A STRUCTURAL RELATIONSHIP BETWEEN TOTAL QUALITY MANAGEMENT, STRATEGIC CONTROL SYSTEMS AND PERFORMANCE OF MALAYSIAN LOCAL GOVERNMENTS

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ABSTRAK

Penyelidikan ini mengkaji perhubungan berstruktur di antara strategi Pengurusan Kualiti Menyeluruh (PKM), Sistem Kawalan Strategik (SKS) dan Prestasi Organisasi (PO). Kajian ini didorong oleh hasil penelitian literatur yang mendapati bahawa kajian-kajian lepas telah melaporkan hasil penemuan yang tidak konsisten berkaitan dengan hubungan di antara PKM dan PO. Keadaan ini telah mendorong wujudnya satu aliran kajian baru yang mencadangkan bahawa perlunya pengkaji mengambilkira pembolehubah ketiga bagi menjelaskan hubungan di antara PKM dan PO. Oleh yang demikian, kajian ini mengintegrasikan literatur PKM dan literatur perakaunan pengurusan dengan mengkaji pembolehubah sistem kawalan. Sistem kawalan telah dibincangkan secara meluas oleh ahli-ahli perakaunan pengurusan sebagai pembolehubah yang penting bagi tujuan perlaksanan strategi. Daripada penelitian literatur PKM, sepuluh faktor kritikal bagi startegi PKM telah dikenalpasti. Prestasi organisasi kajian pula telah diukur menggunakan empat dimensi, iaitu: kewangan, proses dalaman, kakitangan dan pelanggan. Data kajian telah dikumpul daripada 205 jabatan yang berada di dalam Kerajaan –Kerajaan Tempatan di Malaysia, dengan menggunakan soalselidik. Bersesuaian dengan ciri-ciri organisasi kajian, persampelan kluster berstrata telah digunakan. Sebanyak 205 soal selidik telah dikembalikan dan digunakan untuk dianalisis, iaitu 82% daripada keseluruhan 250 soal selidik yang diedarkan. Kadar pulangan soal selidik yang tinggi adalah disebabkan soal selidik diedarkan sendiri oleh pengkaji ke setiap kerajaan tempatan yang dikaji. Kajian ini menemukan bahawa hubungan di antara PKM dan PO melalui SKS adalah lebih kuat berbanding hubungan langsung di antara PKM dan PO. Justeru, kajian ini menyokong premis Teori Kontigensi yang menyatakan bahawa strategi boleh dilaksanakan dengan lebih jaya sekiranya diselaraskan dengan sistem kawalan. Seterusnya, kajian ini mendapati terdapat hubungan yang signifikan di antara enam faktor kritikal PKM dengan PO. Enam faktor kritikal tersebut adalah komitmen pengurusan; fokus pelanggan; pengurusan sumber manusia; pengurusan berterusan; sistem maklumat kualiti; dan rekabentuk servis. Kajian ini juga mendapati hubungan yang signifikan di antara SKS dan PO. Seterusnya, hubungan di antara PKM dan SKS juga didapati signifikan. Sebagai sebuah kajian yang bertitik tolak dari isu wujudnya ketidakselarian di antara kajian-kajian lepas berkaitan hubungan di antara PKM dan PO, kajian ini berupaya menyumbang kepada pengayaan bidang ilmu yang sedia ada. Bagi mereka yang meragui potensi PKM sebagai strategi bagi meningkatkan prestasi, kajian ini mendedahkan bahawa perlaksanaan PKM mesti diselaraskan dengan sistem kawalan yang berfokuskan PKM. Justeru, kajian ini mencadangkan kepada para pengamal untuk mengambil langkah yang wajar dalam melaraskan amalan sistem kawalan organisasi dengan keperluan strategi PKM.

ABSTRACT

The purpose of this study was to investigate the structural relationship between Total Quality Management (TQM) strategy, Strategic Control Systems (SCS) and Organizational Performance (OP). This study was motivated by the inconsistent findings concerning the relationship between TQM and OP as appeared in the contemporary literature. Due to the inconsistencies in the findings, a new research stream emerged which suggests for future researchers to investigate the third variable that can clarify the link between TQM and OP. Therefore, this study integrated the TQM literature and management accounting literature by investigating the control systems variable, as control systems have been widely discussed in management accounting literature as an important variable for the purpose of strategy implementation. In this study, ten critical factors of TQM strategy had been identified from the TQM literature. Performance of organization understudy was measured by using four generic dimensions of performance, namely: financial, internal process, employee and customer. Data for this study was collected from 205 departments attached to the Malaysian local government by using questionnaire as a research instrument. Stratified cluster sampling was used in selecting the sample of the study according to the characteristics of the Malaysian local government. Of 250 questionnaires distributed, 205 questionnaires which is 82% were returned and used for further analysis. The high response rate was achieved due to the research instrument being personally distributed by the researcher to each local government. This study found that the TQM, through the presence of SCS, had a stronger relationship with OP, as compared to the direct relationship between TQM and OP. Therefore, this study supported the premise of contingency theory, which holds that a strategy can be implemented more successfully through the presence of aligned control systems. Additionally, this study found a significant relationship between six critical factors of TQM strategy and organizational performance. The six critical factors of TQM strategy were management commitment; customer focus; human resource management; continuous improvement; quality information systems; and service design. This study also reported a significant relationship between TQM strategy and SCS. The relationship between SCS and OP was also reported to be significant. As this study provided insights regarding unresolved issues on the relationship between TQM and OP as reported in the contemporary literature, this study was able to expand the boundary of existing literature. For those who are skeptical on whether TQM would lead to good OP, this study revealed TQM as a strategy that is only a means towards an end. What is more important is a presence of strategically focused control systems. Thus, this study strongly suggests that managers of local governments should take necessary actions in aligning their control systems with the requirements of TQM strategy.

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AMOS	Analysis of Moment Structure
BSC	Balanced Scorecard
CC	City Council
CR	Critical Ratio
DAC	Development Administration Circular
DC	District Council
EQA	European Quality Award
GDP	Gross Domestic Product
HOD	Head of Department
INTAN	Institut Tadbiran Awam Negara
KMO	Kaiser-Meyer-Olkin
MAMPU	Malaysian Administrative Modernisation & Management Planning Unit
MBNQA	Malcom Baldrige National Quality Award
MC	Municipal Council
MMPF	Multi Model Performance Framework
OP	Organizational Performance
SCS	Strategic Control Systems
SEM	Structural Equation Modeling
SPSS	Statistical Package for Social Science
TQM	Total Quality Management

CHAPTER 1

INTRODUCTION

1.1 Background

Total Quality Management (TQM) has become a universal strategy for the survival and growth of many organizations in today's fiercely global competitive environment. Given its strategic importance, TQM has gained increasing attention from many academic scholars (Ehigie & McAndrew, 2005); manufacturing (Arawati, 2005; Sohal & Terziovski, 2000; Zakaria, 1999); small medium enterprises (Mohd Nizam & Tannock, 2005); higher education (Cruickshank, 2003) as well as public organizations administrator (Abdul Karim, 1999; Hunt, 1995; Nor Hazilah, 2004). The area of quality management has evolved through several phases, starting from 'quality by inspection', 'Statistical Quality Control (SQC)', 'Quality Assurance (QA)', and 'Total Quality Management (TQM)' (Prybutok & Ramasesh, 2005). As documented by Kanji (2002), TQM is built on a philosophy where all members of an organization work closely to achieve customer satisfaction through continuous improvement. In essence, the fundamentals of TQM are employee empowerment, continuous improvement and customer focus.

As commonly reported in the scholarly literature, many highly competitive and world class organizations have implemented TQM strategy in order to continually seek better performance, and in turn gain competitive advantage. Empirically, many previous studies (Arawati, 2005; Li, Andersen & Harrison, 2003; Yasin, Alavi, Kunt, & Zimmerer, 2004) have revealed that there is a significant relationship between TQM and

organizational performance. Unfortunately, not all TQM implementers have executed their TQM successfully (Dilber, Bayyurt, Zaim & Tarim, 2005; Samson & Terziovski, 1999; Sanchez-Rodriguez & Martinez-Lorente, 2004; Sohal & Terziovski, 2000; Witcher, 1994). In a review paper, Sila and Ebrahimpour (2002) concluded that previous studies on the relationship between TQM strategy and organizational performance had revealed inconsistencies and sometimes produced conflicting results. As suggested by Ehigie and McAndrew (2005), the implication of these unresolved issues is that, future researchers need to investigate variables that could influence the effectiveness of TQM implementation. Thus, more empirical evidence is needed to shed light on this unresolved issue.

The unsuccessful experiences of strategy implementation by organizations worldwide are not surprising. As reported by Kaplan and Norton (2000), 70 to 90 percent of organizations worldwide failed to execute their strategy successfully. As commonly being proposed by contingency theory literature, the unsuccessful implementation of a certain strategy is due to the 'mismatch' or 'misfit' between the strategy and control systems. Moreover, a strategy is only a means toward an end. The other side of the token, control systems is an important system that must be institutionalized to support the strategy implementation (Zakaria, 1999). As widely discussed in the literature, good performance effect of TQM strategy can be harvested by complimenting it with suitable control systems (Andersen, Lawrie & Savic, 2004; Daniel & Reitsperger, 1991; Selto, Renner & Young, 1995)

In line with the contingency theory literature, management accounting literature proposes that the periodicity of traditional accounting control systems such as budgetary control systems has been blamed for ignoring organizational long-term initiatives (Hayes & Abernethy, 1980; Kaplan, 1983; Otley; 1999; Rangone, 1997), such as in meeting the urgency of TQM strategy in an organization. Dent (1990) in his review paper, stressed that shortermism of traditional accounting control systems had been criticized as discouraging the long-term focus of TQM strategy to be in place. Consequently, several contemporary complementary approaches such as strategic management accounting, strategic cost management, and non-financial performance measurement have been proposed and introduced as means to overcome the limitations of traditional management accounting control systems in dealing with strategic issues (Otley, 1999; Rangone, 1997). In addition to these approaches, the role of strategic control systems (SCS) has been recognized as important systems for the purpose of strategy implementation (Chenhall, 2005; Hoque, 2004; Muralidharan, 2004) including TQM strategy. Hoque (2004) for instance, found that there is a significant association between organizational strategy and performance through the presence of SCS.

As reported in the literature, the increase in TQM awareness has been recognized as one of the important factors that is heightening interest among researchers in control systems issues (Butler, Letza & Neale, 1997). As commonly discussed, the financial and human resources that have been invested into TQM strategy implementation are truly staggering. However, the existing literature on the relationship between organizational strategy and control systems is still at the beginning, incomplete and at its infancy

(Chenhall, 2003; Daniel & Reitsperger; 1991; Otley, Broadbent & Berry, 1995). They shared a similar view that the issues of the relationship between organizational strategy and organizational control systems were not well addressed in the previous scholarly literature. This under researched area, therefore, needs more empirical evidence in examining the relationship between TQM strategy and organizational control systems.

Despite the importance of public organizations, Chapman (1997) stated that most of the contingency based studies were conducted using business organizations as unit of analysis. On the same token, a large amount of existing empirical research on control systems also focus on business organizations (e.g. Banker, Potter & Schroeder, 1993; Daniel & Reitsperger, 1991; Goold & Quinn, 1993; Ittner & Larcker, 1997; Khandwalla, 1972; Merchant, 1985; Simons, 1987; Sinclair & Zairi, 2001; Widener, 2004). On the contrary, there has been limited effort done in investigating public sector organizations[1], thus providing a significant gap that need to be addressed in this study. Apparently, more empirical research should be carried out to enhance our understanding on the public sector organizations.

The main goal of this study is to empirically examine the structural relationship between TQM, SCS and organizational performance using data from local government of Malaysia. In line with the premise of contingency theory, this study is also devoted to broaden the scope of discussion in the contemporary literature concerning the relationship between organizational strategy (in terms of TQM strategy), the organizational structure (in terms of utilization of strategic control systems), and the

[1] Fadzilah (1989) defined Malaysian public sector to include all government departments, statutory bodies and local government as well as government interested companies.

organizational performance (in terms of financial, internal process, employee and customer). Although a considerable amount of research has been done and reported in the field of TQM (Arawati, 2005; Khairul Anuar, Rushami & Zakaria, 2001; Li *et al*., 2003; Powell, 1995; Saraph, Benson & Schroeder, 1989) and SCS (Goold & Quinn, 1993; Ittner & Larcker, 1997), there has been only a small effort that has taken TQM and SCS into consideration simultaneously.

This study looks in detail the related previous empirical research done within manufacturing, services and governmental organizations and current practical situations. It is important in order to understand the current development of issues understudied. This study is intended to provide a significant contribution to the academia and practitioners. Without doubt, this study is vital due to the inconsistencies, unresolved and even contradictory findings in identifying the relationship between organizational strategy, structure and performance (Prajogo & Sohal, 2006). Given this phenomenon, this study aims to provide evidence to support the proposition that the structural relationship between TQM strategy, SCS and organizational performance is significant.

1.2 Problem Statement

In order to achieve and maintain excellence in performance of local government, the Malaysian government has launched and promoted various quality management initiatives such as TQM, Zero Defect and Customer Charter. The starting point of current quality awareness in the Malaysian local government was the launch of the 'Excellent Work Culture' campaign in 1989. As widely discussed in the literature, all these quality

management initiatives would be able to reap various benefits including product quality (Ahire & Golhar, 1996), shortening service delivery times, increasing customer satisfaction, as well as achieving higher productivity (Sila & Ebrahimpour, 2002).

However, after more than 15 years of the 'Excellence Work Culture' programme has been launched, the performance of the Malaysian local government still receives much criticism and complaints, suggesting the inability of the Malaysian local government in delivering good services to meet the needs of their constituents (Ibrahim & Abd Karim, 2004). For instance, the Minister of Housing and Local Government has made a statement that the Malaysian local government was unable to deliver a good service to the public (The Star, p.14, 6 June 2004). More evidence from newspapers is presented in Table 1.1. According to Table 1.1, it is observed that the reports were somewhat in the form of anecdotes and are prescriptive.

Table 1.1: Related Newspapers Articles on Local Governments

Date	Highlighted issues	Quote from	Newspaper	Page
2 Mar 2002	Some local authorities are very efficient, but the majority, it seems, are in a state of animated suspension.	Editor	NST	10
13 Aug 2003	The government will introduce the Citizen Satisfaction Index to measure public satisfaction of services provided by the local authorities.	Housing & Local Government Minister	The Sun	7
19 Aug 2003	Most local authorities do not carry out reevaluation exercise every five years due to poor management.	Editor	The Sun	8
3 Oct 2003	The local authorities should perform better and attend to public complaints more efficiently.	Housing & Local Government Minister	The Star	8
11 Apr 2004	In 2002, local authorities were single out as one of the agencies with the most complaints of corruption.	Housing & Local Government Minister	NST	4
18 Apr 2004	Housing & Local Government Ministry has proposed six steps to improve services provided by local authorities.	Housing & Local Government Minister	Sunday Times	1
29 June 2004	56 steps to be implemented to enhance the eminency of local authorities.	Housing & Local Government Minister	The Sun	6
2 Aug 2004	The general impression is that the services provided by local councils are not satisfactory.	Editor	NST	11
10 Oct 2005	The most common complaint received against local authorities was about inefficient and poor quality service.	President of Ampang Jaya MC	The Star	9

Table 1.1: Related Newspapers Articles on Local Governments (Cont)

Date	Highlighted issues	Quote from	Newspaper	Page
30 Nov 2005	A major revamp is being planned for the local authorities nationwide to strengthen their performance.	Housing & Local Government Minister	The Sun	4
31 Jan 2006	Minister of Housing & Local Government wants local authorities nationwide to improve the public delivery systems.	Housing & Local Government Minister	The Star	3
10 Feb 2006	I'm not satisfied with the level of work of local authorities.	Selangor Mentri Besar	The Sun	2
14 Feb 2006	The local authorities bore the brunt of complaints at the first hearing of the Parliamentary Select Committee on Integrity.	Committee chairmen	The Star	19
14 Mar 2006	Local authorities should improve their efficiency and provide better service to the people.	Housing & Local Government Minister	The Star	N4
28 Apr 2006	Ministry has proposed 64 steps to improve the performance of local authorities.	Housing & Local Government Parliamentary Secretary	The Star	14
30 May 2006	Local councils caused delays to development project.	Minister of Works	The Sun	15

Although the nature of reports is as such, however it somewhat gave us the indicators that the current performance of the Malaysian local government is poor. Although the factors that contribute to the performance of local government are various and complex, the quality management initiatives like TQM has been widely recognized in the literature as among the important determinant factors of good performance (e.g.: Arawati, 2005; Hunt, 1995; Powell, 1995).

Given the scenario, the relationship between TQM, strategic control systems and organizational performance of Malaysian local government provides an opportunity for a scientific investigation to be undertaken. As widely reported in the literature, the poor performance of TQM organizations could be related to the issue of misfit between TQM and control systems (e.g. Ittner & Larcker, 1997). Although the number of studies on the relationship between TQM and performance that are reported in the literature are encouraging, the issue of the inter relationship between TQM, control systems and organizational performance has not been fully explored. Given the shortcomings in the literature concerning the issue of control systems in explaining the relationship between TQM and organizational performance as well as emerging issue of performance of Malaysian local government, this study undertakes to explore:

> To what extent TQM strategy is related to strategic control systems in order to gain good organizational performance.

1.3 Research Questions and Objectives of the Research

In line with the background of the study as well as the research problem discussed in the preceding section, the following research questions are empirically investigated:

a. Does TQM strategy relate to organizational performance?
b. Does TQM strategy relate to strategic control systems?
c. Does strategic control systems relate to organizational performance?
d. Is the structural model of TQM strategy and organizational performance mediated by strategic control systems?

The objectives of the research are:

a. To determine the relationship between TQM strategy and organizational performance.
b. To investigate the relationship between TQM strategy and strategic control systems.
c. To examine the relationship between strategic control systems and organizational performance.
d. To ascertain the structural relationship between TQM and organizational performance through the presence of strategic control systems.

1.4 Significance of the Research

This interdisciplinary study is able to significantly contribute towards enriching the boundary of existing knowledge as well as providing valuable empirical evidence for practitioners as detailed in the succeeding paragraphs.

By integrating the research area of TQM and control systems, this study is able to significantly add value to another interdisciplinary research area, which is quality management and strategic management accounting. Given TQM literature reports that the previous empirical findings of the relationship between TQM and organizational performance were inconclusive, this study attempts to revisit the issue of this relationship by integrating the control systems variable in explaining the relationship between TQM and organizational performance. Although the proposition of the interrelationship between TQM, control systems and performance has been addressed by many management accounting scholars, but only a few of them, if any, have investigated this interrelationship using structural equation modeling (SEM) analysis. As reviewed by Smith and Langfield-Smith (2004), the development and application of SEM analysis in management accounting literature appeared to be limited and not fully explored.

SEM analysis, as performed in this study, provides a big potential for instrument validation. While instrument validation is among the main research stream of TQM literature, the management accounting literature needs more instrument validations based research. In addition to TQM, control systems and organizational performance are other variables that received much attention from management accounting scholars. By testing SEM measurement model, this study offers a rigorous validating analysis of TQM, control systems and organizational performance construct that is beneficial for future research. Replicating an established and rigorously tested previous research instrument is good to harmonize the subsequent study, thus producing more comparable research findings. As will be discussed in Chapter 3, the control systems and organizational

performance literature was lacking the rigorously validated research instrument particularly for non-business organization.

The Malaysian government has promoted TQM in almost all local governments with the objective to gain good performance. On the other hand, complaints and criticism towards the performance of Malaysian local governments by the community and constituents as appeared in the mass media, indicates the inability of Malaysian local governments to deliver good service and fulfill the promise of their TQM strategy. By integrating the control systems literature together with TQM literature, this study is able to scientifically convince the managers of local governments that the introduction of TQM is one essential but insufficient step for gaining high level performance, unless supported by the right, appropriate, effective and strategically focused control systems. Therefore, this study is significant to the managers of local governments, who are responsible to successfully execute their TQM strategy. This study is also significant to the practitioners of TQM, as it provides evidence to people who are skeptical towards the potential of TQM. Instead of blaming the TQM as not useful, the managers should further investigate their control systems practiced, whether the controls systems was developed accordingly with the requirements of TQM or otherwise.

1.5 Scope of Research

This section discusses on the scope of the study. It serves as guidance for the discussion in the next chapters.

a. This study is a quantitative and cross-sectional study, using questionnaire as a research instrument and data was collected by using a self-administered approach.

b. The unit of analysis of the study is departments of local governments in West Malaysia.

c. The research model of the study was developed consistent with the contingency framework of Otley (1980); the 'strategy implementation school' discussed by Venkatraman and Camillus (1984); the concept 'fit as mediation' as proposed by Venkatraman (1989); framework for contingency research as suggested by Moores and Chenhall (1994). The research model of the study also was classified as level two analysis of contingency research (Fisher, 1995). The detailed discussion on the related papers by Otley (1980); Venkatraman and Camillus (1984); Venkatraman (1989); Moores and Chenhall (1994); Fisher (1995) is presented in Section 3.9 of this thesis.

1.6 Organization of Thesis

This thesis contains seven chapters and is structured as follows.

