH ^e n(%)
1.	Product and service design	4(2.0)	40(20.0)	71(35.5)	62(31.0)	23(11.5)
2.	Department performance metrics for TQM	8(4.0)	32(16.0)	76(38.0)	64(32.0)	20(10.0)
3.	Process control	3(1.5)	25(12.5)	69(34.5)	85(42.5)	18(9.0)
4.	Customer orientation	5(2.5)	42(21.0)	53(26.5)	62(31.0)	38(19.0)
5.	Management of customer relationships	7(3.5)	36(18.0)	54(27.0)	60(30.0)	43(21.5)
6.	Resources value addition process	5(2.5)	54(27.0)	57(28.5)	58(29.0)	26(13.0)
7.	Realistic TQM implementation schedule	6(3.0)	36(18.0)	51(25.5)	77(38.5)	30(15.0)
8.	Resources conservation and utilization	5(2.5)	49(24.5)	72(27.5)	55(27.5)	19(9.5)
9.	Inspection and checking work	6(3.0)	36(18.0)	51(25.5)	77(38.5)	30(15.0)

Mean total score (sd^f) = 26.96 (6.51)
 a:Very low, b:Low, c:Neutral, d:High, e:Very high, f: standard deviation

Level of Performance of Financial Measure

In order to determine the level of performance in term of financial measure in an organization, six questions were asked, wherein a total of 32.5% of the respondents expressed that the enterprise managed to reduce costs, while 34% of the respondents believed that the growth of the enterprise's revenue was high (as shown in Table 5 below). Furthermore, 31.5% of the respondents perceived that the net profit of the enterprise was also high. The three other indicators that would determine the level of performance in terms of financial measure through the perception of the respondents were profit to revenue ratio (33%), return on assets (28%), and investment in research and development (34%).

Table 5: Performance Measures (Financial measures) (n=200)

No.	Question	VL ^a n(%)	L ^b n(%)	N ^c n(%)	H ^d n(%)	VH ^e n(%)
1.	Cost reduction	11(5.5)	38(19.0)	86(43.0)	47(23.5)	18(9.0)
2.	Revenue growth	17(8.5)	37(18.5)	78(39.0)	59(29.5)	9(4.5)
3.	Net profit	12(6.0)	54(27.0)	71(35.5)	54(27.0)	9(4.5)
4.	Profit to revenue ratio	9(4.5)	46(23.0)	79(39.5)	55(27.5)	11(5.5)
5.	Return on assets	8(4.0)	56(28.0)	80(40.0)	47(23.5)	9(4.5)
6.	Investment in R & D	19(9.5)	57(28.5)	56(28.0)	54(27.0)	14(7.0)

Mean total score (sd^f) = 18.06 (4.76)
 a:Very low, b:Low, c:Neutral, d:High, e:Very high, f: standard deviation

Determining the Level of Performance of Non-financial Measure

Next, in order to determine the level of performance in terms of non-financial measure in an organization, eight questions were asked wherein a total of 57.1% of the respondents believed that the enterprise has the capacity to develop a competitive profile, while 56.5% of the respondents believed that the enterprise managed to improve the quality of services (as shown in Table 6 below). Besides, the respondents deemed that the enterprise developed new services (54.1%), whereas 50.5% of the respondents perceived that the enterprise improved the delivery of performance of the organization, and a further 53.5% of the respondents believe that the enterprise had market orientation. The three other indicators that gauged the level of performance in terms of non-financial measures through the respondents' perception were improving flexibility (44.5%), wastage reduction (45%), and market development (45.9%). Flexibility in business is the ability for a company to make whatever internal changes are necessary to respond effectively to the changing outward environment, as quickly as possible.

Table 6: Performance Measures (Non-Financial measures) (n=200)

No.	Question	VL ^a n(%)	L ^b n(%)	N ^c n(%)	H ^d n(%)	VH ^e n(%)
1.	Wastage reduction	13(6.5)	37(18.5)	58(29.0)	73(36.5)	17(8.5)
2.	Improving the quality of services	12(6.0)	22(11.0)	51(25.5)	88(44.0)	25(12.5)
3.	Improving flexibility	8(4.0)	44(22.0)	57(28.5)	70(35.0)	19(9.5)
4.	Improving delivery of performance	13(6.5)	35(17.5)	49(24.5)	80(40.0)	21(10.5)
5.	Capacity to develop a competitive profile	6(3.0)	42(21.2)	75(18.7)	75(37.9)	38(19.2)

No.	Question	VL ^a n(%)	L ^b n(%)	N ^c n(%)	H ^d n(%)	VH ^e n(%)
6.	New services development	9(4.5)	27(13.6)	55(27.8)	76(38.4)	31(15.7)
7.	Market development	10(5.1)	52(26.3)	45(22.7)	67(33.8)	24(12.1)
8.	Market orientation	15(7.6)	30(15.2)	47(23.7)	81(40.9)	25(12.6)
Mean total score (sd ^f) = 26.72 (7.10)						
a:Very low, b:Low, c:Neutral, d:High, e:Very high, f: standard deviation						

Table 7: Mean scores difference between males and females (n=200)