Chapter 1 elaborates on the background of the study, problem statement, objectives of the research, research questions, significance of the research and organization of the thesis. Chapter 2 reviews the literature[2] related to TQM strategy. This chapter reviews the development of TQM as a research discipline, the call for SCS to

[2] Literature reviews provide one of the principal means by which knowledge is extracted from accumulated studies (Salipante, Notz & Bigelow, 1982, p.321)

support TQM strategy and the relationship between TQM strategy and performance. This chapter also reveals the gap in the TQM literature and provides suggestions for this study.

Chapter 3 reviews literature relevant to SCS and organizational performance. The discussion of SCS includes the definition of control systems, framework of SCS and previous empirical studies on the relationship between SCS and TQM strategy. In addition, this chapter reveals the gaps that exist in the reviewed literature and offers avenue for this present study. Chapter 4 provides a detailed discussion on the theoretical framework, underlying theory and hypotheses development.

Chapter 5 presents the methodology of the research. The topics included are population of the study, sampling frame, sampling technique, unit of analysis, data collection method, questionnaire design, measurement, pilot study, reliability and validity tests as well as explanations on statistical tools for analysis of main data and hypotheses testing.

Chapter 6 reports the findings of the study. Data of the respondents, items and constructs were descriptively analyzed. Construct validity was tested using the traditional approach of factor analysis and Cronbach Alpha using SPSS (Statistical Package for Social Science) software, as well as a more contemporary approach of measurement model. For the latter approach, the AMOS (Analysis of Moment Structure) software was employed. Hypotheses of the study were tested using structural equation modeling (SEM) and regression analysis.

Chapter 7, the final chapter of this thesis, is devoted to conclude the study and the findings of the study. This chapter also presents the implications and contributions of the study as well as limitations of the study. Additionally, avenue for future research was also suggested. Finally, the conclusion of this study was presented.

CHAPTER 2

TOTAL QUALITY MANAGEMENT STRATEGY[3]

2.1 Introduction

As documented by Juran (1995), quality is a timeless concept. In other words, the concept of quality is relevance across the time. Starting from the primitive societies until to date, humans have always been faced with the problem of quality. As at to date, the key forces that have demanded revolution in managing quality include greater innovation of products; higher awareness on the related issues of human safety and health; the scarcity of the natural resources; the practices of government regulation on quality; the rise of the consumerism awareness; and the intensified global competition (Juran, 1995). Due to its potential benefits, quality management will remain as an important strategy for organizational leaders (Williams, Wiele, Iwaardeen & Visser, 2004) in the 21st century (Teong & Bin, 2000).

TQM encompasses a set of critical factors (Arawati, 2005; Khairul Anuar *et al*., 2001; Li *et al*., 2003; Powell, 1995; Saraph *et al*., 1989; Sila & Ebrahimpour, 2002), and

[3] The term of 'TQM strategy' or 'quality strategy' has been widely used in the quality management literature whereby TQM is referred as an organizational strategy (see e.g. Ahire *et al*., 1996; Chenhall, 2003; Cho, 1994; Hoque, 2003; Hunt, 1995; Sohal & Terziovski, 2000); quality management also evolving from an inspection-oriented approach to strategy oriented approach (Lau, Zhao & Xiao, 2004).

is a primary strategy to achieve and maintain excellent organizational performance (Hunt, 1995). As defined by Swamidass and Newell (1987), strategy is '*actions or patterns of actions intended for the attainment of goals*' (p. 509). By integrating the definition of TQM and strategy, this study used the following working definition of TQM strategy - 'a set of quality management actions or critical factors that are practiced by an organization for the achievement of predetermined organizational objective'. Therefore, the main purpose of this chapter is to identify the critical factors of TQM strategy as discussed in the TQM literature. Additionally, this chapter reviews the development of TQM as an academic discipline as well as previous empirical research on TQM.

As will be reported in this chapter, the body of literature dealing with TQM is vast, diverse and ever growing. However, the development of TQM literature can be gathered and reviewed from three main sources; namely, contribution from quality scholars, reported empirical studies, and national quality award models (Tari, 2005). In line with these three main sources, the remaining part of this chapter is divided into ten sections as follows. Section 2.2 discusses the quality prescriptions by quality scholars. Section 2.3 reviews the definition of quality. Section 2.4 describes the related published review papers on quality management. Subsequently, Section 2.5 explains previous studies on TQM critical factors measuring instrument. Section 2.6 discusses on national quality awards. Section 2.7 summarizes the literature on critical factors of TQM. Section 2.8 discusses the TQM strategy in the Malaysian local government. Section 2.9 reviews the relationship between TQM strategy and organizational performance. Section 2.10

comments on the call for strategic control systems. Finally, the conclusion of this chapter is provided in the last section.

2.2 Quality Prescriptions by the Quality Scholars

This section discusses the basic ideas and concepts of quality developed by the leading quality management experts. The understanding of their thoughts is important for readers and practitioners to better understand current quality management. These scholars included Deming (1986), Juran (1988), Crosby (1979), Feigenbaum (1986), Taguchi (1986), Ishikawa (1985) and Groocock (1986). All of them have contributed a significant knowledge on the development of quality management as an academic discipline. However, it should be stressed that most of the contemporary organizations tended to adopt the mix-and-match, customized approach to quality management rather than relying on one particular quality scholars (Hunt, 1995).

2.2.1 Deming's Prescription

Deming is widely recognized in the literature as an important modern quality management expert in the Japanese history. He is closely associated with the terminology and practices of problem solving technique like statistical process control. The objective of the usage of this technique is to improve processes and increase standardization in production processes. Deming (1986) also stressed the critical role of top management in leading quality management initiatives. As documented by Deming (1986), top management is responsible in giving their employees a clear work standard that is considered as an acceptable standard and

provide the supportive working environment. In addition to top management responsibility, Deming (1986) also strongly promoted employee involvement in an organization. These are set out in his 14 points for managers as given in Appendix 1 of this thesis.

2.2.2 Juran's Prescription

Like Deming (1986), Juran (1988) believed that most quality related problems were due to management, not employees. Therefore, top management needs training in quality. Juran (1988) also stressed that the approach to quality needs to be inter-departmental and implemented with high level of teamwork. In order to inculcate quality awareness and improve communication between departments, he also promoted the practice of quality circle. He also shared with Deming (1986) a dislike of 'campaign' to achieve zero defects, since such approach is seen as not reasonable. Juran (1986) also introduced Trilogy to implement quality management. Juran's trilogy refers to quality planning, quality control and quality improvement. In achieving quality improvement, Juran (1988) advocated ten steps that must be institutionalized. Juran's ten steps are presented in Appendix 2 of this thesis.

2.2.3 Crosby's Prescription

Crosby (1979) is regarded as the person who introduced 'zero defect' concepts. Zero defect means getting it right the first time. In achieving the zero defect objective, an emphasis on prevention should widely be practiced rather

than after the event inspection. Crosby's maxim that 'quality is free' is based on the reasoning that quality improvement will reduce total cost, thus increasing profitability (Crosby, 1979). The key to quality improvement is to inculcate understanding and strengthening commitment among managers. As a result, the managers will not accept mistake and defects, as this would reduce work standards in their jobs. Like Deming (1986) and Juran (1988), Crosby (1979) stressed that managers were responsible for quality. They must lead the process, participate in quality improvement teams and actively involve in quality councils. Unlike Juran (1988), Crosby (1979) promoted the quality improvement as a continuous process, instead of project by project. In executing quality management, Crosby (1979) proposed 14 steps by emphasizing on the issues of management commitment, participation from organizational members, quality awareness among organizational members, prevention of defects over inspection and the quality as a continuous improvement process. Details of Crosby's 14 steps are reported in Appendix 3 of this thesis.

2.2.4 Feigenbaum's Prescription

According to Feigenbaum (1986), the main focus of quality management is customer satisfaction. Thus, all functional activities such as marketing, design, engineering, purchasing, production, inspection, shipping, accounting, and service are involved in and influence the attainment of quality. Therefore, effective total quality control requires a high degree of inter-functional integration. He also claimed that total quality control consists of four main stages; namely, setting

quality standard, appraising conformance to these standards, acting when standards are not met, and planning for improvement in these standards. In the same vein with other quality scholars, Feigenbaum (1986) strongly promoted effective quality related training as a vital component of TQM. As suggested by him, the quality training should address these three components; namely, quality attitude, quality knowledge, and quality skills (Feigenbaum, 1986).

2.2.5 Groocock's Prescription

Based on his experience in industry, Groocock (1986) argued that quality is crucial for organizations since product quality superiority enhances competitiveness. Like Deming (1986) and Feigenbaum (1986), Groocock (1986) recognized that meeting customer expectations creates a need to improve quality continually, as customer expectations continuously change. The objective of meeting customer expectations can be achieved by practicing the concept of 'chain of conformance' throughout the life of a product, from marketing, design and purchasing to manufacturing processes. The ideal of 'chain of conformance' is consistent with the ideal of interdepartmental integration as suggested by Feigenbaum (1986). Groocock (1986) also emphasized the role of top management, employee participation and training activities to support quality activities.

2.2.6 Taguchi's Prescription

As with Deming (1986) and Juran (1988), Taguchi (1986) argued that the practice of 'zero-defect' as suggested by Crosby (1979) is impractical. However, it is possible to continuously reduce the gap between the achieved standard and the targeted standard. As stressed by Taguchi (1986), design department plays a crucial role in determining the quality of the final product. Additionally, statistical analysis should be used in increasing the quality of the product.

2.2.7 Ishikawa's Prescription

Like Juran (1988), Ishikawa (1985) strongly advocated the deployment of quality circles. In addition, like other quality advocates, Ishikawa (1985) also strongly appreciates the importance of quality training. According to him, the quality begins and ends with knowledge. Moreover, he stressed that every employee should be trained the seven basic tools of quality; namely, process flow charting, check sheets, histogram, pareto analysis, cause and effect analysis, scatter diagrams, and control charts.

2.2.8 Comparison of Quality Experts' Prescriptions

This subsection discusses a brief comparison between each quality scholar's prescriptions. The similarities and the differences between them are highlighted. Despite the fact that quality approaches vary from one scholar to another scholar, several universal grounds of quality management can be derived. As such, each approach states that quality management practices require high

management commitment, the quality education and training plays an important role, quality management practices lead to cost saving, quality management is a continuous improvement process, quality management initiates teamwork and empowerment. As widely discussed in the TQM literature, the prescriptions by all these quality scholars had influenced later TQM researchers in such a way that the TQM researchers had statistically validated the various critical factors of TQM based on the initial efforts of quality scholars (Tari, 2005).

However, every approach has its own strengths and limitations. For instance, Deming's (1986) approach is a broad and philosophical approach with an emphasis on a statistically based implementation process and concern for people. On the other hand, Juran's (1988) approach contains a systematic three-step approach to implement quality management. For those managers interested in a more incremental approach, Crosby's (1979) approach might be better since he stresses on a well-structured and stage-by-stage development (Hunt, 1995). By comparing each quality prescription documented by quality scholars, it can be concluded that, all of the various approaches to quality are situational and contingent in nature; therefore, the organizations should not apply the methods suggested by each scholars rigidly and inflexibly (Ghobadian, Abby, Speller & Simon, 1994). Findings from previous studies showed that the successful TQM organizations had executed the TQM in accordance with their organizational characteristics, culture, structure and environment (Llorens Montes & Verdu Jover, 2004; Madu, Kuei & Lin, 1995; Yasin *et al*., 2004). As empirically proven,

the organization that blindly imitated the practice of TQM failed to perform well (Llorens Motes & Verdu Jover, 2004)

In order to derive the similarities and differences between the quality prescriptions that discussed by quality scholars, a simple comparison was made. Table 2.1 tabulates the comparison between three influential quality scholars, namely; Deming (1986), Juran (1988) and Crosby (1979). The comparison was limited to these three quality scholars as they come out with the more comprehensive prescription as opposed to the rest. As reported in Table 2.1, there are similarities but in some way, there are inconsistencies in the critical factors of TQM strategy that were discussed by these quality scholars.

Table 2.1: Comparison of Quality Prescriptions

Critical factors of TQM strategy	Deming (1986) 14 points	Juran (1988) 10 steps	Crosby (1979) 14 steps
Management commitment	point 1, 14	step 1	step 1
Strategic planning	point 3, 11	step 2, 3, 5	step 2, 7, 10
Benchmarking	nil	step 9	nil
Human resource management	point 6, 7, 8, 9, 10, 12, 13	step 4, 7	step 5, 8, 9, 11,12, 13
Supplier relationship	point 4	nil	nil
Continuous improvement	point 2, 5	step 6, 10	Step 14
Quality information systems	nil	step 8	step 3, 4, 6

Source: Synthesized from Deming (1986); Juran (1988); Crosby (1979) - Detail information of each point or step is provided in Appendices 1, 2 and 3 of this thesis.

Although quality scholars including Deming (1986) and Juran (1988) argue that the critical factors of TQM strategy are universally applicable, more empirical research is needed to verify their personal prescriptions about TQM. These prescriptions of quality management forwarded by quality scholars were not formulated on the basis of a systematic empirical study (Saraph *et al*., 1989). On the contrary, most of these prescriptions were based on their judgmental and real experience with the various organizations, mostly manufacturing. Therefore, most of the concepts of quality discussed and reported by these quality scholars had been developed in the context of manufacturing operations. However, to date the implementation of quality management has benefited various types of non-manufacturing organizations including the public organizations (Sila & Ebrahimpour, 2002). In order to empirically validate the prescriptions of quality management by quality scholars, many authors have developed and validated the instrument to measure critical factors of TQM strategy using Deming's prescription (e.g. Black & Porter, 1996; Saraph *et al*., 1989; Tamimi & Gershon, 1995).

Although the development of TQM as a research discipline has received much attention from scholars, until today, the definition of quality itself is still inconsistent. Consistency in defining the terminology such as quality is important as it contributes to the development of TQM as a systematic research discipline. Therefore, the succeeding section discusses the definition of quality, which can be

generally grouped into two main perspectives; namely, internal and external perspectives.

2.3 Definition of Quality

This section discusses the definition of quality as forwarded by various quality scholars. The purpose of this discussion is to derive the perspective that is going to be used in defining the terminology of quality for this present study. In one of his text, Hunt (1995) reported that quality has continued to be an important topic but often vaguely defined. For example, Reeves and Bednar (1994) in their effort to find a generally accepted definition of quality had yielded inconsistent result. They also concluded that quality had been variously defined as excellence, value, conformance to specifications, or meeting customer expectations. The following paragraphs discuss on the similarities and differences among several definitions of quality, as expressed by quality scholars and quality management researchers.

For instance, Crosby (1979) defines quality as conformance to organization's own quality requirement. In other words, quality is viewed from internal perspective. Conversely, Juran (1988), Feigenbaum (1986) and Deming (1986) define quality from customer perspective or external customer-led approach. As such, Juran (1988) defines quality as product performance that leads to customer satisfaction as well as product that free from product deficiencies. A concise expression that conveys both meaning is fitness for use. This definition is applicable to all organizations such as manufacturing, service, profit or non-profit institutions (Juran, Gryna & Bingham, 1974). Groocock (1986)

defines the quality of a product as the degree of conformance of all of the required specifications of the product to all of the aspects of a customer's reasonable expectations. This definition is a synthesis of Crosby's (1979) 'conformance to requirement' and Juran's (1988) 'fitness for purposes'.

As with Juran (1988), Feigenbaum (1986) defined quality as the product or service that meet the expectations of the customer. Additionally, he recognizes the production of quality product requires a multi-functional integration including engineering, marketing, production and delivery departments. He also argues that the product or service quality is dynamic in nature because customer expectations are subject to change. In the same vein with others, Spencer (1994) defined quality as satisfying or delighting the customer. In order to satisfy customer, the quality improvement initiatives must begin with an understanding of customer perceptions and needs.

Furthermore, Deming (1986) defines quality as exceeding the customer expectations. In other words, quality means focusing on the customer's need and anything that does not do this is not a quality feature. By offering wider scope, Taguchi (1986) defines quality as the loss imparted to the society from the time a product is produced. Examples of loss include failure to reach ideal performance; failure to meet customer's requirement; breakdowns; and harmful side effects caused by products (Taguchi, 1986). Thus, the smaller the loss, the more desirable is the product. The aim of quality control is to reduce the total cost to society. The implicit in Taguchi's (1986)

philosophy rests on the the premise that continuous quality improvement and cost reduction are necessary to stay competitive in business.

In the same perspective with Feigenbaum (1986) and Groocock (1986), Ishikawa (1985) defined quality as producing a product that is most economical, most useful, and always satisfactorily to the customer. Ishikawa (1985) also argued that quality control extends beyond the product and encompasses after sales service, quality of management, quality of individual and company itself. Table 2.2 summarizes the two general perspectives of definition of quality, namely; internal and external.

Table 2.2: Perspective of Quality Definition

Internal Perspective	External Perspective
Crosby (1979)	Groocock (1986)*
Groocock (1986)*	Juran (1988)
	Feigenbaum (1986)
	Spencer (1994)
	Deming (1986)
	Taguchi (1986)
	Ishikawa (1985)

(*) Quality is defined covering both perspectives.

Internal perspective of quality definition refers to the objective of quality programme in satisfying the requirement of management. On the other hand, the external perspective of quality definition refers to the quality programme implemented with the purpose to satisfy the customer's expectations. In other words, the definition of quality can be generally divided into two particular perspectives either production-oriented or customer-oriented (Gummesson, 1988). However, in line with the nature of TQM as a 'total' programme, the practice of TQM is to satisfy the requirements of both; the

management as well the customer. Therefore, for the purpose of this study, the definition of quality was defined from both perspectives; internal and external perspective. In highlighting the importance of defining the concept of quality precisely in a particular scientific research, Reeves and Bednar (1994, p.420) emphasized that 'increased understanding of these important relationships (between quality and organizational performance) will occur only when the quality construct is more precisely defined'

In addition to satisfying the management's objective, the overriding objective of TQM strategy is to satisfy the customer's requirements and expectations (Hunt, 1995). In other words, quality means meeting the customer's requirements and expectations, the first time and every time. However, customer's requirements and expectations are dynamic and thus may change over time. Therefore, the practice of TQM strategy is not static but a dynamic process.

In order to satisfy the management as well as customer's expectation, the concept of product quality as well as service quality must be understood. This present study used Malaysian local government as the unit of analysis, which is a public service organization, the next section discusses the issues related to product quality as well as service quality. The discussion is purposely to clarify the different characteristics that exist between product quality and service quality.

2.3.1 Product Quality

According to Garvin (1987), product quality consists of eight dimensions: performance, features, reliability, conformance, durability, serviceability, aesthetics, and perceived quality. Performance refers to operating characteristic of a product. Feature refers to additional characteristics that supplement a product's basic function. Reliability reflects the probability of a product being available for use or failing within a specified period of time. Next, conformance refers to the degree to which product design and operating characteristic meet the predetermined standard. Durability can be defined as the amount of use one gets from a product before it deteriorates. While, serviceability reflects speed, courtesy, competence and ease of repair. Aesthetics refer to personal judgment of appearance of products, sound, taste or smell. Lastly, perceived quality is about the reputation of the provider.

2.3.2 Service Quality

As discussed in the previous section, most of the quality scholars focus and develop their initial work primarily for manufacturers. However, in the present world, it is observed that a large number of service organizations, including public organizations, are taking initiatives to implement TQM strategy. Hence, it is necessary to understand clearly the uniqueness of the service environment as the public sector is dominated by service organization characteristics (Evans & Bellamy, 1995). As compared to the manufacturing sector, service area has received scant attention from researchers (Lakhe &

Mohanty, 1995). Thus, Sureshchandar, Rajendran and Ananthraman (2001) emphasized that, although the various concepts, doctrine, techniques, tools and strategies proposed by manufacturing TQM literature seem to provide a universal approach, the related issues attached to the service organization need to be understood.

Lakhe and Mohanty (1995) described the characteristics of a service organization as follows:

i. Service organization produces tangible or intangible services and delivers directly to the customer.
ii. In delivering its services, the service organization establishes mutual direct contact with its customer.
iii. Service organization has to be in state of 'eveready', to deliver its service when it is required by the customer.
iv. Service organization has to successfully complete the services within the period acceptable by the customer.
v. Services are not storable or transportable.

Due to the special characteristics of service quality as compared to a product, numerous researchers have sought to uncover a model for measuring service quality. Following Camison (1998), the service quality literature can be classified into two schools of thought. The first one, the 'Nordic School' headed by Gronroos (1988) and Gummesson (1988), focuses on the subject of service

quality by differentiating two basic components which are technical and function. The second school of thought, the 'North American School' is led by Parasuraman, Zeithaml and Berry (1985; 1988), and they focus on the study of service quality based on the perceptions of clients on delivery aspects of service.

Based on 'Nordic School', the technical quality is a matter of properly producing the core benefit of the service. This dimension is derived from the quality control concept in manufacturing. On the other hand, the function quality is about the way the service is delivered. It focuses on the service delivery process (Gummesson, 1988).

Furthermore, the Parasuraman *et al.*'s (1988) work has revealed five behavioral dimensions; namely, tangibles, reliability, responsiveness, assurance, and empathy. These five dimensions were derived from their first report in 1985, which consisted of ten dimensions; namely, tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding the customer, and access (Parasuraman *et al.*, 1985). Several stages were employed to reduce the number of items and improve the reliability of the instrument. Each involved a survey of a sample of consumers of retail banking, credit card companies, repair firms and telephone companies, on which reliability analysis and factor analysis were performed. Following the Gap Model, they developed a 22-item instrument named SERVQUAL (Parasuraman *et al.*, 1988). Since then, SERVQUAL has been applied by various researchers to numerous service

industries contexts as a means of gauging service quality (see for e.g. Dotchin & Oakland, 1994; Frost & Kumar, 2000; Yang, Jun & Peterson, 2004). Although Parasuraman *et al*. (1989) suggested that SERVQUAL is an instrument applicable for a wide range of organizational types, they did not include public service organizations in their study, and thus leaving the public organization remain less explored.

2.4 Literature Review of Total Quality Management

TQM is not so much a specific set of activities that can be applied in unique ways to each organization. However, several critical factors of TQM strategy are deemed to be found common to successful organizations, namely management commitment, customer focus, continuous improvement, strategic planning, human resource management, and quality information systems (Hunt, 1995). At the foundation of TQM strategy are three principles, namely customer focus, continuous improvement, and organizational member's responsibility (Dean & Bowen, 1994).

Several attempts have been made to review, study, identify, justify and evaluate the critical factors that constitute TQM strategy. As reported in the TQM literature, several review papers have been published by researchers such as Ahire, Landeros and Golhar (1995); Fynes (1998/99); Thiagarajan and Zairi (1997a; 1997b; 1997c); Yong and Wilkinson (1999); and the most recent review of TQM literature is by Sila and Ebrahimpour (2002). The succeeding paragraphs discuss the related studies in focus.

Systematically even though not comprehensive, Ahire *et al*. (1995) analyzed a total of 226 overview, conceptual, case study, empirical, analytical and simulation articles from the TQM related refereed journal published between 1970 and 1993 using the seven Malcom Baldrige National Quality Award (MBNQA) criteria as a framework. The main conclusion that was derived by the authors was that most of the TQM related articles reviewed was an overview, conceptual and anecdotal in nature. As such, the publication of empirical research was far from adequate. Given many TQM related issues were not fully explored by previous researchers, as well as the wide acceptance of TQM as an emerging research area, the authors strongly encouraged for more scientific research to be carried in order to fill the gap in the TQM literature.

As with Ahire *et al*. (1995), Thiagarajan and Zairi (1997a; 1997b; 1997c) also reviewed the TQM literature using a set of criteria similar to those of the MBNQA and the European Quality Award (EQA). However, their study was only focused on case studies papers as well as the prescriptions of quality scholars such as Deming and Feigenbaum in discussing the various issues related to the implementation of TQM strategy.

From a comprehensive review of the TQM literature, Thiagarajan and Zairi (1997a; 1997b; 1997c) suggested that the critical factors of TQM could be categorized as 'hard' and 'soft' quality factors. Hard quality factors refer to systems, tools and techniques. Examples of hard quality factors are benchmarking, managing by processes, quality control tools and techniques, documented quality management systems, supplier

management, and customer management. While, soft quality factors refer to factors that are intangible and difficult to measure. Examples of soft quality factors are top management commitment and involvement, empowerment, effective communication, teamwork, systems for recognition and appreciation of quality efforts, and training education. They also stressed that both the hard and soft quality factors must exist together in any TQM implementation.

In another review of TQM literature, Fynes (1998/1999) examined 20 empirical TQM studies that tested and validated the critical factors of TQM strategy. In his study, Fynes (1998/99) adopted the seven critical factors of TQM strategy identified by Flynn, Schroeder and Sakakibara (1994) as a framework to further examine empirical TQM studies conducted in each of these seven areas. These seven factors were top management support, quality information, process management, product design, work management, supplier involvement, and customer involvement.

In an article by Yong and Wilkinson (1999), they reviewed 15 reported articles that argued TQM was beneficial to organizations and those who argued that it was not. The articles reviewed by them were studies done in various countries that investigated the relationship between TQM and performance. As reported in this article, there were many previous studies revealing the unsuccessfulness of TQM implementation. However, there were also many studies reporting the positive relationship between TQM and performance. The unsuccessfulness of TQM implementation was predicted due to the partial implementation of quality management. In other words, the implementation of

TQM in these organizations was not in total implementation of quality management. As widely discussed by TQM proponents, quality management must be implemented in full, package or total, and not on pick and mix basis.

A more recent literature review paper by Sila and Ebrahimpour (2002) offers a comprehensive review of 347 research papers based on survey studies conducted in different countries and published between 1989 and 2000 in a variety of journals. By examining 76 survey studies that use a holistic[4] approach to TQM, this article revealed 25 TQM factors to be the most commonly extracted factors across the studies. Furthermore, by using these 25 factors as a framework, they revealed that the seven most frequently mentioned TQM factors in the literature were customer focus and satisfaction, employee training, leadership and top management commitment, teamwork, employee involvement, continuous improvement and innovation, and quality information and performance measurement. They also suggested that more survey research is needed to examine the five factors of TQM due to the limited knowledge on those factors such as strategic planning, product and service design, communication, social responsibility, and employee appraisal, rewards and recognition. It is interesting to highlight that out of 347 research papers reviewed, only four studies were done in Malaysia which is about 1.2 percent.

Recently, Tari (2005) also reviewed TQM literature and synthesized nine critical factors of TQM. The nine critical factors refer to customer based approach, management

[4] The term 'holistic' refers to TQM as a set of guiding principles that represent the foundation of an organizational excellence (Besterfield *et al*., 1999).

commitment and leadership, quality planning, management based on facts, continuous improvement, human resource management, learning process management, cooperation with supplier, and organizational awareness on the social and environmental issues. The human resource management factor included the involvement of all members in the firms, training, teamwork, and communication systems.

As commonly acknowledged, the review papers have provided us rich information about the development of quality management area. However, as with anecdotal evidence and prescriptive papers, review papers also suffer from a lack of systematic scale development and empirical validation (Ahire, Golhar & Waller, 1996). Given the importance of having TQM measurement instrument that was scientifically developed, several authors have identified, developed and tested the TQM critical factors using the national quality award model, the comprehensive review of reported literature, the quality prescriptions that documented by quality scholars, the practitioners' prescriptions or the combination of these sources (e.g. Ahire *et al*., 1996; Black & Porter, 1996; Saraph *et al*., 1989). The strength of the TQM critical factors that are developed and tested using rigorous statistical analysis is able to verify the factors in 'statistical sense'. Thus, it accommodates the development of scientific research on TQM. The next section discusses the systematic endeavors that have been done to develop and validate an instrument for measuring critical factors of TQM strategy.

2.5 Development of TQM Construct Measuring Instrument

Until the late 1980's, quality management literature was largely based on personal prescriptions of researchers in the quality management area. Sila and Ebrahimpour (2002) pointed out that empirical research of TQM started to increase after 1989, when the critical factors of TQM were first introduced by Saraph *et al*. (1989). Since then many researchers have cited Saraph *et al*.'s (1989) work in their study. Besides initial work by Saraph *et al*. (1989), many researchers have attempted to empirically and scientifically develop and validate the measurement of critical factors of TQM.

Among them are Flynn *et al*. (1994); Anderson, Rungtusanatham, Schroeder and Devaraj (1995); Ahire *et al*. (1996) and Black and Porter (1996). These valid and reliable measurement instruments can be used to help both researchers and practitioners who are interested on issues concerning TQM. As identified by Tari (2005), the studies of developing an instrument for measuring TQM can be divided into two categories. First, those instruments those are only applicable to manufacturing firms (Ahire *et al*., 1996; Flynn *et al*., 1994). Second, instruments that are applicable to both manufacturing and service firms (Black & Porter, 1996; Saraph *et al*., 1989).

Saraph *et al*.'s (1989) work had been recognized as a head start of the efforts to indentify and empirically test TQM construct (Ahire *et al*., 1996). Based on a comprehensive review of quality management literature, Saraph *et al*. (1989) developed an instrument to measure critical factors of TQM. Using a sample of 162 managers, they validated scales for identified factors. Based on the description of quality concept by

quality scholars and judgment of academic researcher and quality professional, they identified eight critical factors namely, the role of top management leadership, the role of quality department, training, product/service design, supplier quality management, process management, quality data reporting, and employee relations.

A major strength of Saraph *et al*.'s (1989) instrument was the high level of external validity since it covers manufacturing and service industries in the sample. However, this instrument has been criticized for two drawbacks. First, it excluded two important dimensions of quality management which are customer focus and statistical process control (Ahire *et al*., 1996). Second is the issue concerning the small sample size employed. This small sample size raises the issues of how truly representative these samples are of the bigger population (Dow, Samson & Ford, 1999). However, Saraph *et al*. (1989) considered their study as a preliminary study; thus, they called for a follow-up study to validate their findings.

In addition, an effort by Flynn *et al*. (1994) represented a significant phase to the quality management theory building. Unlike Saraph *et al*. (1989), the instrument was administered only at manufacturing plants. Seven main factors of quality management were identified from the empirical and practitioners papers namely, top management support, quality information, process management, product design, workforce management, supplier involvement, and customer involvement.

Ahire *et al*. (1996) then offered a more comprehensive study than that of Saraph *et al*. (1989) and Flynn *et al*. (1994). The instrument was developed based on a comprehensive review of the prescriptive, conceptual, practitioner and empirical literature on quality management. Parallel to Flynn *et al*. (1994), the unit of the analysis in this study was factories. Ahire *et al*. (1996) also admitted that, due to the instrument being administered in one particular sector, the instrument had a lower external validity as compared to the instrument developed by Saraph *et al*. (1989). The instrument developed by Ahire *et al*. (1996) and Flynn *et al*. (1994) were also more suitable for administration at factory level. However, the scale validation procedures of the instrument developed by Ahire *et al*. (1996) was more extensive than those employed in the Saraph *et al*.'s (1989) instrument. Ahire *et al*. (1996) validated the scale by using exploratory as well as confirmatory factor analysis.

Recognizing the advantages and weaknesses of those three instruments, Ahire *et al*. (1996) recommended future TQM researchers to blend those three instruments. This mixed approach should offer highly stable, reliable and valid construct of TQM strategy. Ahire *et al*. (1996) also suggested that the construct developed could be used by future researchers in empirical research on holistic TQM strategy. In sum, they had identified 12 constructs of TQM strategy namely, top management commitment, customer focus, supplier quality management, design quality management, benchmarking, statistical process control usage, internal quality information usage, employee empowerment, employee involvement, employee training, product quality, and supplier performance.

By specifically comparing work done by Saraph *et al*. (1989), Black and Porter (1996) asserted that their measurement instrument for critical factors of TQM offers a wider domain than Saraph *et al*.'s (1989) because the instrument developed by Saraph *et al*. (1989) did not include customer focus and continuous improvement as among the main factors. In their study, Black and Porter (1996) had identified ten critical factors of TQM strategy namely, corporate quality culture, strategic quality management, quality improvement measurement systems, people and customer management, operational quality planning, external interface management, supplier partnership, teamwork structures, customer satisfaction orientation, and communication of improvement information. Values of alpha for each of the ten factors varies from 0.68 to 0.87; thus, each factor is a sufficient reliable measure.

While Saraph *et al*. (1989) developed the instrument based largely on reviews of the literature, Black and Porter (1996) had used the MBNQA Criteria as well as the perceptions of actual practitioner. They argued that more elements had been drawn into TQM practices; thus, constructs of TQM should not be strictly defined on the basis of past literatures. The strength of Black and Porter's (1996) instrument is their simplicity, reliability and validity. However, the instrument by Black and Porter (1996) has seven potentially confusing items, each asking two questions (Lai & Cheng, 2005). Therefore, for future researchers who intend to adopt the instrument by Black and Porter (1996), some reviews on the original items must be carried out.

As with Black and Porter (1996), Joseph, Rajendran and Kamalanabhan (1999) compared their developed instrument specifically with the instrument of Saraph *et al*. (1989). There were ten critical factors of TQM that were revealed in their study as compared to the eight critical factors of TQM reported by Saraph *et al*. (1989), namely organizational commitment, human resource management, supplier integration, quality policy, product design, role of quality department, quality information systems, technology utilization, operating procedures, and training. These critical factors were derived from factor analysis. The Cronbach alpha of these critical factors achieved satisfactory level of a reliable instrument. However, the small sample size of 50 involved in this study provides an opportunity for future researchers to validate the findings by having a bigger sample size.

A survey instrument designed to measure the critical factors of TQM was also developed by Powell (1995). From a comprehensive review and integration of TQM literature, he identified 12 factors that constitute quality management. These 12 factors are covered by 47 items. The twelve TQM factors were committed leadership, adoption and communication of TQM, closer customer relationship, benchmarking, increased training, open organization, employee empowerment, zero defect mentality, flexible manufacturing, process improvement, and measurement. Aside from a thorough literature review, this instrument was also revised through consultation and site visit with quality practitioners as well as validated by extensive statistical procedures. The Cronbach alpha coefficients for this instrument reported ranged between 0.78 and 0.90, adequate to offer a reliable measurement.

Further, Anderson *et al*. (1995) continued the journey of quality management theory development. Anderson *et al*. (1995) derived seven constructs that were believed to capture the Deming's 14 points, namely visionary leadership, internal and external cooperation, learning, process management, continuous improvement, employee fulfillment, and customer satisfaction. For internal consistency reliability, all Cronbach's alpha value reported range between 0.6032 and 0.8602, thus meeting the minimum criterion alpha value of 0.60 as suggested by Nunnally and Beinstein (1994). Even though the study was done specifically on manufacturing site, the stratification of factory by industry was done to permit generalizability of findings across sectors.

Wu, Wiebe and Politi (1997) also developed a sound and reliable instrument on TQM construct. The seven critical factors of TQM strategy developed by them were leadership, information and analysis, strategic planning, human resource development and management, process management, customer focus and satisfaction, and operational performance. This proposed instrument is based on the seven categories of Malcon Baldrige National Quality Award (MBNQA) criteria. Wu *et al*. (1997) claimed that criteria such as those contained in the MBNQA often guide the TQM implementation. The researchers claimed that the instrument developed by them was able to overcome the problem of none of TQM assessment instrument being subjected to thorough validation. The alpha value for each dimension of TQM addressed by the designed questionnaire ranged from 0.68 to 0.90, thus considered reliable and acceptable.

With the aim to propose a theory of quality management underlying the Deming management method, Anderson, Rungtusanatham and Schroeder (1994) did a Delphi study. As a result, they found seven concepts of TQM which were based on the Deming's 14 points, namely visionary leadership, internal and external cooperation, learning, process management, continuous improvement, employee fulfillment, and customer satisfaction. However, no measurement instrument had been proposed by them. As noted by the researcher, further empirical research is needed to verify and validate their findings.

Another measuring instrument to operationalise TQM strategy was developed by Li *et al*. (2003). The instrument was derived by the synthesis of eight of critical factors of TQM proposed in the quality literature, namely leadership, quality vision and planning, process control and improvement, production design, quality audit and evaluation, supplier quality management, education and training, and customer focus. This study also revealed that TQM strategy was much more successful in private organizations compared to state-owned enterprise. However, no reliability test was reported by the authors.

Although many previous studies were undertaken to ascertain the critical factors of TQM strategy, however, most of them were manufacturing oriented. Consequently, the service quality literature seems to receive scant attention of comprehensive research that addresses the critical aspects of TQM from a service perspective (Sureshchandar *et al*., 2001). Thus, Sureschandar *et al*. (2001) had suggested and empirically tested instrument for measuring the critical factors of TQM strategy specifically for service organizations.

Based on a thorough review of the prescriptive, conceptual, practitioner and empirical papers on quality management, they identified twelve dimensions of TQM as critical for TQM strategy in service organizations, namely top management commitment and visionary leadership, human resource management, technical system, information and analysis system, benchmarking, continuous improvement, customer focus, employee satisfaction, union intervention, social responsibility, servicescape, and service culture.

These entire dimensions are broadly categorized under three groups which were those dimensions of manufacturing quality that perhaps can be effectively used in service organizations; those dimensions that are seldom addressed in the literature but are key elements of TQM in manufacturing and service; and those factors that are highly unique to service organizations. Sureschandar *et al*. (2001) addressed that although this instrument was developed and tested in the banking industry, it also could be applied to other service sectors such as the local government.

A study done in local government was reported by Khairul Anuar *et al*. (2001). They have identified seven factors of quality management practices, namely top management influence, customer focus, employee focus, quality training, supplier relationship, information and communication technology, and process management. The Cronbach alpha for each factor of quality management practices in their study indicated high internal reliability with the value range from 0.77 to 0.93. However, the instrument in their study was not validated by using extensive and robust statistical procedures such as confirmatory factor analysis and the like. The use of traditional procedures for

validating research instrument has been widely criticized due to several limitations (Bollen, 1989; Steenkamp & Van Trijip, 1991). The detailed discussions of the limitations of Cronbach alpha and factor analysis are discussed in Chapter 6.

Another study of TQM in Malaysian public service agencies was carried out by Muhamad, Kamis and Jantan (2003). This qualitative study was done on six government agencies nominated for the Prime Minister Quality Award. Having unstructured interviews and documents pertaining to the implementation of TQM as a source of data, they revealed interesting findings. They found that seven factors contributing to the success of TQM strategy were good leadership, involvement and commitment of all level of staff, meeting customer satisfaction, reward and recognition, teamwork, awareness, and organizational climates. Furthermore, although those seven factors were in line with the TQM literature, they also highlighted that the emphasis on religious value and culture had played an important role in the implementation of TQM in Malaysia public service agencies.

A recently empirical research done by Arawati (2005) in Malaysian electronics industry was conducted using nine key factors of TQM strategy namely top management commitment, customer focus, supplier relationship, benchmarking, quality related training, employee focus, zero defects, process improvement, and quality measurement. The alpha coefficients for these nine key factors range between 0.84350 and 0.9532. Findings from this study prove that top management commitment, supplier relationship and quality related training were the most critical factors for TQM strategy. Surprisingly,

customer focus is not among the top critical factors of TQM strategy, due to the fact that most of the electric and electronics product produced in Malaysia are not custom made but usually mass produced (Arawati, 2005).

Further, an empirical research to develop a measurement instrument of TQM strategy was also documented by Sanchez-Rodriguez and Martinez-Lorente (2004). They claimed that their study was the first attempt in purchasing area. In their study, six constructs of TQM strategy were addressed: management commitment, supplier management, benchmarking, cross functional coordination, personnel management, and quality information. Comments by experts and managers were used to refine the measurement instrument. The scale refinement, reliability test and validity procedure indicated that the scale proposed were reliable and valid. In short, although this measurement instrument was developed in the purchasing area, its contents are consistent with generic critical factors of TQM strategy as proposed by researchers from other areas.

Table 2.3 tabulates the related studies that reviewed in this section.. From the table, it can be concluded that the number of critical factors of TQM strategy identified in previous studies vary among researchers. Moreover, most of them validated the research instrument for measuring critical factors of TQM by using exploratory factor analysis, while only a few of them validated the research instrument by using confirmatory factor analysis. Therefore, this present study is intended to contribute to the TQM literature by developing and validating the research instrument for measuring the critical factors of

TQM strategy using exploratory as well as confirmatory factor analysis based on the data collected from the Malaysian local government.

Table 2.3: Related Studies on Critical Factors of TQM Strategy

Researcher	Critical factors of TQM strategy (Number of factors identified)	Unit of Analysis	Reliability Test	Validity test
Saraph *et al*. (1989)	8	manufacturing & service	α = 0.71- 0.94	exploratory factor analysis
Flynn *et al*. (1994)	7	manufacturing	α = 0.74- 0.97	exploratory factor analysis
Ahire *et al*. (1996)	12	manufacturing	α = 0.72- 0.93	confirmatory factor analysis
Black and Porter (1996)	10	companies (not mentioned service or manufacturing)	α = 0.68 – 0.87	exploratory factor analysis
Joseph *et al*. (1999)	10	manufacturing & service	α = 0.71 – 0.96	exploratory factor analysis
Powell (1995)	12	manufacturing & service	α = 0.78 – 0.90	not reported
Anderson *et al*. (1995)	14	manufacturing	α = 0.60 – 0.86	not reported
Wu *et al*. (1997)	7	manufacturing & service	α = 0.68 – 0.90	not reported
Li *et al*. (2003)	8	manufacturing & service	not reported	not reported
Sureschandar *et al*. (2001)	12	service	α = 0.76- 0.98	confirmatory factor analysis
Khairul Anuar *et al*. (2001)	7	public service	α = 0.77 – 0.93	not reported
Muhamad *et al*. (2003)	7	public service	qualitative study	not applicable
Arawati (2005)	9	manufacturing	α = 0.84 – 0.95	not reported
SanchezRodriguez & Martinez-Lorente (2004)	6	purchasing	α = 0.768- 0.81	exploratory factor analysis

Source: Tabulated from the review of related literature

2.6 National Quality Awards

As reported in the literature, there has been many organizations which develop their TQM systems following the assessment criteria from key national quality awards (Black & Porter, 1996; Tari, 2005). Additionally, many TQM researchers are using these national quality award models as a framework for their studies (Sila & Ebrahimpour, 2002). As documented by Thiagarajan and Zairi (1997a), national quality award model was found to be the best means for assessing organizational capability and competence. They also represent a country's effort to enhance quality awareness in this increasingly competitive world. Among those well-established national quality awards are the Deming Prize in Japan, the Malcolm Baldridge National Quality Award (MBNQA) in the U.S. and the European Quality Award (EQA) in Europe. In Malaysia, we have the Prime Minister Quality Award (PMQA). In this section, a brief description of the relevant national quality awards and their underlying criteria are presented.