No.	Variable	Male (n=169) Mean (sd ¹)	Females (n=31) Mean (sd ¹)	MD ² (95% C.I. ³)	t (df ⁴)	P value ⁵
1.	Strategic Factors	20.78 (4.75)	20.87(5.98)	-0.09 (-2.4,2.2)	-0.10 (37.3)	0.933
2.	Tactical Factors	37.83(8.14)	41.16(9.82)	-3.33 (-6.6,-0.09)	-2.02 (198)	0.044
3.	Operational Factors	26.74(6.14)	28.13(8.27)	-1.39 (-4.5, 1.8)	-0.9 (36.3)	0.373
4.	Performance Measures (Financial measures)	18.11(4.58)	17.77(5.69)	0.34 (-1.5, 2.2)	0.36 (198)	0.717
5.	Performance Measures (Non-Financial measures)	26.37(6.80)	28.79(8.43)	-2.42 (-5.7, 0.9)	-1.4 (198)	0.157
1: standard deviation, 2: Mean difference, 3: Confidence interval, 4: degree of freedom, 5: independent t test						

Table 8: Mean scores difference between age groups (n=200)

No.	Variable	Mean (sd ¹)						P value ⁹
		A ² (n=22)	B ³ (n=93)	C ⁴ (n=66)	D ⁵ (n=13)	E ⁶ (n=6)	F ⁷ (df ⁸)	
1.	Strategic Factors	22.55 (4.47)	20.64 (5.31)	20.54 (4.84)	20 (4.45)	21 (1.10)	0.84 (4,195)	0.503
2.	Tactical Factors	44.14 (9.48)	37.77 (8.57)	37.73 (7.85)	34.54 (5.95)	41 (6.57)	3.75 (4,195)	0.006*
3.	Operational Factors	29.86 (7.86)	27.28 (6.22)	26.36 (6.60)	23.84 (5.30)	24.50 (2.74)	2.30 (4,195)	0.060
4.	Performance Measures (Financial measures)	17.68 (6.66)	18.34 (4.37)	17.41 (4.74)	17.46 (3.36)	23.5 (0.55)	2.51 (4,195)	0.043*
5.	Performance Measures (Non-Financial measures)	26.95 (8.51)	28.13 (6.96)	25.44 (6.84)	22.69 (5.71)	26.5 (3.83)	2.58 (4,195)	0.051

1: standard deviation, 2: 20-25 years, 3:26-35 years, 4:36-45 years old, 5: 46-55 years and above, 6: 56 years and above, 7: F statistics, 8: degrees of freedom, 9: One way ANOVA

* Significant at 0.05.

-Using Bonferroni procedure, 20 to 25 years old showed significant tactical factors mean score difference with all other age groups except those 56 years old and above.

-Using Bonferroni procedure, 36 to 45 years old showed significant financial measures mean score difference compared to those 56 years old and above.

From the findings of this study, it was revealed that the most CSF in terms of strategic factors is leadership whereby 65% of the respondents perceived this factor as vital in ensuring a successful implementation of TQM in an organization (as shown in Table 2). The other elements that were considered critical were quality goals and policy (63%), continuous improvement (62.5%), and organizational culture (55.5%). Nonetheless, it is quite surprising that the two other factors which are critical in ensuring a successful implementation of TQM garnered less than 50% among the respondents who deemed top management support (45%) and benchmarking (44.5%) as less important compared to the other four factors mentioned earlier. Next, the findings indicated five factors perceived by respondents as CSFs in term of tactical factors in ensuring a successful implementation of TQM in an organization (as shown in Table 3). The CSFs are information technology (62.5%), team building and problem solving (58.5%), employee involvement (58%), employee training (53%), and employee empowerment factor (50%). The two highest factors which are perceived to be the most important elements in term of operational factors in ensuring a successful implementation of TQM in SMEs were realistic TQM implementation schedule (53.5%) and inspection and checking work (53.5%) (as shown in Table 4).

CONCLUSION

The conclusion of this research is that it demonstrates the steps that need to be taken by Omani SME management in order to succeed. The findings enables the Omani SME management to plan the phases ahead of time in order to be familiar with the circumstances and take suitable action to rise above any obstacle that they would confront in their

business journey. The four CSFs perceived by respondents as lacking were the reality of the application of TQM, the availability of TQM requirements, the dissemination level of TQM culture, and TQM as a strategy to overcome barriers. Immediate action by the SMEs top management in Oman and a support through Omani government in terms of special policy and financing will facilitate SMEs in Oman to be more competitive.

LIMITATIONS AND FUTURE STUDY

Although management researches and physical sciences are different in various aspects, there are still ways that management research could learn from physical sciences. Hence, the issues of the real world in organizations can be approached through systematic thinking (Ahamat, 2014). As a suggestion for further research, it is useful for this study to employ qualitative research by embedding systematic thinking to deepen the personal perspectives of owners or founders of SMEs. Future studies may consider qualitative approach by using interviews and personal observations. Employing structured interviews and personal observations lead to the discovery of several key emerging themes, which may not have been uncovered as explicitly if only non-qualitative approaches had been applied (Ahamat, 2019).

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