2.6.1 Malcolm Baldridge National Quality Award

The MBNQA was established in 1987 in US (MBNQA, 1995). The award was developed to help companies in US reach new quality level and customer satisfaction. The main purposes of this award are to stimulate quality awareness and its impact on competitiveness; to recognize quality achievement of Americans company; and to share successful stories of quality strategy. The criteria used for the award reflect all major factors of TQM (Kartha, 2004). Most of the quality awards in the other countries are modelled on the MBNQA such as Hong Kong Management Association's (HKMA) quality award (Lai, Weerakon & Cheng,

2002); New Zealand Quality Award (NZQA); Singapore Quality Award (SQA); and Sri Lanka Quality Award (SLQA) (Chuan & Soon, 2000). As reported in the TQM literature, several researchers have adopted the MBNQA framework as the operational model in their study. For example, Black and Porter (1996) used it to develop their TQM survey questions, while Dean and Bowen (1994) used it to explore the relationship between the principles of TQM and management theories.

The Baldrige Award has seven main evaluation criteria namely leadership, information and analysis, strategic planning, human resource development and management, process management, business results, and customer focus and satisfaction. These seven criteria are further defined by 24 items for 1995 MBNQA criteria (1994 MBNQA criteria has 28 items; 1993 MBNQA criteria has 32 items; 1992 MBNQA criteria has 28 items; 1991 MBNQA criteria has 32 items). Since its inception in 1988, the number of items and value points of items have undergone several changes based on the view of the users. However, the basic value and concept has not changed (Heaphy & Gruska, 1995).

2.6.2 European Quality Award

The European Quality Award (EQA) was established in 1991 with the support of the European Organization for Quality and the European Commission. The EQA consists of two categories: the European Quality Prize (EQP) and the European Quality Award. The former is awarded to companies demonstrating excellence in quality management as their fundamental system for continuous

improvement; the latter is awarded to the most successful figure of TQM in Western Europe. In general, EQA focuses on areas such as management of resource, employee work satisfaction, and the impact of an organization's operations, product and services on society (Chuan & Soon, 2000).

2.6.3 Malaysia Quality Award

In Malaysian public sector, six quality awards have been introduced, namely: Prime Minister's Quality award (introduced in 1990); Public Service Quality Award (1991); Quality Control Circles Quality Award (1984); District Office Quality Award (1992); Local Authority Quality Award (1993); and Finance Ministry's Secretary General Quality Award (2001). Among them, the Prime Minister's quality award is regarded as the highest and the most prestigious recognition.

The Prime Minister Award has seven evaluation criteria[5]. Brief explanations on these criteria are presented below:

Criteria 1: Leadership in quality management refers to the role of the management team in mobilizing the quality management initiatives and other related programs.

Criteria 2: The use of information and data in quality management refers to the usage of quality information and data for the purpose of quality improvement.

[5] http: // www.mampu.gov.my 14/02/2005

Criteria 3: Process of strategic planning refers to process of integrating the quality planning into the whole organizational strategic planning.

Criteria 4: The use of human resource refers to the effectiveness of an organization in managing their human resources in areas like staff management, staff involvement, staff development, staff recognition, and working environment.

Criteria 5: Quality assurance output refers to the approaches taken by an organization to assure the quality of output in terms of quality process, quality audit, and documentation.

Criteria 6: Quality innovation improvement project refers to the achievement of quality programme in the current year as compared to previous years based on quality output, quality innovation, and customer recognition.

Criteria 7: Customer satisfaction refers to the activities performed to improve customer's satisfaction.

In addition, the introduction of Local Authority Quality Award is a special recognition from the Malaysian Government to the local authorities on their commitment towards the implementation of quality management (MAMPU, 2005)[6]. Generally, the objective of these awards is to instill quality awareness among local governments. However, of 33 winners of Public Service Quality

[6] http:// www.mampu.gov.my 13 Feb 2005

Award (starting from 1991 to 2002, with three winners each year), only two local governments were awarded as the winner which were Kuantan Municipal Council in 1995 and North Kuching City Council in 1998. Furthermore, of 42 winners of Quality Control Circles Quality Award (between 1995 to 2001, with six winners per year), only two winners were from the local government which were Kuantan Municipal Council in 1999 and 2001.

Undoubtedly, the development of national quality award worldwide has influenced the practices of national quality award in Malaysia. Thus, this section will be concluded based on the findings of an analysis by Chuan and Soon (2000). They found that, eleven major criteria evaluation in 17 national quality awards[7] (NQAs) around the world were leadership; strategy and planning; people management; information analysis; resources; quality systems and processes; customer or market focus; people satisfaction; impact on society; supplier partner relationship; and results. They also revealed that most of the national quality awards were modelled based on the most three influential quality awards: Deming Prize, MBNQA and EQA. Even though there are differences among these national quality award models, generally the criteria that constitute each national quality award model is similar (Sila & Ebrahimpour, 2002).

[7] 17 NQAs consist of Deming Prize, European Quality Award, European Quality Award for SMEs, Hong Kong Management Association Quality Award, Irish Business Excellence Award, Mauritius National Quality Award, MBNQA, National Industrial Quality Award Israel, New Zealand National Quality Award, Rajiv Gandhi National Quality Award, South Africa Business Excellence Award, Sri Lanka National Quality Award, Slovenian National Quality Award, Singapore Quality Award, Swedish Quality Award, Taiwan National Quality award, & UK Quality Award for Business Excellence.

2.7 Critical Factors of TQM Strategy[8]

TQM is a primary strategy to achieve, improve and maintain excellent public organizations (Hunt, 1995). Many experiences from TQM adopters show us that the TQM strategy must be implemented accordingly with the unique characteristics of each organization (Hunt, 1995; Sohal & Terziovski, 2000). In addition, Prajogo (2005) reported that the TQM strategy could be successfully applied in both manufacturing and service organizations. Despite there being no universal approach for success, the critical factors of TQM strategy, characterized by prominent quality scholars, result from conceptual papers and published review articles, and findings from related empirical study could be suggested as a general framework for implementing TQM strategy. Based on the literature of TQM that was reviewed in this chapter, this study has identified ten critical factors of TQM strategy as tabulated Table 2.4, namely: (1) Management commitment; (2) Strategic planning; (3) Customer focus; (4) Benchmarking; (5) Human resource management; (6) Supplier relationship; (7) Continuous improvement; (8) Quality information system; (9) Service design; and (10) Social responsibility.

These ten critical factors will be used to operationalize the construct of critical factors of TQM strategy in this study. As these ten critical factors of TQM strategy were derived from an extensive review of TQM scholarly literature, it is able to support the content validity of the construct developed. Although the extensive review of TQM literature were reported in the preceding sections, the need to review the brief experience of the Malaysian local government in executing TQM strategy should not be left behind.

[8] Ahire e*t al*. (1996) considered each critical factor of TQM as quality management strategies: 'benchmarking, statistical process control, employee training, and involvement program are among the most commonly implemented QM strategies (p.24).

Therefore, the succeeding section is intended to briefly review the experience of the Malaysian local government in institutionalizing the TQM strategy.

Table 2.4: Critical factors of TQM Strategy

Critical Factors of TQM strategy	Sources (Support for Content Validity)
Management commitment	Ahire *et al*. (1996); Anderson *et al*. (1994); Anderson *et al*. (1995); Arawati (2005); Black & Porter (1996); Crosby (1979); Deming (1986); Flynn *et al*. (1994); Khairul Anuar *et al*. (2001); Li *et al*. (2003); Powell (1995); Saraph *et al*. (1989); Silvestro (1998); Sureshchander *et al*. (2001)
Strategic planning	Black & Porter (1996); Li *et al*. (2003); Wu *et al*. (1997)
Customer focus	Ahire *et al*. (1996); Anderson *et al*. (1994); Arawati (2005); Black & Porter (1996); Flynn *et al*. (1994); Khairul Anuar *et al*. (2001); Li *et al*. (2003); Powell (1995); Silvestro (1998)
Benchmarking	Ahire *et al*. (1996); Arawati (2005); Black & Porter (1996); Powell (1995); Sureshchander *et al*. (2001)
Human resource management	Ahire *et al*. (1996); Anderson *et al*. (1994); Black & Porter (1996); Deming (1986); Sanchez-Rodriguez & Martinez-Lorente (2004); Saraph *et al*. (1989); Silvestro (1998)
Supplier relationship	Ahire *et al*. (1996); Anderson *et al*. (1994); Black & Porter (1996); Deming (1986); Flynn *et al*. (1994); Powell (1995); Sanchez-Rodriguez & Martinez-Lorente (2004)
Continuous improvement	Anderson *et al*. (1994); Crosby (1979); Deming (1986); Li *et al*. (2003); Powell (1995); Sureshchander *et al*. (2001)
Quality information systems	Ahire *et al*. (1996); Black & Porter (1996); Flynn *et al*. (1994); Khairul Anuar *et al*. (2001); Powell (1995); Saraph *et al*. (1989); Sanchez-Rodriguez & Martinez-Lorente (2004); Sureshchander *et al*. (2001); Wu *et al*. (1997)
Service design	Ahire *et al*. (1996); Anderson *et al*. (1994); Arawati (2005); Khairul Anuar *et al*. (2001); Flynn *et al*. (1994); Li *et al*. (2003); Saraph *et al*. (1989); Sureshchander *et al*. (2001)
Social responsibility	Chuan & Soon (2000); Silvestro (1998); Sureshchander *et al*. (2001)

2.8 TQM Strategy: Malaysian Local Government's Experience

The number of government servants in Malaysia is increasing year by year, with the current number of more than 1.3 million servants as depicted in Table 2.5. Apart from the high number of employees, the public sector has also contributed a significant rate of Gross Domestic Product (GDP). As such in 1997, public sector contributed 6.6 % out of the total Malaysian GDP, while in 2002 the percentage of contribution into GDP by the public sector increased to 7.2 %. Given the high number of total employment and percentage of contribution to GDP, it is evident that the public sector forms an enormous part of the allocation of Malaysian nation wealth. Moreover, this sector is also accountable for its action to every citizen of the nation. Thus, the importance of having effective public organizations to be in place is clearly apparent.

Table 2.5: Numbers of Government Servant by Year

Date	Number of Government Servant
31 December 2000	979,464
30 June 2001	985,967
31 December 2001	994,548
30 June 2002	1,004,508
31 December 2002	1,026,143
30 June 2003	1,060,649
31 December 2003	1,080,886
30 June 2004	1,041,778
31 December 2004	1,098,638
30 June 2005	1,337,413

Source: Official website of Public Service Department,
http: www.jpa.gov.my/statistik (accessed on 26 July 2006).

In Malaysia, we have a three-tier system of government which comprises of the federal government, state government and local government. Local government falls under the exclusive jurisdiction of the respective state government. Evolving from a

major restructuring carried out in 1973, local governments today come within two principal categories, which are the Municipal Council and the District Council (Abdul Karim, 1999). But nowadays, several local governments have achieved the status of City Council. Based on the information provided by the Ministry of Housing and Local Government, there are 145 local governments in Malaysia as in December 2005 (http://www.kpkt.gov.my).

As a forefront organization, performance of the Malaysian local government becomes very crucial (Ibrahim & Abdul Karim, 2004). As with other public organizations, local government in Malaysia also response to any new improvement agenda promoted by the federal government. One of the significant improvement agenda was the birth of the quality initiatives. The impetus of current quality awareness in our public sector is the launch of the 'Excellent Work Culture" campaign in 1989. Since then, the Malaysian public sector has embarked on various administrative reforms like TQM, zero defect and ISO 9000. In general, the commitment of public organizations to the implementation of quality initiatives has been very encouraging (Muhamad *et al*., 2003).

The launching of the 'Excellent Work Culture Movement' by the Rt. Hon. Prime Minister on 27th of November 1989 showed the Malaysia government's commitment towards quality and productivity improvement in the public services. Subsequently, under Excellent Work Culture Movement, the government has instituted various activities for improving quality in the public sector. Among the quality initiatives was the launching of the Manual on Quality Management and Improvement in the Public Service on 25 June

1990 (DAC No 4 of 1991). Further, in order to assist Heads of Department in implementing strategies for quality improvement in their respective agencies, the DAC No 4 of 1991, entitled 'Guidelines on Strategies for Quality Improvement in the Public Service' was published. As elaborated in this guideline, government agencies are given the responsibility for planning and implementing seven programmes for quality improvement, namely Q suggestion system, Q process system, Q inspection system, Q slogan, Q day, Q feedback system, and Q information system (DAC No. 4 of 1991).

As with other Malaysian governmental organizations, many local governments in Malaysia over the past years have begun to institutionalize TQM. As commonly reported in TQM literature, a number of benefits can be derived from the implementation of TQM into the local government. The institutionalization of TQM shows to the community at large that the local government is committed to improve the performance. As prescribed by TQM scholars, TQM is among others, able to help ensure that local government is responsive to the expectations and needs of its constituents; give its servants a more authority in performing their responsibilities; help create a conducive working environment; and achieve the objective of saving costs (Hunt, 1995).

However, the implementation of TQM in the public organizations is not free from several obstacles due to the nature of public service. Generally, customers of public organizations are more difficult to identify, performance are problematic to be measured precisely and quantitatively, annual budget circles and the need for the politicians to show short-term results often devastate the long-term perspectives of TQM, and

implementing TQM is time-consuming. Additionally, if TQM is poorly planned, it can be very expensive to the public expenses (Hunt, 1995). However, the primary obstacles for any TQM implementation are short-term vision of managers and their lack of understanding of TQM (Sohal & Terziovski, 2000). These difficulties are reflected by the low achievement of TQM initiatives in certain Malaysian local governments. As such, only two local governments, which are the City Hall Kuala Lumpur and the Kuantan Municipal Council, were nominated for PMQA in 1990 (Government of Malaysia, 1991).

In mobilizing this quality effort, eleven various projects have been implemented to attain the quality and productivity objectives (Government of Malaysia, 1991) such as:

a. The publication of the 'Manual on Quality Management and Improvement in The Public Sector';
b. The distribution of the circular letter from the Chief Secretary to the Government (P.M 17479/11 Vol. 2 dated 30th July, 1990);
c. Training on Quality Management by Institut Tadbiran Awam Negara;
d. Production of the Training Manual on Quality Management and Improvement;
e. Talks on Quality Management by Malaysian Administrative Modernisation and Management Planning Unit (MAMPU);
f. The production of videos tapes on quality and productivity management;
g. The publication of journal of 'KHIDMAT' and 'CEKAP';
h. The Prime Minister's Quality Award for the Public Sector; and
i. Quality Control Circles (QCC).

The ‘Manual on Quality Management and Improvement in The Public Sector’ highlights various important concepts of quality management for government agencies. These concepts should be taken into account in implementing quality management and improvement efforts, the structures that need to be set-up and the way to operationalise them in the actual working environment. These concepts are (Government of Malaysia, 1991):

a. Quality is defined as meeting customers’ and stakeholders’ requirements which can in turn be translated into standards of excellence;
b. Quality is ensured through prevention. This is done by setting standards and ensuring that these standards are adhered to;
c. The performance standard is zero defect. This means that the standard set must be achieved the first time and every time;
d. The cost of quality is the extra cost incurred due to non-conformity to standards. This would result in repetitive jobs, scraps, compensation payments and managing complaints; and
e. All work is process. These processes can be broken down into main activities which can be illustrated through work flow charts.

Furthermore, DAC No. 1 of 1992 suggests that Malaysian Government departments must emphasize on seven management principles of TQM, namely: support of top management, implementation of long-term strategic plan on quality, customer focus, providing training and recognition, fostering teamwork, establishing performance measurement and emphasizing quality assurance. These seven management principles are

basically in line with the critical factors of TQM strategy as discussed in TQM literature that were scientifically developed.

2.9 The Relationship between TQM Strategy and Performance

In addition to the empirical studies that tested and validated the critical factors of TQM strategy, many studies have also been carried out to investigate the relationship between TQM strategy and performance. As reported in the literature, many researchers have clearly revealed that significant improvement in various organizations can be harvested by institutionalizing TQM. For example, TQM strategy has contributed to the betterment of performance of manufacturing (Flynn, Schroeder & Sakakibara, 1995; Arawati, 2005), local government (Khairul Anuar *et al*., 2001), various service organizations (Yasin *et al*., 2004; Samat & Ramayah, 2005) and financial companies (Llorens Montes & Verdu Jover, 2004).

A study by Flynn *et al*. (1995) is among the earliest attempts to empirically test the relationship between TQM and performance. Their study was carried out at the plant level in the US. Data were collected using a two-factor stratified sample design with industry and plant type as the two factors. In their study, three performance constructs were investigated, namely perceived quality market outcomes, competitive advantage, and the percent of item that passed final inspection without requiring rework. For perceived quality market outcomes, they found that the top indicator were statistical control and process, product design process, process flow management, and top management support. They also found the strong relationship between construct of

competitive advantage and top management support, statistical control and feedback, process flow management, product design process, and workforce management. Concurrently, they revealed that process flow management was the primary determinant of the percent of item passed final inspection without requiring rework. Their research used manager's perception to evaluate the perceived quality related performance. However, the researchers suggested that the customer's perspective might be better to measure the quality performance.

Powell (1995) studied the impact of TQM on organizational performance. In this study, the mail survey approach was administered. Two types of performance variable were tested, namely overall financial performance and TQM performance. The subjective performance measures were used. The result found that TQM can produce economic value to the firm but not all TQM adopters. The study also revealed that certain TQM factors such as benchmarking, training, flexible manufacturing, process improvement, and improved measurement did not produce performance advantages for organizations. Thus, the researcher suggested the organizations to focus on imperfectly imitable quality factors such as open culture, employee empowerment and managers commitment.

A survey by Madu *et al*. (1995) generally found a significant causal relationship between TQM and organizational performance. However, results are inconclusive for different types of organizations based on age and size. In this study, only three TQM critical factors were tested, namely customer satisfaction, employee satisfaction and employee service quality. However, the researchers observed that there was no generic

rule for implementing quality. Thus they concluded that every organization must understand its uniqueness before practicing TQM.

In Malaysia, Khairul Anuar *et al*. (2001) observed the relationship between quality management practices and organizational performance which was productivity in revenue and cost management. The study was done in local government. Using disproportionate stratified random sampling and self-administered structured questionnaire, they found that not all quality management practices are significantly related to organizational performance. In sum, they revealed that only employee focus had a positive relationship with organizational performance. On the other hand, process management had a significant inverse relationship with the organizational performance. However, another five quality management constructs such as top management, customer focus, quality training, supplier relationship, and information and communication technology were not significantly related to organizational performance. Thus, these findings add to the pool of inconsistent results of the relationship between TQM and performance. The study did not address another important factor of quality management for public service organizations, i.e. social responsibility.

Due to the limited number of studies on the implementation of TQM in Malaysia, another study was carried out by Yahya, Mohd Salleh and Keat (2001). They studied the relationship between TQM and performance. Their study involved 282 non-TQM companies and 123 TQM companies. The data was collected using questionnaire survey. They found that TQM companies achieve better results in their product and

organizational performance. Product performance was measured using an eight product quality dimensions previously developed by Garvin (1987). Organizational performance was measured using perceptual measures developed by Delaney and Huselid (1996). It covered elements such as top management performance, employee views of organization and employee relation. However, the practices of TQM are only measured by one-open ended question, thus it raised an issue as TQM is conceptually measured using a set of critical factors (Saraph *et al*., 1989; Powell, 1995; Wu *et al*., 1997; Li *et al*., 2003). By the same token, Besterfield, Besterfield, Besterfield and Besterfield (1999) define TQM as 'a set' of guiding principles that represent the foundation of organizational excellence.

Arawati (2005), a TQM researcher in Malaysia, studied the relationship between TQM practices, product quality performance and business performance. This survey study was done in the electronics industry in Malaysia. As reported by the researcher, TQM could enhance the product quality performance as well as business performance. In this study, the concept of business performance was measured using eight variables, namely: revenue growth, sales growth, market share, profit, high demand, product turnover, productivity and production efficiency. For concept of product quality performance, it was measured by using eight dimensions developed by Garvin (1987) which were perceived quality, conformance, performance, reliability, durability, features, serviceability and aesthetics.

In an earlier research, Arawati and Ridzuan (2001) studied the relationship between TQM, competitive advantage and financial performance. As statistically proven

by various structural indices such as Chi square (64.16), Bentler CFI (0.986), MFI (0.981), Bollen IFI (0.988) and Tucker and Lewis TLI (0.982), they found that, competitive advantage mediates the relationship between TQM and financial performance. In this study, they also found that training, top management commitment, customer focus, supplier relations and employee focus were important in contributing to the success of TQM strategy.

Yasin *et al*. (2004) studied the practices of TQM in multi-type of service organizations. This exploratory and survey based study used a mail questionnaire to collect the data. They found that TQM strategy in the sampled service industry were lagging behind their manufacturing counterparts. However, they observed that TQM had a very positive impact on all eight strategic performances studied, namely client satisfaction, market share, return on investment, competitive position, employee morale, management satisfaction, reputation of the firm, and ability to introduce organizational change. Conversely, the impact of TQM on operational performance such as operating cost; employee productivity; operating efficiency; and administrative cost were not vivid and inconsistent among different industries. Thus, the researchers concluded that the service firms must modify and adjust the TQM strategy to bring them to be well-suited with the uniqueness of service industry. A similar conclusion was derived by Llorens Montes and Verdu Jover (2004). In their study, Llorens Montes and Verdu Jover (2004) found that the imitator firms in implementing TQM perform worse than the firms who adapt TQM to their unique and exclusive environment.

Llorens Montes and Verdu Jover (2004) used a cross-section sample of 77 financial companies in Spain in their study of TQM. In their study, the critical factors of TQM strategy were measured using the instrument that had been developed by Powell (1995). However, the flexibility dimension in the original version was discarded. They revealed that TQM produced an improvement in the performance of the companies studied. However, they found that the degree of importance among critical factors of TQM strategy were different. As such, the most important critical factors of TQM strategy for organizational performance were top management commitment, customers, training, open organization, employee empowerment, zero defect, and process improvement. Conversely, the least importance critical factors of TQM strategy for performance were closeness to supplier and the adoption of quality philosophy. The organizational performance variable in their study was measured based on subjective measurement. The example items for performance variable consist of questions about the number of claims and legal action.

Jacob, Madu and Tang (2004) investigated the performance of MBNQA winners. In particular, they examined whether winning this award did enhance future financial performance and ultimately, shareholders wealth. As reported, the results suggested that award winners were better financial performers and were valued higher by investors compared to similar size firms and industry benchmarks. However, they did not find the evidence that winning the award caused changes in firm value in the award year and subsequent years. Thus, the researchers claimed that the award itself had not created value.

Another study of the relationship between TQM and performance was carried out by Sanchez-Rodriguez and Martinez-Lorente (2004). Six critical factors of TQM strategy were studied, namely management commitment, supplier management, benchmarking, cross functional coordination, personnel management, and quality information. Three dimensions of performance were investigated, namely: operational performance, internal customer satisfaction and business performance. Operational performances were measured using four constructs, namely quality of materials, on time delivery, inventory and material cost. Internal customer measures were based on customer's perception of five service quality dimensions identified by Parasuraman *et al*. (1988). Business performance was evaluated using the manager's perception of a firm's return on assets, return on sales, production cost and market share in comparison to that of main competitors. They found that the six critical factors of TQM strategy were significantly and positively correlated with organizational performance. They also revealed that all the factors of TQM strategy except supplier management were significantly correlated with internal customer satisfaction. On the other hand, only three factors of TQM strategy which were management commitment, cross functional coordination, and process management were found to be significantly related to business performance. In sum, different factors of TQM strategy could influence different performance measures. Thus, it is consistent with the earlier findings by Flynn *et al.* (1995).

In another published report, Mahadevappa and Kotreshwar (2004) revealed that ISO 9000 certification had helped the companies in improving their product quality only marginally. The samples of this study were selected randomly from ISO 9000 certified

companies. The research instrument developed by Saraph *et al*. (1989) was used for measuring the manager's perceptions of the eight critical factors of TQM strategy. In their study, they found that adopting ISO 9000 standards had significantly helped the understudied companies in implementing TQM. They also suggested that ISO 9000 quality management systems were to be integrated with TQM for continuous improvement of quality.

After having an extensive literature review, this section concluded that the performance construct had been defined in various and inconsistent ways. Consequently, the use of different dimensions of performance construct creates problem and difficulty in integrating the existing knowledge. Table 2.6 depicts the variation of operationalization of performance construct documented in TQM scholarly literature.

Table 2.6: The Variation of Operationalization of Performance Construct

Author	Performance Construct
Flynn *et al*. (1995)	perceived quality market outcomes (based on Garvin's (1987) eight dimension); Percent of items that pass final inspection without requiring rework; competitive advantage (unit cost; fast delivery; flexibility; inventory turnover; cycle time) [subjective measurement – manager's perception]
Powell (1995)	overall financial performance; TQM performance [subjective measurement]
Madu *et al*. (1995)	short term performance; long term performance; productivity; cost performance; profitability; competitiveness; sales growth; earning growth; market share [subjective measurement-managers perception]
Khairul Anuar *et al*. (2001)	productivity in revenue and cost management [subjective measurement]

Table 2.6: The Variation of Operationalization of Performance Construct (cont)

Author	Performance Construct
Yasin *et al*. (2004)	strategic outcomes (client satisfaction; market share; return on investment; competitive position; employee morale; management satisfaction; reputation of the firm; and ability to introduce organizational change) operational outcomes (operating cost; employee productivity; operating efficiency; and administrative cost) [subjective measurement]
Llorens Montes & Verdu Jover (2004)	adapted from Powell (1995); number of claims; and legal action; firm's image [subjective measurement]
Jacob *et al*. (2004)	financial performance; share holder wealth [objective measurement]
Sanchez-Rodriguez & Martinez-Lorente (2004)	operational performance (quality of materials, on time delivery, inventory and material cost); internal customer satisfaction (five service quality dimension - Parasuraman *et al*., 1988) business performance. (firm's return on assets (ROA), return on sales, production cost and market share [subjective measurement]
Arawati (2005)	business performance (revenue growth, sales growth, market share, profit, high demand, product turnover, productivity and production efficiency) product quality performance (developed by Garvin (1987). [subjective measurement]

2.10 The Calls for Strategic Control Systems

As reviewed in the preceding section, many studies have been done in investigating the relationship between TQM strategy and various dimensions of performance. Although in the earlier discussion of this chapter, as presented in Section 2.2, the TQM scholars prescribed TQM as being able to improve the various dimensions of performance, the empirical studies that were reviewed in Section 2.9 reported an inconclusive finding concerning the relationship between TQM strategy and

performance. Given these inconclusive findings, the issue of the relationship between TQM strategy and performance remain incomplete, thus needing attention from future researchers. In order to discuss the factors that perhaps contribute to the unsuccessful of TQM strategy, this section discusses the role of strategic control systems for the purpose of implementing TQM strategy.

According to Juran (1988), the implementation of quality programme in an organization can be phased into three main phases, namely quality planning, quality control, and quality improvement. During the quality planning stage, an organization prepares to meet the intended quality objectives. Then, quality control is designed to ensure that the quality objectives set in the planning stage are being achieved at the end of the production process. The third phase of trilogy, known both as quality improvements and Juran's *breakthrough sequence*, is the means for managers to find and remedy the basic cause leading to a quality failure. In other words, the breakthrough process is used as a troubleshooting tool to keep the quality planning-control sequence running as intended.

However, Juran (1988) estimates that approximately 80% of the problems identified with breakthrough analysis are correctable only by improving management control systems. The remaining 20% can be attributed to workforce error. In other words, the existence of suitable management control systems is vital for organizations to be able to successfully implement TQM strategy. Perhaps, this situation could be more critical in

public organizations, since 95% of errors are caused by systems error and only 15% are attributable to the actions of the workers (Koehler & Pankowski, 1996).

The role of third part of Juran's (1988) trilogy is to find and cure the basic cause leading to a quality failure. Conversely, the function of management control systems is to prevent those bad causes from happening (Merchant, 1982). Since the focus of TQM is prevention, therefore, if public organizations improve its control systems, they can prevent mistakes in the systems (Koehler & Pankowski, 1996). Thus, the existence of suitable control systems can be a significant system in supporting the implementation of TQM strategy. Indeed, prevention is better than cure. However, the empirical study that examines the relationship between TQM strategy and control systems relatively remains less explored.

Apart from many success stories of TQM strategy, many TQM researchers reported that not all TQM adopters had gained positive impact from TQM strategy (Madu *et al*., 1995; Powell, 1995; Yasin *et al*., 2004). Perhaps, these failure stories were due to the critical factors of TQM strategy considered were incompatible with the traditional mechanistic way of organizing (Hoogervorst, Koopman & Van der Flier, 2005). As commonly stressed in TQM literature, among the critical factors of TQM startegy is teamwork and strong focus on employee involvement. As such, Juran (1995) noted that quality award winners practiced employee involvement culture to an unprecedented degree. Seeing employee as an important factor of TQM implies an approach fundamentally different from the traditional mechanistic approach. Therefore, TQM

strategy is considered to be a misfit with the traditional mechanistic organization, since it ignores employees as a crucial source for achieving strategic objectives. As elaborated by Dent (1990), mechanistic approach like traditional accounting control systems would hinder the achievement of a long-term strategy. An extensive review of literature by Gomes, Yasin and Lisboa (2004), revealed the extent of the lack of traditional accounting control systems in supporting strategic initiatives as shown in Figure 2.1.

- Encourage local optimization (Fry and Cox, 1989).
- Are focused on the past (McNair *et al.*, 1990).
- Has been an impediment to implementation of just-in-time manufacturing strategies or the attainment of their potential benefits (Green *et al.*, 1991; Hendricks, 1994; Najarian, 1993; Upton, 1998).
- Do not provide adequate information for productivity measurement and improvement programs (Banker *et al.*, 1989).
- They are lagged performance indicators because they are historical in nature, by definition reporting on activities that have occurred already (Clinton and Hsu, 1997; Eccles and Pyburn, 1992; McNair *et al.*, 1990).
- Are the result of management action and organizational performance, and not the cause of it (Eccles and Pyburn, 1992; Hazell and Morrow, 1992).
- Have failed to measure and integrate all the factors critical to success of a business (Eccles, 1991).
- Are not externally focused (Kaplan and Norton, 1992).
- Are inappropriate in modern manufacturing settings (Drucker, 1990).
- Say nothing about the factors, such as customer service innovation, the percent of first-time quality, and employee development, that actually help grow market share and profits (Birchard, 1995).

Figure 2.1: Critics on Traditional Accounting Control Systems
Source: Gomes *et al*. (2004, p.514).

Conversely, Spencer (1994) advocated that many critical factors of TQM like customer focus; teamwork; management commitment; and employee empowerment were compatible with the organic organizations. Thus, the role of strategic control systems has been recognized as a vital system in supporting the organizational strategy like TQM (Goold & Quinn, 1993; Muralidharan, 2004). As documented by Goold and Quinn

(1993), without strategic control systems, even good strategies can easily be blown. However, the study on the relationship between TQM strategy and strategic control systems is relatively a new area to be explored. Thus, strategic control systems (SCS) in TQM organizations is the main focus of this study.

The organic type of organizations refers to the organizations that are implementing organic forms of control systems. Organic control systems are more flexible, responsive, involve fewer rules and standardized procedures and tend to be richer in data than mechanistic control systems (Chenhall, 2003). All of these characteristics are important in achieving customer satisfaction as the nature of customer satisfaction is dynamic. As commonly discussed in the TQM literature, customer satisfaction is the ultimate goal of TQM strategy. Examples of organic type of control systems found in control systems literature are strategic interactive controls (Simons, 1995); control systems that provide broad scope information, flexible aggregations and integrative information and information provided in a timely way (Chenhall, 1986); and strategic control systems (Ittner & Larcker, 1997). Due to its strategic characteristics, it is clear that the implementation of SCS 'fits' with the ultimate goal of TQM strategy which is customer satisfaction.

Recently, case studies undertaken by Andersen *et al*. (2004) confirmed that TQM strategy could be implemented more successfully with the presence of SCS. From their findings, it can be concluded that although the reasons for failure of TQM implementation are complex, the result that suggesting this failure relates to poor linkage

between TQM strategy and SCS was convincing. However, their study was narrowly focused on only one element of SCS which was performance measurement[9]. Therefore, the researchers suggested that more future study is needed to consider wider SCS framework. Concurrently, as a case study, it naturally imposes a limitation of the generalizability of their findings. Therefore, a further study involving larger sample is needed to help validate and extend the generalizability of the findings.

2.11 Conclusion

In this chapter, this study has examined the development of TQM as a discipline by analyzing the prescriptions of the quality scholars, national quality awards, previous published review papers and reported empirical studies. From this comprehensive literature review, three important conclusions emerged. The conclusions offered provide the important insights that become the focus of this study.

First, TQM has received substantial attention from various academic disciplines such as engineering, production, marketing, retailing, public management, service management, strategic management as well as management accounting. Despite the mountain of reported literature on TQM, there is no consensus that has been derived on the question: What are the critical factors of TQM strategy? As discussed in Section 2.7 of this chapter, this study has identified ten critical factors of TQM strategy. These ten critical factors were recognized by a comprehensive review of TQM related literature.

[9] 'It is important to stress that performance measurement is but one stage in the overall control process' (Emmanuel, Otley & Merchant, 1990, p.31).

Additionally, the discussion in Chapter 6 will provide the evidence of the validity of these ten critical factors in the statistical sense.

As commonly reported in the TQM literature, the critical factors of TQM strategy differ from one author to another, although there are generic themes. Although the same authors have argued the universal nature of critical factors of TQM strategy, without a comprehensive attempt to investigate and validate them, it is sill questionable on the validity of these TQM critical factors for local governments. Moreover, most of the previous studies on TQM critical factors to date have focused on manufacturing organizations, very few were specifically related to local governments. Given these unresolved issues, more research is essential to strengthen our understanding on the critical factors of TQM strategy, particularly for the local governments.

Second, this chapter concludes that the relationship between TQM and performance has been a prominent topic in numerous empirical studies. Unfortunately, as compared to the number of published research on TQM, only a small number of these studies investigated the relationship between TQM and organizational performance (Samson & Terziovski, 1999). In addition, the empirical evidence is not conclusive and sometimes contradictory. Therefore, the issue of the relationship between TQM strategy and performance has been widely debated among researchers and practitioners. As widely proposed in the TQM literature, organizations must institutionalize TQM strategy according to their unique internal and external environments. Indeed, the adoption of TQM strategy is only the first step in the process of improving organizational

performance. The critical issue that needs to be addressed is the question of the 'fit' between TQM strategy and organizational control systems (Selto *et al*., 1995). This study, therefore, looks at this issue from strategic management accounting as well as contingency theory perspectives by investigating the structural relationship between TQM, strategic control systems and organizational performance.

Third, studies on implementation of TQM in Malaysia suggest that it is still in its infant stage with prevalence in large manufacturing organizations (e.g. Arawati, 2005; Yahya *et al*., 2001; Zakaria, 1999). As a result, little is known about the TQM implementation in other economic entities like public sector. Accordingly, generalization of related findings from manufacturing sector is not necessarily appropriate for public sector. Generally, TQM strategy in the public sector is driven primarily by regulatory forces rather than competitive forces. With a limited number of studies on TQM in Malaysian public organizations, this study attempts to add to the richness of TQM literature in the context of the Malaysian public sector with local government as the focus of this study.

The dominant thought and teachings on quality by the scholars has inspired the introduction and the main body of this chapter. As a conclusion, this chapter is closed with another special note by another important quality figure. One of the extraordinary figures in quality management is Professor Ishikawa. Zairi (1994, p.8) noted that, a few years before his death in 1985, Professor Ishikawa wrote the following: 'As I look back on my life with quality control, the following becomes my hope and prayer 'That quality

control and quality control circles activities be spread everywhere in the world, that quality all over the world be improved, that cost be lowered, that productivity be increased, that raw material and energy be saved, that people all over the world be happy, and that the world prosper and be peaceful'. In short, all the people have the responsibility to continue the vision and mission of the quality scholars.

CHAPTER 3

STRATEGIC CONTROL SYSTEMS, ORGANIZATIONAL PERFORMANCE AND GENERIC FRAMEWORK OF CONTINGENCY RESEARCH

3.1 Introduction

Contingency theory suggests that the design of organizational control systems[10] should be co-aligned with the organizational strategy. Also, the strategy-control linkage literature suggests that the strategy implemented by an organization will affect its control systems design (Miles & Snow, 1978). One of the important organizational strategies that has received considerable attention from management accounting scholars and become the focus of this study is TQM strategy. As clearly discussed in Chapter 2, the successful implementation of TQM strategy requires the organizations to alter their control systems.

As commonly shared by TQM scholars, TQM strategy relies on a comprehensive involvement from the whole organizational members. For instance, employees in TQM's organization are encouraged to be more flexible, interactive, and participative in organizational activities. Given the dynamic nature of TQM environment, the practices of strategic control systems (SCS) have been widely recognized as a vital system for

[10] The terms organizational control systems, management control systems and control systems are used interchangeably in the literature (Chenhall, 2003) and so with this study.

organizations to establish, monitor and implement their TQM strategy (Chenhall, 2003; Goold & Quinn, 1990). As will be presented in the subsequent sections, various definitions of SCS have been offered by the different control systems scholars. However, in essence, SCS is any strategy-focused control systems (Ittner & Larcker, 1997). Thus, for the purpose of this study, SCS is referred to as TQM focused control systems. Therefore, the term SCS and TQM focused control systems are used interchangeably throughout this study.

The body of literature dealing with SCS is broad, diverse and ever growing. However, from this literature, three streams of literature can be identified pertaining to SCS. The first stream focuses on investigating on what constitutes an effective SCS. Most of the published articles within this stream are in prescriptive and anecdotal form (e.g. Goold & Quinn, 1993; Schendel & Hofer, 1979). The second stream focuses on investigating the relationship between SCS and performance. This relationship has been the subject of great debate among control systems researchers. However, empirical findings relating to the relationship between SCS and performance have been mixed, which in turn lead to unresolved issues (Ittner & Larcker, 1997).

The final stream of research and the focus of the present study examine the performance effect of the alignment between organizational strategy and SCS. In this stream, the researchers describe how the implementation of organizational strategy can be made more successful by integrating organizational strategy with SCS (e.g. Andersen *et al*., 2004; Banker *et al*., 1993; Daniel & Reitsperger, 1991; Ittner & Larcker, 1997).

However, empirical evidence on the performance effect of the alignment between organizational strategy and SCS is extremely limited, thus arise the issue of the value of SCS implementation.

One of the primary organizational strategies of public organizations and the focus of this study is TQM (Hunt, 1995). Given the potential benefits of TQM, the study on the performance effect of the alignment between TQM strategy and SCS has been recognized as an important area for researchers (Chenhall, 2003). However, to the best knowledge of the researcher, this relationship has yet to be statistically and empirically evaluated particularly using data from public organizations. Given this lacuna, this study evaluated this relationship using a large scale survey of the Malaysian local government.

The remaining part of this chapter is organized as follows. Section 3.2 of this chapter reviews the control systems literature by describing the definition of control systems; development of control systems as a discipline area; and the relationship between control systems and strategy. Section 3.3 reviews the strategic control systems. Section 3.4 describes strategic control framework of Balanced Scorecard (BSC). Section 3.5 explains the framework of strategic control systems. Section 3.6 discusses the similarities and differences between SCS and budgetary control system. Section 3.7 discusses related studies on the TQM strategy and SCS. Section 3.8 provides a detailed discussion of the organizational performance. Section 3.9 presents the generic framework of contingency research. Finally, the conclusion of this chapter is provided in section 3.10.

3.2 Review of Control Systems Literature

This section is devoted to a review of the control systems literature by discussing the definition of control systems, the development of control systems research area and the reported empirical studies on the relationship between control systems and strategy as reported in management accounting literature as well as strategic management literature. As a premise of this study, strategic control systems (SCS) is defined as strategy focused control systems (Ittner & Larcker, 1997). However, the understanding on the control systems issues can be viewed from a bigger perspective by tracing the development of control systems area. The next section is devoted to specifically discuss the strategic control systems.

3.2.1 Definition of Control Systems

Merchant (1982) listed two underlying reasons on why control is needed, namely personal limitations of each organizational member and lack of congruence between the organizational goal and personal goal of each organizational member. Personal limitations of each organizational member refer to the lack of required skills, knowledge or attitude that an employee should have. For example, employees who are incapable of making effective timely decision would devastate the achievement of organizational performance. Further, lack of goal congruence in an organization arises when individual goals and organizational objectives do not coincide perfectly. Consequently, the effort of the organizational members might not be consistent with the overall organizational objectives.

Apart from these two underlying reasons, Lowe (1971) addressed other two additional points, namely uncertainty of the internal and external organizational environment; and economic factor. Generally, business environment includes people behaviors which are full of uncertainty. Consequently, organizations would always be faced with internal uncertainty. In addition, the business organizations today face a high level of external uncertainty where most of the organizations operate in the environment with a stiffer competition than ever. Moreover, for economic factor, organizations had to achieve a certain set of intended objectives using the minimum available amount of resources or achieve a maximum benefit with a specified amount of resource. In order to effectively deal with the problem of uncertainty as well as achieve the economic reasons, an effective control systems is required.

Control systems have been widely discussed as an important element of an organization; however, 'control' is a highly ambiguous term and very difficult to define precisely. As can be traced in the literature, the existing literature on organizational control systems is rich with divergent ideals. However, most of the previous works on control systems had cited Anthony's (1965) definition. Since then, many versions of the definition of control systems had been proposed. However, the ultimate goal of control systems is intact. Anthony (1965) defined the management control as the process by which managers of an organization monitor those inflow resources that are obtained and used effectively and efficiently in the accomplishment of the intended organizational goal.

Otley (1994) referred to Anthony's definition as traditional perspective of management control. From a traditional perspective, Anthony saw management control as being a next process after the processes of strategic planning but before the process of operational control. This process is reflected by traditional organizational structure. However, Otley (1994) argued that in the contemporary organizations, the suitability of Anthony's definition could be questionable and outdated. As can be observed, several changes had occurred in the structure of contemporary organizations, thus, inevitably these have implications for practice of management control (Otley, 1994). For instance, the contemporary environment is less predictable, organization size is smaller, increasing stress upon long-term alliance, and increase in service based organizations. Perhaps, a definition of management control by Lowe (1971, p.5) offered a more comprehensive definition of management control:

> *'A system of organizational information-seeking and gathering, accountability and feedback designed to ensure that the enterprise adapts to changes in its substantive environment and that the work behaviour of its employee is measured by reference to a set of operational subgoals (which conform with overall objective, so that the discrepancy between the two can be reconciled and corrected for)'.*

With reference to Lowe's (1971) definition, a control system is concerned with the processes by which a system adapts itself to its environment. Thus, management control is concerned both with strategic issues and with operational issues. Strategic issues refer to how organizations react to environment.

Operational issues refer to the implementation of plan to achieve overall objectives.

Another definition of control was proposed by Flamholtz, Das and Tsui (1985, p.36). They define organizational control as:

> *'attempts by the organization to increase the probability that individual and groups will behave in ways that lead to the attainment of organizational goals…….control systems are techniques and processes to achieve goal congruence and may be accomplished by the four core control mechanisms of planning, measurement, feedback, and validation reward'*.

Simons (1990, p.128) recognized that control systems are more than means of constraints and monitoring. Thus, he defined control systems as:

> *'the formalized procedures and systems that use information to maintain or alter patterns in organizational activity…….these systems broadly include formalized procedures for such things as planning, budgeting, environmental scanning, competitor analyses, performance reporting and evaluation, resource allocation and employee rewards'*.

In another definition, control is the process by which corporate level managers ensure that middle-managers carry out organizational objectives and strategies (Merchant, 1982). In other words, control systems provide a means for gaining cooperation among groups of individuals or organizational units. Hence, they can help to enhance the level of goal congruence and channelling efforts towards a specific set of organizational goal. However, the various control tools are only effective to the extent that they influence behavior in desirable direction

(Merchant, 1982) and performance of organizations could be used to surrogate that employees had acted as they have to act. For the purpose of this study, the effect of control systems on organizational performance was investigated.

3.2.2 Development of Research on Control Systems

Otley *et al*. (1995) reviewed the development of research in management control area. They concluded that a narrow financial perspective had dominated much of the control literature. Thus, they suggested that future research should attempt to broaden the scope of control systems research. As such, the range of what is included as a management control should be extended to non-financial measures and integrate the whole range of functional control.

In another review paper, Dent (1990) examined the development of strategy research in accounting literature, specifically the relationship between accounting control systems and strategy. He found that strategy had become an important theme for management and organizational research. However, the strategy related issues had received marginal attention from accounting researchers. Consequently, the research area on the relationship between accounting control systems and strategy was underdeveloped. He, therefore, suggested for future studies to include organizational strategy as a variable in the contingency framework, and examining the relationship between organizational strategy and control systems. He also highlighted that contingency framework had become the major framework for research on control systems. However, he

pointed out that the results of previous studies of contingency research in control systems had been less than definitive and fragmented. Thus, more studies are needed to contribute knowledge to the management, organizational and accounting literature.

A more comprehensive review of the development of control systems and strategy area was reported by Langfield-Smith (1997). He reviewed, evaluated and considered the state of knowledge in this area. In line with Dent (1990), he found that only a small number of empirical studies on strategy and control system had been published. Additionally, he concluded that the research evidence was fragmentary and sometimes conflicting. These conflicts were believed to be a result of the difference in research design, and the way the control systems, performance and strategy constructs were operationalized and measured. He also suggested that the implications of new management strategy like TQM on control systems are a potential area for future study. Further, he revealed that the SCS was not included as a part of control systems variable in previous studies.

Chenhall (2003) also reviewed the development of control systems research. However, he concentrated on contingency based study reported after 1980. Drawing from a comprehensive review, he suggested that future researchers should focus on contemporary dimension of control systems, context and organizational performance. One of the contemporary context variables is TQM strategy. He concluded that control systems had the potential to aid managers in

the process of formulating, implementating and monitoring of strategies. However, only a small number of researchers had studied these issues. This review paper also revealed that the public service and government sector had received scant attention from researchers. Further, the introduction of new management strategies like TQM strategy into the public sector management provides ample opportunity for future research.

Shrivastava (1987) examined the development of research in strategic management area. He concluded that strategic control had been identified as an important topic of strategic management since 1977. However, only little is known about this area. Thus, he suggested that more research in strategic control is needed to be carried out. In the same vein with Shrivastava (1987), Simons (1990) also claimed that our understanding of the relationship between control systems and strategy was limited. The same tone has been put forth by later researchers such as Andersen *et al*., (2004); Chenhall (2003); Daniel & Reitsperger (1991); Ferlie (2002); Ittner & Larcker (1997).

3.2.3 The Relationship between Strategy and Control Systems

In investigating the relationship between strategy and control systems, a study of the relationship between human resource strategy and the design of the control systems was documented by Widener (2004). Data was collected from 107 managers of large manufacturing firms in US. Only large firms were selected since they were more likely to have a formal control system. She examined a

combination of control systems, namely personnel control, non-traditional result control, and traditional result control. The proxy for personnel control was selective staffing. The proxies for non-traditional result control were non-financial measures and the use of employee and team measures in reward system. The proxies for traditional result control were budgeting and cost systems and financial measures. She found that strategic practices had influenced the design of personnel and non-traditional result control but not the traditional result control. Thus, she concluded that firms add additional non-traditional control system on a traditional control system to align with the chosen strategy.

In another study, Hoque (2004) studied the mediating effect of performance measurement systems on the relationship between strategic priorities and performance. This study used a contingency theory perspective. His research hypothesized that a positive association between business strategy and performance exist through use of a performance measurement system. The study was carried out in 52 manufacturing companies. Data was collected using questionnaire survey. A path analysis was employed to test the hypothesis. In sum, he found that the significant association between management strategic choice and performance through use of non-financial performance measurement systems. Thus, this study contributes to the evidence that congruent matching of strategic priorities and performance measurement systems is important to improve organizational performance. However, he suggested for more research to be done in other sectors or countries.

As discussed in the preceding section, many of the existing literature on control systems were about profit organizations. As such, Langfield-Smith (1997) noted that, much of the research that investigated the relationship between control systems and strategy had focused on business strategy. Consequently, the analysis of strategic issues in public sector organizations should be taken more widely (Ferlie, 2002).

In order to minimize such a gap, this study concentrates on addressing the strategy implementation issues in the Malaysian local government by focusing on strategy focused control systems or strategic control systems. There are several justifications for this focus. First, most of the reported accounting research on control systems has focused on traditional control system such as budgetary control systems (Fisher, 1998), while, a small number of existing researches have focused on a holistic approach of system like strategic control systems[11]. Second, strategic control systems becomes essential with the implementation of TQM strategy which involves the practices of continuous improvement, process management, and customer focus (Chenhall, 2003). Further, accounting research in the area of control systems has gradually evolved from a focus on traditional accounting control to broader scope of control systems (Birnberg, Uropolec & Young, 1983). The next section discusses the strategic control systems.

[11] 'SCS offer managers the possibility to combine all three type of control systems of Simons (diagnostic control systems, interactive control systems, boundary control system)- Mooraj *et al*. (1999, p.486).

3.3 Strategic Control Systems

A review paper of strategic control literature was written by Goold and Quinn (1990). Following them, the strategic management literature had advocated the need to establish strategic control systems (SCS) for monitoring the implementation of organizational long-term strategy. They also addressed four main reasons for establishing a SCS which were: to coordinate all the planning done in an organization; to motivate managers in achieving the intended objectives by clarifying to the managers on what is expected from them; to guide senior management on how and when to intervene organizational activities; and to gain trust and develop confidence among organizational members. As documented by them, during that period only a few empirical researches were done to study the strategic control systems, thus providing a significant gap in the strategic management literature. Apart from the issue of less scientific research, strategic control systems also has been defined in numerous ways as will be discussed in the following paragraph.

As defined by Ittner and Larcker (1997), SCS is any strategy focused control systems. Therefore, as a working definition used in this present study, SCS is defined as TQM focused control systems. Control systems for an organization consists of a wide range of mechanism, such as job description, standard operating procedure, performance measurement, budgetary systems, and reward systems. All of these mechanisms, when they are integratedly implemented, constitute a holistic organizational control system (Flamholtz *et al*., 1985). In order to institutionalize SCS, all of these mechanisms must be

aligned with the intended organizational strategy. If not, these mechanisms will only become part of organizational control systems but not strategically focused.

Based on Schendel and Hofer (1979), strategic control systems was defined as follows:

> *Strategic control focuses on the dual question of whether: (1) the strategy is being implemented as planned; and (2) the results produced by the strategy are those intended. The basic criteria used to answer these questions are derived from: (1) the strategy and action plans developed to implement strategy; and (2) the performance results that strategy is expected to produce. If a deviation occurs, the feedback takes place and the strategic management process recycles* (p. 18).

By analyzing the Schendel and Hofer's (1979) definition, several conclusions can be drawn. First, after the strategy is formulated and plans are tabulated, the management should take further necessary actions to ensure the strategy is implemented as planned. Second, SCS also needs to monitor, measure, review and analyse the results achieved. Any significant variance between achieved results and intended results must be communicated to the authoritative people, who can further provide the most appropriate related feedback. In other words, this view emphasizes the implementation of strategic control system as important control systems for strategy implementation.

A similar description of SCS was taken by Goold and Quinn (1990). They described strategic control system as:

> *The process which allows senior management to determine whether a business unit is performing satisfactorily, and which provides motivation for business unit management to see that it continues to do so. It, therefore, normally involves the agreement of objectives for the business between different level of management, monitoring of performance against*

> *these objectives and feedback on result achieved, together with incentives and sanctions for business management* (p. 43).

By analyzing the definition of SCS by Schendel and Hofer (1979) as well as the definition of SCS forwarded by Goold and Quinn (1990), it can be concluded that both of these definitions are consistent with Simons's (1990) critics of SCS. As proposed by Simons (1990), the definitions of SCS lead to a perception of SCS as a process that is essentially parallel strategy formation with planning activities and strategy implementation with control activities. Consequently, SCS does not provide an effective vehicle for managers to deal with unplanned or contingent situations that arise which can influence the predetermined plan.

In response to those shortcomings of SCS as discussed, Simons (1990) suggested three types of formal control systems which can be utilized by managers for executing their organizational strategy successfully. Simons described these three types of control systems as:

a) diagnostic control systems, refers to systems which periodically and systematically measure progress against plans.
b) interactive control systems, refers to systems which are those requiring regular management attention and discussion within the organization.
c) boundary control systems, refers to systems which are designed to communicate the boundaries of permissible activity to all organizational members.

In response to Simons critics, Mooraj, Oyon and Hostettler (1999) suggested that, it was difficult for management to decide on which formal control to be emphasized on at any time. The other side of the coin, strategic control systems provide a comprehensive control systems where it combines elements of all three of Simon's control systems. Therefore, this enables management to maximize the use of their resources in preparing data, tools or techniques for control purposes.

3.4 Strategic Control Framework of Balanced Scorecard

The Balanced Scorecard (BSC), which was first presented in 1992 is a significant contribution by Kaplan and Norton (1992). Since then, the BSC has attracted much attention from practitioners, academic and researchers (Norreklit, 2000). By 2000, Kaplan and Norton continued to work with hundreds of management teams in both private and public sector to implement and refine the BSC (Kaplan & Norton, 2000).

Initially, the concept of BSC was based around the combination of financial and non-financial measurement. However, in subsequent developments, the focus of the BSC is more inclined as strategic control systems. As documented by Kaplan and Norton (1996b), most organizations have expanded their use of the BSC by employing BSC as the framework for strategic control systems. As a SCS, BSC provides a framework for managing the implementation of strategy (Kaplan & Norton, 1996b). As detailed by Kaplan and Norton (1996a, p.19), the BSC as SCS assists an organization in accomplishing the following strategic planning and control functions:

1. clarify and gain consensus about strategy;

2. align departmental and personal goals to strategy;
3. link strategic objectives to long-term targets and annual budget;
4. identify and align strategic initiatives; and
5. obtain feedback to learn about and improve strategy.

Given its benefits, the strategic control framework of BSC is useful for the purpose of strategy implementation. Table 3.1 shows the BSC as a strategic control framework. It consists of four processes, namely: (1) clarifying and translating the vision and strategy, (2) communicating and linking, (3) planning and target setting, and (4) strategic feedback and learning.

Table 3.1: The Balanced Scorecard as a Strategic Control Framework

BSC Process	Explanation
Clarifying and translating the vision and strategy	Clarifying the vision; Gaining consensus
Communicating and linking	Communicating and educating; Setting goals and decomposing; Linking rewards to performance
Planning and target setting	Setting targets; Aligning strategic initiatives; Allocating resources; Establishing milestones
Strategic feedback and learning	Articulating the shared vision; Supplying strategic feedback; Facilitating strategy review

Source: Kaplan and Norton (1996a, p.11).

Thus, for the purpose of this study, strategic control framework of BSC is used as a framework for operationalising the SCS. It then will be supported by findings and prescription by other SCS researchers. The strategic control framework of BSC by Kaplan and Norton (1996a) was selected because the framework is well-established and

recognized in the scholarly literature (e.g: Mooraj *et al*.,1999; Norreklit, 2000; Otley, 1999).

As widely reported, various benefits can be reaped by BSC users, particularly for the purpose of implementation of long-term strategy. Drawing from a comprehensive review of BSC literature, Speckbacher, Bischof and Pfeiffer (2003) listed the benefits that can be tapped by organizations through the utilization of BSC in implementing their organizational strategy as tabulated in Table 3.2.

Table 3.2: Expected Benefits of BSC Use

1. Developing strategy
2. Clarifying and communicating strategy
3. Improved alignment of strategic objectives with actions
4. Focusing resources on strategy
5. Developing a consistent system of objectives in the company
6. Improved understanding of cause-and-effect relationship in the company
7. Stronger consideration of non financial drivers of performance
8. Improved company results in the long term
9. Aligning strategic initiatives
10. Improving strategic planning (control and feedback)
11. Supporting the shareholder value-based management system
12. Building up a base for an incentive system
13. Better consideration of stakeholder
14. Improved customer focus
15. Identifying business process reengineering opportunities
16. Supporting strategy of growth
17. Enhancing the investment in intangibles

Source: Speckbacher *et al*. (2003, p.377)

As being promoted in the literature, BSC has benefited many business organizations as well as public organizations. Ho and Chan (2002), for example, reported that municipal governments in US believed that their BSC had been used effectively in integrating organizational strategy rather than an ad-hoc collection of financial and non-

financial measures. Despite the importance of BSC for purpose of strategy implementation, the linkage between TQM and BSC had not been adequately explored in the research literature (Hoque, 2003). The author also argued that an organization that implements TQM strategy needs a BSC-like control system if it desires to achieve an excellence performance. He also presents how all the four BSC dimensions can contribute to the effectiveness of TQM strategy as given in Table 3.3.

Table 3.3: The 'Fit' between TQM and BSC

Key TQM-related activities	TQM-related performance metrics	BSC dimension
Executive commitment and management competence	• Employee opinion survey • Employee satisfaction • New techniques introduction compared with competitors	• Learning and growth • Internal business processes
Customer relationship	• Customer-satisfaction survey • Customer acquisition rate • Customer retention (or loyalty rate) • % of the industry market share • Number of customer complaints • Warranty repair cost	• Customer • Financial (or shareholders)
Supplier relationship	• Supplier-satisfaction survey • Supplier retention rate	• Internal business processes
Benchmarking	• Labor efficiency compared with competitors • Rework/scrap rate • Cost of quality (% of sales) • Return on investment • Market share	• Internal business processes • Financial (or shareholders)

Table 3.3: The 'Fit' between TQM and BSC (Cont)

Key TQM-related activities	TQM-related performance metrics	BSC dimension
Employee training	• Employee-satisfaction survey • Employee capabilities • Spending levels in dollars for employee development and training	• Learning and growth
Open, less bureaucratic, culture and employee empowerment	• Customer-satisfaction survey • Employee-satisfaction survey • The degree of decentralization in corporate governance	• Customer • Learning and growth
Monitoring quality programme (zero defects culture)	• Incident of products defects • Material and labor efficiency variances • Percent shipments returned due to poor quality • Warranty repair cost	• Internal business processes • Customer
Internal business process improvement and manufacturing innovation	• Investment in high technology • Introduction of new management system (e.g. JIT) • Sales growth	• Internal business processes • Financial (or shareholders)

Source: Hoque (2003, p.557)

Given its strategic nature, Lin and Johnson (2004) revealed that more and more firms had adopted BSC to integrate TQM focused control systems. Additionally, Vora (2002) explained how TQM strategies are consistent with Balanced Scorecard as follows:

> *It (TQM model, Figure 3.1) shows that when we have excited employee, they will improve processes and delight the customers. This, in turn, will lead to better operational and financial performance. The Balanced Scorecard approach of Kaplan & Norton (1996) also advocates a similar focus on customers, learning and growth (employees), internal/business process and financial*. (pp. 1152-1153)

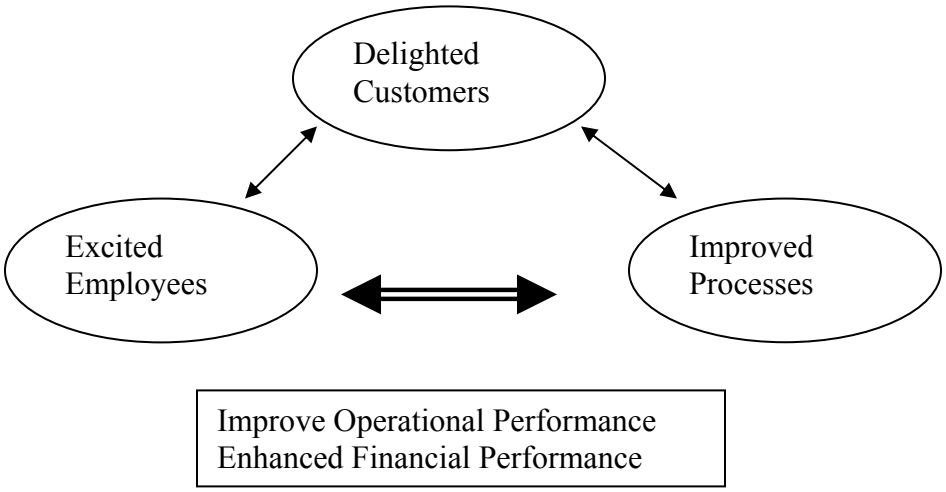

Figure 3.1: Total Quality Management Model
Source: Vora (2002, p.1153)

3.5 Framework of Strategic Control System

This section discusses the framework of SCS. Based on the results of a extensive review of the literature, this study observes that different elements of SCS have been suggested by various researchers. However, the SCS framework of Kaplan and Norton (1992) was selected as SCS framework of this study due to its high recognition in the literature. As have been discussed in the preceding section, there are four elements that constitute strategic control framework, namely: (1) clarifying and translating the vision and strategy; (2) communicating and linking; (3) planning and target setting; and (4) strategic feedback and learning. These elements also are strongly supported by other previous existing scholarly literature such as by Flamholtz *et al*. (1985), Goold and Quinn (1990; 1993), Ittner and Larcker (1997), Picken and Dess (1997) and Sinclair and Zairi (2001).

One of the previous studies on the SCS was documented by Goold and Quinn (1993). They studied the implementation of SCS in several companies. By using case studies approach, they found that SCS played an important role in making any strategy implementation successful. They observed that SCS had helped organizations to:

- develop precise and clear plans on what needs to be performed
- guide managers to think specifically on what they need to do next in the coming years to reach their stipulated long-term objectives
- provide more motivation to managers, so that managers can consistently put high commitment on strategic plan
- prevent performance monitoring from focusing too much on yearly financial objectives, so that do not devastate long-term strategic objectives
- provide early indicator of emerging problem, thus needing less final inspection
- define job responsibility and expectation more clearly, thus making empowerment to work better

All of these advantages of SCS can only be achieved by emphasizing on the key features of SCS, namely periodic strategic review, selection of strategic objectives, setting target achievement level, formal monitoring of strategic target, personal rewards, and central intervention (Ittner & Larcker, 1997).

Picken and Dess (1997) discussed two approaches to SCS, namely the traditional approach and contemporary approach. The traditional approach to strategic control has three sequential steps: (1) strategy formulation and goal setting; (2) strategy

implementation; and (3) performance measurement. However, they argued that this traditional approach to strategic control was not suitable when the environment is complex and goals and objectives were hard to measure precisely. Consequently, they suggested a contemporary approach like strategic control. Following contemporary approach, strategic control is constituted by two components, namely informational control and behavior control. Information control deals with the external strategic issues. Through information control, managers are able to understand and monitor the external environment. On the other hand, behaviour control is focused on strategy implementation. In contrast to external focus of information control, behaviour control deals with internal strategic issues.

An exploratory survey research of SCS was also done by Ittner and Larcker (1997). From a comprehensive review of strategic control literature, they suggested that SCS encompassed three main elements, namely strategy implementation, internal monitoring, and external monitoring. Strategy implementation was measured by three constructs; namely action plan, project, and reward. Internal monitoring was measured by another three constructs; namely feedback, meeting, and management review. Then, external monitoring was measured by three constructs; namely benchmarking, market, and strategic audit. However, the findings of this study were surprising. In contrast to the result of a case study by Goold and Quinn (1993), they found that many of the strategic control practices had a negative relationship with performance.

In addition to a case study by Goold & Quinn (1993), another case study was done by Sinclair and Zairi (2001). The study was done in the context of service organizations. They investigated one element of SCS which was quality based performance measurement. In their study, they found that TQM had affected performance measurement. They also identified five elements of performance measurement systems, which were: strategy development and goal deployment; process management and measurement; performance appraisal and management; 'breakpoint' performance assessment; and reward and recognition.

Another control system researcher, Flamholtz *et al*. (1985), developed an integrative organizational control model. This model was developed based on review of the literature of the administrative science, organizational sociology, and organizational psychology. As documented by them, six elements represent the core control systems, namely:

i) **Planning**, which refers to goal setting and standard establishment.

ii) **Operational subsystems**, which refers to the behavior of the organizational sub-unit pertaining to the resources management.

iii) **Outcomes**, which refers to financial performance, employees performance and other outcomes.

iv) **Measurement**, which refers to management information system and employee performance appraisal system.

v) **Feedback**, which refers to the delivery of information regarding performance compared against predetermined objectives.

vi) **Evaluation-Reward,** which refers to extrinsic rewards based on work performance.

In line with the strategic control systems framework of BSC as discussed in Section 3.3 of this chapter, as well as the review of control systems literature, the succeeding paragraphs are devoted to discuss the elements of strategic control systems.

3.5.1 Elements of Strategic Control Systems

The first element of SCS is clarifying and translating the vision. As commonly reported in the TQM literature, the successful implementation of TQM strategy requires involvement of top management, middle managers and operational workers to yield continuous performance improvement (Powell, 1995). This collaborative involvement of organizational members, therefore, increases the interdependence level between the departments. Consequently, TQM organizations require a system that can be utilized to foster, align and harmonize the collective goal among organizational members or subunits. Therefore, SCS can perhaps be a useful system for an organization to align the understanding, activities and decision about TQM strategy. When the understanding among organizational members is aligned, perhaps the probability of attaining TQM objectives is in a better position.

However, before consensus among organizational members can be gained, the organizational strategy must be detailed and clarified first. For example, the work standard required under TQM implementation should be well-defined and precisely

stated (Deming, 1986). Thus, having an effective SCS gives an organization a system for clarifying TQM strategy, so that TQM strategy can be easily understood by all organizational members including operational workers. SCS, for example, can help an organization translate its TQM strategy into an operational measure (Hoque, 2003). Thus, in order to translate the TQM strategy into operational terms, SCS should be deployed to each operational unit.

The second element of SCS is communicating and linking. As promoted by TQM scholars, the achievement of TQM objectives requires wide effort of organizational members. In other words, TQM should constantly be reinforced and communicated in the organization in light of the fact that TQM implementation is the responsibility of every employee and all functional areas. Moreover, a previous study has shown that TQM organization performed poorly if the responsibility for quality improvement was assigned to and limited only to the certain quality department (Sohal & Terziovski, 2000). Consequently, the TQM strategy needs to be articulated to all organizational members to broaden the understanding and heightening the commitment towards TQM strategy. By communicating strategic objectives throughout the organization, it harmonizes between goals set by top management and the operational workers whose performance is ultimately responsible for achieving these strategic objectives (Kaplan & Norton, 1996a).

Additionally, SCS promotes that the management and employee should be rewarded based on their performances (Goold & Quinn, 1990), particularly their contribution towards the achievement of predetermined strategy. By having this practice,

the performance of TQM strategy is linked to the reward systems. Therefore, employees can understand what is needed to be performed and are rewarded for that achievement. For instance, a reward and recognition system of SCS must be geared to achieving strategic objectives (Kaplan & Norton, 1996a; Zakaria, 1999). Generally, recognition, promotion and compensation programme should provide motivation for employees to enhance their contribution to achieve TQM objectives.

The third element of SCS is planning and target setting. Planning involves the development of action plans that are needed for successfully implementing the predetermined strategy (Ittner & Larcker, 1997). In addition to the development of action plans, planning also involves the specification of objectives that is presumed to lead to the achievement of overall strategy (Goold & Quinn, 1993). Typically the objectives that are presumed to lead to achievement of strategy can be both financial and non-financial measures of performance. Examples of financial measures of performance are return on investment, return on assets, profitability and market share. Examples of non-financial measures of performance are customer satisfaction, time of delivery or rate of product defect.

Furthermore, target setting refers to the establishment of the intended objectives at the initial stage of strategy formulation (Flamholtz *et al*., 1985). As a reference point, target setting brings many positive benefits for an organization in executing their strategy. It enables organizations to (1) quantify the long-term performance it wishes to achieve; (2) identify mechanism and provides adequate resource for achieving the

intended performance; and (3) establish short-term target for financial and non-financial performance (Kaplan & Norton, 1996b). In order to perform well in their strategy implementation, an organization has also to integrate its strategic planning with its annual budgeting process (Kaplan & Norton, 1996b). In order to execute the strategic plan, the manager's action must be consistent with strategic objectives and avoid tight emphasis on short-term financial result (Govindarajan & Gupta, 1985; Goold & Quinn, 1990). As suggested by Goold and Quinn (1993), the link between objectives of control systems and strategic objectives must be aligned since inconsistencies between them can cause severe tension and ambiguity for an organization. This alignment is important for motivating managers to consistently put a high commitment on strategic initiatives. Without doubt, focusing too much on short-term financial performance probably can devastate the organizational strategic objectives. It is, therefore, desirable that the control systems is linked to the predetermined organizational strategy in order to execute the strategy successfully. As such, financial, physical and human resources; long-term capital budget and annual budgets must be aligned and directed to the strategic objectives.

The fourth element of SCS is strategic feedback and learning. As can be seen, today's organizations operate in a more dynamic world with stiffer competition, faster technology innovation, less stable market and shorter life cycle. In order to response well to these new market environments, managers need to receive frequent feedback about the implementation of their organizational strategies (Kaplan & Norton, 1996b). Therefore, SCS provides an organization with practices of internal and external monitoring in comparing the achieved performance against strategic objectives (Ittner & Larcker,

1997). These periodic, timely and systematic internal and external monitoring provides feedback on actual results versus targeted results. Therefore, it will allow managers to take appropriate actions or strategies when results drop below expectations.

The internal monitoring process is a process to ensure that the understanding, attitude, skill, competence and motivation of all managers and employees are consistent with the strategic plan of the organization (Kaplan & Norton, 1996a). In addition to manager and employee related issues, the internal monitoring process is also perhaps critical in monitoring all programmes implemented, funds allocated as well as short-term performance achieved are in accordance with the long-term objectives of organizations. This process probably involves regular reports on progress against strategic objectives (Goold & Quinn, 1993). The report normally covers three important issues. First, whether the critical assumptions behind the organizational strategy are still valid. Second, whether the key strategic programmes are as planned. Third, whether the long-term objectives are still valid in the current situation. By having a frequent monitoring report on strategic result versus expectations, managers would be able to take timely and necessary corrective action when interim strategic objectives or milestones are not being achieved (Ittner & Larcker, 1997). At this point, failure to meet strategic objectives is seen as an important trigger for intervention from top management (Goold & Quinn, 1993).

Strategic control systems also play an important role for external monitoring. Monitoring external environment provides feedback on the success of the strategy in the marketplace, customer and competitor's response, as well as external threat to the

ongoing validity of the assumptions underlying the predetermined plan (Bromwich, 1990; Schreyogg & Steinman, 1987). Additionally, external monitoring also involves monitoring of customer–supplier relationship and external benchmarking (Sinclair & Zairi, 2001). The benefits of practicing external monitoring are twofold. First, it allows an assessment of strategic progress relative to pre-established goals or competitors. Second, it enables the organizations to determine whether the pre-established strategic plan and control standards follow the environment that have changes (Schreyogg & Steinman, 1987).

3.6 Strategic Control System vs. Budgetary Control System

This section discusses the similarities and differences between SCS and budgetary control systems. This discussion is intended to elaborate on SCS by using comparative approach, where the SCS is compared with budgetary control systems. Due to the issue that budgetary control systems are more established in the management accounting literature as compared to SCS, this comparative discussion would be able to help the readers in understanding the SCS related issues.

The implementation of SCS is not an easy process (Goold & Quinn, 1993). Perhaps, SCS is much more difficult to be established than budgetary control systems. However, the use of annual budgetary control systems was not sufficient to evaluate and monitor the progress of TQM strategy because TQM is a long-term strategy (Crosby, 1979; Juran 1988). Generally, budgetary control systems focus on annual or short-term performance against financial yardstick such as sales, profit and return on investment

(Buckley & McKenna, 1972; Goold & Quinn, 1990). As generally practiced, targets for performance against these yardsticks are established at the initial stage of the budgetary process. At the end of the pre-specified period, the actual results are evaluated. Based on the results achieved, the managers are rewarded or punished according to whether they achieve or miss the pre-specified target. In other words, budgetary control systems evaluate management's performance against defined costs, revenue and other numerical objectives.

Consequently, they do not explicitly deal with the organization progress relative to competitors or non-financial objectives. In contrast to the characteristics of budgetary control systems, SCS are normally focus on longer-term strategic objectives, involve external monitoring and non-financial measures. As the budgetary control systems do not explicitly deal with the organization's progress of long-term strategy goals, therefore, it can be argued that achieving TQM objectives seem difficult if only budgetary objectives is measured. As such, the long-term objectives of TQM might be unattainable due to the short-termism orientation of budgetary control systems. While the periodical report is among the main characteristics of budgetary control systems, TQM is not a periodical programme but an ongoing and continuous process (Cho, 1994; Zakaria, 1999). As documented in the TQM literature, TQM is a culture (Zakaria, 1999); or strategy (Dilbert, Bayyurt, Zaim & Tarim, 2005) or new manufacturing practice (Banker *et al*., 1993; Selto *et al*., 1995) or philosophy (Joseph, Rajendran & Kamalanabhan, 1999) or management approach (Gustafson *et al*., 2003) to continuously improve performance at any level of

operation and in every functional area of an organization that requires strategic and long-term perspectives.

Additionally, the short-term objectives that are set primarily in terms of annual budget are insufficient as they can lead to misdirection of long-term strategy like TQM strategy (Roush & Ball, 1980). As such, the US General Accounting Office report entitled 'Quality Management - Survey of Federal Organizations' noted that one of the key barriers to implementing quality management is lack of long-term planning (Hunt, 1995). As discussed in Chapter 2, prescriptions of quality by quality scholars also highlighted a contrast view with the numerical based decision making of budgetary control systems. For instance, Deming (1986) advocated that under quality management practices, organizations should end the practice of seeking supplier based on price requirement *per se*, abolish numerical goals, and eradicate numerical quotas for employees.

3.7 The Relationship between TQM Strategy and Strategic Control Systems

As widely reported in the literature, the implementation of TQM strategy cannot be divorced from the control systems of an organization (Banker *et al*., 1993; Chenhall, 2003; Daniel & Reitsperger, 1991). However, the control systems literature reports that only a few researchers have sought to extend contingency theory to discover the relationship between organizational strategy and the design of control systems (e.g., Banker *et al*., 1993; Daniel & Reitpserger, 1991; Gordon & Miller, 1976; Ittner & Larcker, 1997; Otley, 1999; Selto *et al*., 1995). Specifically, Daniel and Reitsperger

(1991) documented that only few empirical studies had focused on how control systems had been modified to complement new management strategies such as TQM strategy. Hence, this section discusses the issues of TQM strategy and SCS.

As discussed earlier, contingency theory suggests that the organizational control systems need to be aligned with the organizational chosen strategy (Banker *et al*., 1993). One of the organizational strategies that has received considerable attention in management accounting literature is the TQM strategy (Ittner & Larcker, 1997). In order to support the TQM strategy, control systems need to address the dual questions of whether: the TQM strategy is implemented as planned and the results of TQM achieved are those intended (Schreyogg & Steinmann, 1987). In response to TQM strategy requirement, an appropriate control systems should be institutionalized. Appropriate control systems for TQM strategy should have a long-term focus and not limited to financial information (Chenhall, 2003). On the same stand, Banker *et al*. (1993) suggested that changes in control systems were needed to support the practices of TQM strategy. The same result was found and reported by Daniel and Reitsperger (1991).

Banker *et al*. (1993) investigated the relationship between the adoption of new manufacturing practices and control systems. A sample of 362 workers from 40 plants located in USA were used. New manufacturing practices in their study refer to TQM; Just in Time (JIT); and teamwork. For control systems variable, five constructs were operationalized, namely quality information, productivity information, defect chart, schedule compliance chart, and machine breakdown chart. They found that the

introduction of new manufacturing practices had a strong positive relationship with the control systems that emphasize the role of workers. Thus, this conclusion led to a suggestion that the new manufacturing practices did influence the practice of control systems of organizations in their study.

In another study, Daniel and Reitsperger (1991) found that the organizations used different control systems for different quality strategies. The study was carried out based on normative theory. Normative theory advocates that control systems should be modified to complement the choice made on selected strategic objectives. In their study, they studied the relationship between quality strategies and the control systems provided for quality in 26 Japanese automotive and consumer electronics firms. A packet of 20 questionnaires was mailed to each company. Then, a total of 459 responses were received. In addition, site visits were conducted to provide the onsite experience necessary for better interpretation of results. Quality strategies were measured by eight statements relating to the quality. Control systems was measured by using elements of quality related control systems which were goal-setting and feedback for rejects, rework, scrap and downtime.

The results provided empirical evidence that manufacturing following a zero defect quality strategy had modified their control systems to encourage the continuous quality improvement. It also advocated that companies striving to implement quality improvement programs may need to modify their control systems. This is important for enabling control systems to provide more goal setting and feedback information about

specific control items. In short, the findings of this study support the normative view that control systems must be modified to fit organizational strategy. Daniel and Reitsperger (1991) also suggested that consistency between quality strategy and control systems might be important to the organizational performance. But no hypothesis related to control systems and performance was tested by them. Hence, it provides a gap for more rigorous research on organizational performance analysis.

Ittner and Larcker (1997) also suggested that a key assumption in the SCS is the need to align specific control practices with the organization's chosen strategy. They used 249 organizations as a sample for their research. Data was collected from automotive and computers manufacturers from Canada, Germany, Japan and United States. They found that organizations placing a greater emphasis on quality on their strategic plans do tend to make greater use of SCS. Findings by Ittner and Larcker (1997) probably could be explained by Hopwood (1972) and Dent (1990). As such, Hopwood (1972) noted the rigid application of budget would hinder the achievement of long-term performance because it might be traded against short-term result. In line with Hopwood (1972), Dent (1990) suggested that bureaucratic management practices were held to constrain longer term strategies.

In their study, Ittner and Larcker (1997) measured quality oriented strategy practices as the importance of quality in strategic planning, the choices of being high quality or low cost, the choices of being high quality or on schedule, and manager's perception regarding their organization's concern with quality. As extensively discussed

in Chapter 2, the choices of being high quality or low cost and the choices of being quality or on schedule cannot reflect the real practices of TQM organizations. As such, the objective of quality is to reduce the total cost (Crosby, 1979; Taguchi, 1986) and quality is a product or service characteristic that meets the expectations of the customers including on schedule delivery (Feigenbaum, 1986). As highlighted by Reeves and Bednar (1994), the understanding of performance effects of quality management practices will occur only when quality construct is precisely defined. Given this suggestion, the quality strategy practices of TQM organizations should be measured by using a set of critical factors of TQM. As discussed in Chapter 2, TQM strategy encompasses a set of critical factors (Arawati, 2005; Khairul Anuar *et al*., 2001; Li *et al*., 2003; Powell, 1995; Saraph *et al*., 1989; Sila & Ebrahimpour, 2002). Another major drawback of Ittner and Larcker's (1997) study was the use of single item measures for measuring perceived organizational performance. As reported by Wanous, Reichers and Hudy (1997), the use of single item measures for perceived measures is presumed to have unacceptable low reliability.

3.8 Organizational Performance

As can be reviewed in management accounting literature, the study of organizational performance has long been of central interest to management accounting scholars. However, management accounting literature has tended to limit to considering only financial performance (Otley, 1999). While financial performance is of the primary importance in assessing the performance of profit organizations, non-financial performance of performance might be more appropriate and relevant for governmental

organizations (Kaplan & Norton, 2000). In other words, financial measures of organizational performance are necessary but not sufficient, thus, non-financial measures of organizational performance are important in evaluating the organizational performance effects of TQM strategy in local government. As can be observed in the TQM literatures, Sila and Ebrahimpour (2002) concluded that previous studies on TQM had examined the relationship between TQM and organizational performance in various dimensions such as financial performance, customer satisfaction and operational results. Additionally, the implementation of TQM had also significantly contributed to financial and non-financial performances (Yasin *et al*., 2004). Dent (1990) also suggested that more extensive use of non-financial measures of performance would provide more complete indicators of achievement of organizational strategic goal.

As defined by Anthony (1965), control systems is the process to ensure that resources are obtained and used effectively and efficiently in the achievement of organizational goal. In line with the definition by Anthony (1965), Cooper and Staunton (1987) assert that the suppliers of inputs to non-profit organizations are interested in two things: effectiveness and efficiency. However, efficiency of non profit organizations can be difficult things to conceptualize and measure in an environment where it may be very difficult to quantify the output (Cooper & Staunton, 1987). There are also substantial difficulties in measuring the organizational effectiveness (Steers, 1977). Therefore, Otley (1980) suggest that the organizational performance variable to be measured with the measurement of the variable are thought to predispose an organization towards effectiveness. His suggestion reflects in the notes by Steers (1977) and Ford and

Schellenberg (1982) in their unsuccessful attempts to derive the agreed criteria of effectiveness from reviews of literature. Machin (1983) corroborated Steers (1977) and Ford and Schellenberg (1982) by noting that effectiveness was something like 'truth' or 'beauty' where managers can recognize it easily but they cannot define it.

In measuring performance of an organization, it should reflect the important dimensions of desired organizations or managerial performance (Otley, 1980). As the present study investigated the performance of local government, two important facets of local government, as discussed by Kloot and Martin (2000), were reviewed and considered by this study. First, local governments as a public organization have a various and diversity of stakeholders[12] often with different or conflicting interest. They include federal government, taxpayers, local community in general, other public organizations, voluntary sector partner, business community, consumer and clients of local government services, employees, suppliers and political leader. Second, a local government focuses on community rather than narrowly on certain group of customers. Indeed, local government's policies, rules, services or any type of decisions affect the broader community and not just those who directly use services offered.

With a diversity of stakeholders[13], the organizational performance of local government would be perceived differently by various stakeholders connected to them. Acknowledging the presence of these various stakeholders, there are a number of 'bottom

[12] 'The issues of evaluating organizational effectiveness cannot be addressed without confronting these issues (stakeholders)' (Otley, 1999, p.366).
[13] The concept of 'stakeholders' is more appropriate for public organizations rather than the concept of 'shareholders' (Kloot & Martin, 2000).

lines' all of which are important for assessing the performance of local government (Sa & Kanji, 2003). Consequently, a decision must be made from whose perspective that the performance should be evaluated (Sandefur, 1983). Ideally, all of them should be considered when assessing the organizational performance dimension. However, to consider all of these stakeholders in one single study is seen less appropriate. Thus, for the purpose of this study, the four main generic dimensions of organizational performance were operationalized. However, management perceptual assessment was used to response to the related items.

Having recognized the interest of various stakeholders rather than those of stakeholders only, Weerakon (1996) developed the MultiModel Performance Framework (MMPF) for measuring organizational performance as tabulated in Table 3.4. This framework was subsequently used by Lai and Cheng (2005) in their study on the relationship between quality management and performance. This framework uses four dimensions of organizational performance, namely: motivation performance, market performance, productivity performance and societal performance.

Table 3.4: Four Dimensions of MMPF

Dimensions and Number of items (in bracket)	Items Measured
Motivation performance (5)	equity of company to employees; training function provided to employees; employee job satisfaction; employee job security; environmental factors affecting the job
Market performance (3)	success rate in introducing new or modified products to satisfy customer needs; competitiveness of the product/service price; ability to satisfy customer
Productivity performance (3)	efficiency of material usage; labor; and capital utilization
Societal performance (4)	level of consumer rights; recognition of the need to protect the environment; expansion of the product/market; provision of employment opportunities

Source: Weerakon (1996)

Generally, organizational performance can be measured by using two types of measurements; objective or subjective measurement. However, this present study employed the latter approach. This approach was selected due to that many performance dimensions that are critical to the success of local governments are less amendable to an objective measurement. Following Kanji (2002), there are four key areas for measuring organization performance, namely: (1) maximize stakeholder value; (2) achieve process excellence; (3) improve organizational learning; and (4) delight the customer. These four key areas are also consistent with the four perspectives of Balanced Scorecard as documented by Kaplan and Norton (1996a). Table 3.5 depicts the related four perspectives of the Balanced Scorecard.

Table 3.5: Four perspectives of Balanced Scorecard

Perspectives	Generic Measures
Financial	Return on investment, Economic value added
Customer	Satisfaction, Retention, Market and Account share
Internal	Quality, Response time, Cost, and New product introductions
Learning & Growth	Employee satisfaction and Information systems availability

Source: Kaplan and Norton (1996a, p.44).

The financial perspective identifies how the organization wishes to be viewed by its shareholders. The customer perspective decides how the organization wishes to be viewed by its customers. The internal business process perspective describes how the organization operates their business process to satisfy its shareholders and customers. The organizational learning and growth perspective involves the changes and improvement which the organization needs to achieve their intended objectives. However, for non-profit and governmental organizations, the needs of their constituents are often the primary objectives and not the financial objectives (Kaplan & Norton, 2000). In discussing the importance of constituents for governmental organization, Kaplan and Norton (1996a) addressed:

> *Success for government and not for profit organizations should be measured by how they meet the needs of their constituencies. Tangible objectives must be defined for customer and constituencies. Financial considerations can play an enabling or constraining role, but will rarely be the primary objective*. (p. 180)

Further, organizational performance can be measured from various perspectives since public organizations have many different stakeholders. Kanji (2002) for example,

has developed a 'Business Excellence Index (BEI)', as a means of measuring stakeholder's satisfaction simultaneously within an organization in order to obtain a comprehensive evaluation of the organizational performance. Although the index was named as 'Business Excellent Index', it can be used to measure the organizational performance of various organizations including non-business organizations. Kanji and his co-researcher have also used the same index to operationalise the organizational performance variable in their study on Portuguese local government (Sa & Kanji, 2003).

BEI can be constructed through a survey using a set of questionnaires. In addition, Kanji is one of the significant figures in quality management area. Thus, the credibility of the BEI as a means of measuring organizational performance of TQM adopters is justified. Therefore, the BEI of Kanji (2002) can be used by future researchers in measuring the performance of an organization. The BEI measures the achievement of an organization in five areas, namely financial performance; customer demand; achievement of goals; employee management; and achievement of services outcomes. By using BEI, seven items are used for measuring organizational performance.

In another study, Chan (2004) reported that the various measures of organizational performance had been utilized by the local government under his study as tabulated in Table 3.6. However, not all of these measures can be universally applied to other local governments.

Table 3.6: Measures of Organizational Performance

Performance perspectives	Measures
Financial performance	Cost per unit; bond rating; debt ratio; debt management standards; property tax revenue as a percentage of total city revenues; increase assessable tax base; cost of municipal services as percentage of median household income; budget documents; financial trends; office management and finance
Customer perspectives	Satisfaction rate; customer satisfaction index; customer service rating; complaints; increase confidence in leadership; service delivery rating by citizens as reported in the citywide phone survey; ranking in national magazine/survey regarding best cities for business; your city your choice survey
Operation efficiency	Productivity; response time; cycle time; cost per capita; cost per km of road maintenance; cost to treat water and sewage; average ridership trips for all transit services; increase awareness of city support programs and services; parks bureau-budget document/parks bureau
Innovation and change	Employee satisfaction index; turnover rate; hours saved; performance contract; number of neighbourhoods rated fragile, threatened, or stable in city's quality of life index, increase numbers of jobs
Employee performance	Customer service ratings; employee suggestion data; percentage of training dollar compared to base salaries; number of departments implementing annual training plans and completing goals; increase retention of high quality employees; female representation as percentage of female workforce representation

Source: Chan (2004)

Other researchers, Govindarajan and Gupta (1985) also developed an instrument for measuring organizational performance and subsequently used by Abernethy and Stoelwinder (1991), and Hoque (2004). The instrument uses a multiplicity of dimensions rather than a single dimension and various performance dimensions are weighted in terms of their relative importance for the related organizations. However, subsequent researcher (Hoque, 2004) did not use a weighted approach but an average approach. By using average approach, a single performance score for each organization was calculated by

averaging the score for all items. The instrument of Govindarajan and Gupta (1985) included twelve dimensions, namely sales growth rate, market share, operating profits, profit to share ration, cash flows from operations, return on investment, new product development, market development, research and development, cost reduction programs, personnel development and political/public affairs. However, in Hoque's (2004) study, two other items were added; namely workplace relations and employee health and safety.

Delaney and Huselid (1996) developed a set of perceptual measures of organizational performance which they reported the Alpha Cronbach for this construct was 0.85. Thus, their instrument provided an acceptable level of reliability. It includes the perceptual measures covering seven elements, namely: quality of product, service or program; development of new product, service or program; ability to attract essential employee; ability to retain essential employee; satisfaction of customer or client; relations between management and other employee; and relations among employee in general. The instrument of Delaney and Huselid (1996) was subsequently used by Yahya *et al*. (2001) in measuring the performance impact of TQM in Malaysia public listed companies.

One of the published instruments for measuring performance of public organizations was developed by Van de Ven and Ferry (1980). The instrument was developed, revised and improved in four successive versions over seven years of extensive research in public sector organizations. The instrument, then, had been used by other researchers (e.g., Chong & Rundus, 2004; Williams, Macintosh & Moore, 1990). The instrument has seven items as presented in Table 3.7.

Table 3.7: Organizational Performance Measures

Items
1. The quantity or amount of work produced
2. The quality or accuracy or work produced
3. The number of innovations or new ideas introduced by the organization
4. Reputation for work excellence
5. Attainment of organization production service goals
6. Efficiency of organization operation
7. Morale of organization personnel

Source: Van de Ven and Ferry (1980)

The issue that arose in the organizational performance literature was not only limited to the question on what are the dimensions needed to measure the performance of an organization but also the question on how to operationalize the dimensions of organizational performance. If the required data of performance are publicly published, such as profit, return on investment, and return on asset, then the researcher can directly refer to the published data. However, if the required data of performance are not publicly published, such as level of employees' motivation, level of customers' satisfaction and level of cost savings, then the researcher normally collect the required data by using self-rating assessment. Given that this present study employed the self-rating assessment in collecting the required data of performance of local governments, the succeeding section discusses the related issues on self-rating assessment.

3.8.1 Self-Rating Assessment[14]

As widely reported in the TQM literature, as well as control systems literature, the operationalization of organizational performance variable has been dominated by self-

[14] Govindarajan & Gupta (1985) suggested that the use of self-rating or subjective measures of organizational performance was suitable because many performance dimensions critical to long-term strategy were not amendable to objective or quantitative measure.

rating assessment (e.g., Flynn *et al*., 1995; Llorens Montes & Verdu Jover, 2004; Yasin *et al*., 2004). By using self-rating assessment, individuals will provide indication or responses of the performance of their group or team or organizational unit. The motivation for the use of subjective rather than the actual data arises from the argument by Merchant (1981). He argued that, a subjective measurement is acceptable because it is almost difficult to measure non-financial performance through objective data in a cross-sectional study. Additionally, this subjective measure was chosen instead of an objective measure to overcome the difficulty in identifying objective measure that would be appropriate for all local governments understudy[15].

Fuentes-Fuentes (2004) for instance, provides proof that there is a significant correlation between objective and subjective measures. He developed a set of perceptual statements for measuring organizational performance which were divided into three categories as given in Table 3.8. Further, in order to check the validity of the perception of financial performance items, they had collected together objective information. Following the correlation results, they found that the correlation between subjective financial performance and objective data of performance was positive and significant. Thus, it had been concluded that it was appropriate to use subjective measures where objectives measure, as in the case of this present study, are unavailable or not publicly published. Due to the entire samples in this present study being local governments, the conventional performance measures applied for profit organizations as are somewhat less

[15] As commented by Othman Mat Sani, Head of Administration of Kuala Kangsar MC in an interview with researcher on 4 July 2006, a subjective measurement like cost saving is more applicable to measure the financial performance of local governments understudy instead of amount of tax assessment collection. Amount of tax assessment collection is largely depends on the number of constituents and less related to TQM.

available in a complete database. As found by Mahamad (1996), Malaysian local governments were lacking in an effective and efficient data collection systems.

Table 3.8: Set of Perceptual Statement for Measuring OP

Categories	Items
Financial performance	growth in profit, profitability growth
Operational performance	sales growth, market share growth, reducing customer complaints, level of satisfaction customer, level of defects in the product/services, the product/services to meet or exceed customer demands
Employee performance	level of employee satisfaction, level of absenteeism

Source: Fuentes-Fuentes (2004)

In line with other researchers, Ittner and Larcker (1997) used a self-rating assessment to measure non-financial performance of an organization. They measured non-financial performance by asking a single question whether, in the respondent's opinion, the organization was successful, with the scale ranging from 1= not successful at all to 7= very successful. However, the use of single item measures for psychological construct such as perceived organizational performance is typically discouraged, primarily because it is presumed to face the problem of questionable reliability (Wanous *et al*., 1997; Churchill, 1979). In fact, single item measures would have been problematic because it is not possible to empirically estimate the reliability of constructs. Moreover, Otley (1980) suggested that in developing a contingency theory of control systems, the effect of the control system on a number of dimensions of performance should be measured rather than an arbitrary choice of single dimensions. In addition, TQM literature has claimed that the successful implementation of TQM can improve more than

one dimension of organizational performance, such as better product and service, as well as reduced cost, more satisfied customers and improve financial performance (Prajogo & Sohal, 2006). As reported by Sila and Ebrahimpour (2002), the new direction in TQM contemporary literature was revealing the relationship between TQM factors and various performance dimensions. This new direction is perhaps due to the factor that a single performance measure is inadequate to represent an overall organizational performance.

As discussed in this section, there have been various dimensions of organizational performance that were used by previous studies but dominated by perceptual assessment. Since perceptual assessment of organizational performance has consistently been used in the literature and due to its practicality, the same expectation was utilized in this study. Therefore, for the purpose of this study, four generic dimensions of organizational performance were chosen for measuring organizational performance of local government understudy. The four dimensions refer to financial, customer, employee and internal process. As discussed by Kanji (2002), these four perspectives are able to provide a holistic view of the organizational performance.

The approach of using various dimensions in measuring organizational performance is important for providing a more complete view of performance[16]. Given that, the items for each perspective were derived from a wide range of literature. The issues such as the uniqueness of public organization; multidimensional context of organizational performance; various and different stakeholders of local government;

[16] Norreklit (2000, p.82) notes 'customer performance does not necessarily yield good financial performance'

multidimensional of performance effect of TQM and SCS has been reviewed, addressed and considered before the items were selected. As mentioned by Nazariah (2003), the main characteristics of performance of public sector organizations were conflicting pressures from various stakeholders; numerous and various performance mandate such as budget and policies; increasing citizen expectation towards excellent service; and continuing focus on the internal or operational excellence. Table 3.9 summarizes the organizational performance related literature as has been discussed in this section.

Table 3.9: Summary of OP Literature

Authors / Dimensions	Financial	Customer	Employee	Internal Process
Chan (2004)	✓	✓	✓	✓
Delaney & Huselid (1996)	✓	✓	✓	✓
Fuentes-Fuentes (2004)	✓	✓	✓	✓
Govindarajan & Gupta (1985)	✓	✓	✓	✓
Kanji (2002)	✓	✓	✓	✓
Kaplan & Norton (1996)	✓	✓	✓	✓
Van de Ven & Ferry (1980)	✓	n/a	✓	✓
Weerakon (1996)	✓	✓	✓	✓

✓ utilized by the related researchers; n/a = not applicable

3.9 The Generic Framework of Contingency Research

As can be found in the literature, most of the existing researches on control systems were dominated by contingency theory, where the concept of 'fit' appears to be a central theme. The concept of 'fit' however, has been termed in various ways in the literature such as consistent with, contingent upon, matching, aligning, and congruence (Venkataraman, 1989). However, the strategic management as well as contingency research scholars commonly share an underlying premise that context and structure must somehow 'fit' together if the organizations were to perform well (Selto *et al*., 1995; Van de Ven & Drazin, 1985)

As documented by Van de Ven and Drazin (1985), one of the main issues in contingency theory related literature was the concept of 'fit' had not been clearly defined. In order to shed light on the definition of fit, three approaches of fit were prescribed by them, namely, selection approach, interaction approach, and systems approach. These approaches were widely investigated in management accounting literature (e.g; Selto *et al*., 1995), particularly, on the study of management accounting control systems issues. Selection approach views the concept of fit as the correlation between organizational context variable and organizational design variable without considering the effect of this correlation on performance. The interaction approach extends the selection approach by examining the interaction effect of organizational context and organizational structure on performance. The systems approach, however, examines the performance effect of interaction between many contextual variables and many structure variables. Therefore, this study can be classified as an interaction approach study as it investigated the interaction between TQM and SCS on organizational performance.

In understanding the concept of 'fit' in contingency research, Venkatraman and Camillus (1984) proposed six schools of thought: strategy formulation school; strategy implementation school; integrated formulation-implementation school; interorganizational networks school; strategic choice school; and overarching 'gestalt' school. Therefore, this study is perfectly consistent with 'strategy implementation school'. Following Venkatraman and Camillus (1984), 'strategy implementation school' focuses on the 'fit' between strategy variable and internal organizational variables. The premise of this 'school' is strategy needs to be aligned with internal variables such as

structure, management systems, organizational structure, reward systems, management accounting systems and organizational control systems.

In a subsequent paper, Venkatraman (1989) identified six perspectives of 'fit' in strategy research, namely: fit as moderation, fit as mediation, fit as matching, fit as gestalts, fit as profile deviation, and fit as covariation. This study, therefore, is in line with the perspective of 'fit as mediation'. This perspective recognizes 'the existence of a significant intervening mechanism (e.g., organizational structure) between an antecedent variable (e.g., strategy) and the consequent variable (e.g., performance)' (Venkatraman, 1989, p. 428).

Another researcher, Fisher (1995) classified prior contingency research based upon the level of analysis complexity. He classified them into four level of analysis. As identified by him, each research level has its own strengths and weaknesses. At level one analysis, a contingent variable is correlated with one control systems variable. The typical hypotheses predict that the existence of a contingency variable is highly correlated with the practice of certain control systems. However, no attempt is made to assess whether this correlation has any relationship with performance. Furthermore, level two analysis examines the joint effect of a control systems variable and a contingent variable on a performance variable. In a typical study, the existence of a contingent variable and a control system is hypothesized to result in increased performance. Next, level three analysis examines the joint effect of contingent variable and multiple control systems on a performance variable. Lastly, level four analysis simultaneously includes multiple

contingent variables in determining the optimal control design. As this study investigates the joint effect of contingent variable (TQM) and control systems variable (SCS) on organizational performance, it can be said that this study is parallel to level two analysis.

Further, Otley (1980) and Moores and Chenhall (1994) have suggested the framework of contingency research which can be used as guidance by contingency researchers. Otley (1980) for example, had suggested the following basic contingency framework in evaluating the contingency theory as shown in Figure 3.2. Moores and Chenhall (1994) also suggested another framework for contingency research as shown in Table 3.10. However, the conclusion that can be derived from both frameworks is the framework for contingency research has remained unchanged since early suggestion by Otley (1980).

Both of the frameworks suggested by Otley (1980) and Moores and Chenhall (1994) have portrayed organizational effectiveness (performance) as the function of the 'match' between the contingent variable and organizational control systems. Parallel to both frameworks, Machin (1983) noted that the 'Holy Grail' for management control system researchers is effectiveness.

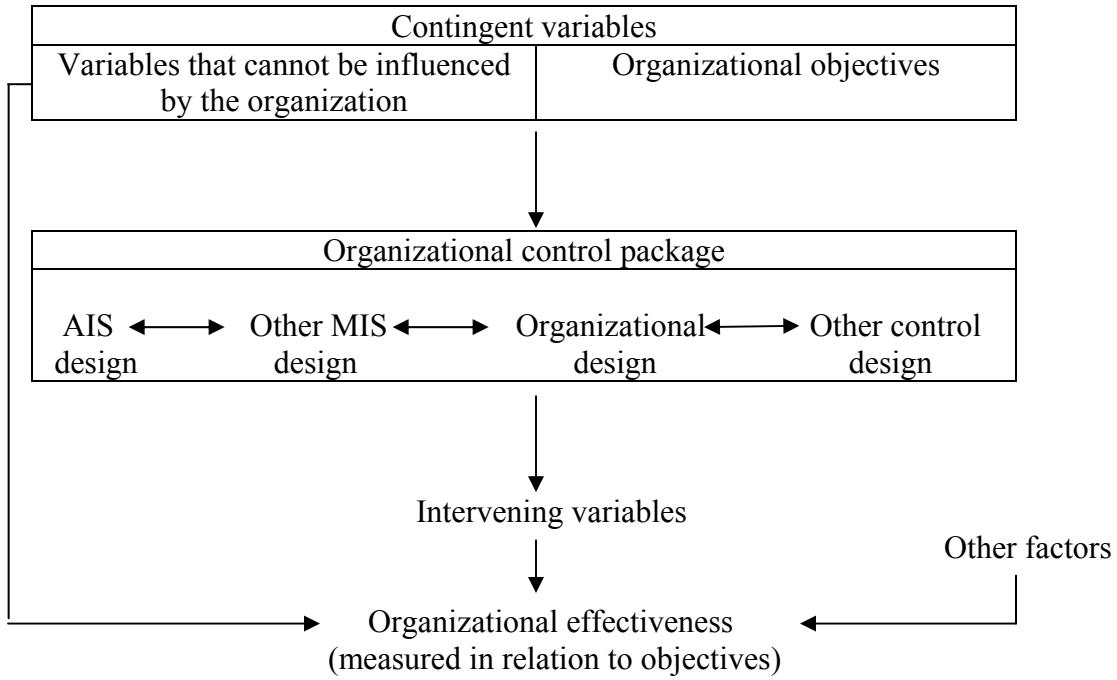

Figure 3.2 The Basic Contingency Framework

Source: Otley (1980, p.424)

Table 3.10 Framework for Contingency Research

Antecedent →	**Independent** →	**Intervening** →	**Dependent**[1]
Contingent variables	*Organizational control features*	*Intervening variables*	*Organizational effectiveness*
1. Environmental uncertainty 2. Technology structure 3. Size 4. Strategy (objectives) 5. Culture	1. MAS/MCS characteristics 2. Form Scope; Timeliness; Aggregation; Integration 3. Content Capital budgeting; Operational controls; Management controls Strategic planning	Job satisfaction Attitudes to budgets	Share market performance Growth and return ratio Self rated performance

Source: Moores & Chenhall (1994, p.14)

As a conclusion, Figure 3.3 presents the initial research framework which is in line with the suggestions by Fisher (1995); Moores and Chenhall (1994); Otley (1980); and Venkatraman and Camillus (1984); This research framework will be represented

again in the structural form in Chapter 4 for the purpose of investigating the structural relationship between TQM, SCS and organizational performance.

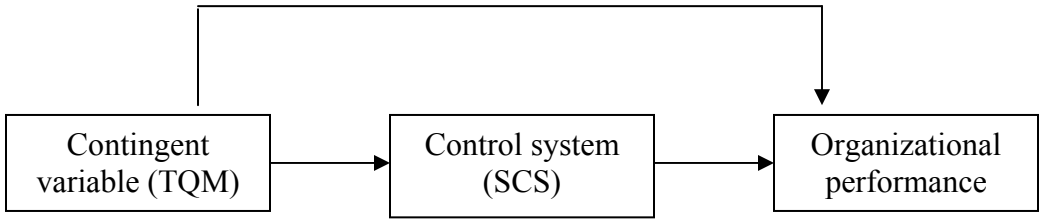

Figure 3.3 The Initial Research Framework

3.10 Conclusion

After reviewing exhaustively on the literature, several important conclusions can be derived. These conclusions, together with the discussion in Chapter 2, will be used as the foundation to develop the theoretical framework for the study. The theoretical framework of the study will be discussed and presented in Chapter 4.

First, control systems literature is somewhat absent from a universally accepted framework for the SCS. Although there are similarities between the elements found in the various published studies, the list of the elements of SCS varies from study to study. Thus, more research is needed to refine and verify the framework of SCS.

Second, many researchers have strongly supported the establishment of SCS in enhancing the effectiveness and efficiency of an organization. However, the pros and cons of this practice are still not clearly defined. In addition, empirical evidence about the

relationship between SCS and strategy is in its infant stage. Many issues of the relationship between SCS and organizational strategy remain less explored in the accounting literature. Findings by previous researches are less than definitive, somewhat fragmented and sometimes conflicting. Moreover, not much attention has been given in exploring, revealing and understanding the relationship between strategy and SCS in the governmental organizations. In line with the discussion on TQM strategy in Chapter 2, this study attempts to investigate the relationship between TQM strategy and SCS with the Malaysian local governments as the unit of analysis.

Third, the research evidence about the relationship between quality strategy and control systems is perhaps difficult to integrate. Probably, it is caused by certain methodological limitations. As such, the variation in the number and type of quality strategy that has been researched makes it difficult to develop a coherent body of knowledge (for example, Ittner & Larcker, 1997 was using quality strategy vs cost and quality strategy vs on schedule; Daniel & Reitsperger, 1991 was using zero defect quality and traditional economic conference level). However, to the best knowledge of this present study, the linkage between TQM-SCS-OP remains a less explored agenda and need to be further investigated.

Fourth, most of the previous studies on control systems only focused on limited scope of control systems such as financial control systems or BSC. Therefore, this study is undertaken to enrich the knowledge on the interrelationship between organizational strategy and control systems. As consistently suggested by previous researchers

(Chenhall, 2003; Dent, 1990; Langfield-Smith, 1997; Otley *et al*., 1995) this study takes into consideration the issues of SCS as a response to the less attention given by most of the TQM researchers.

CHAPTER 4

THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

4.1 Introduction

This chapter discusses the model of the study with the underpinning theory, as well as the hypotheses development. In order to achieve the objectives of the study, a structural model representing the interrelationships between TQM, SCS and organizational performance is presented in section 4.2. The model of the study is underpinned by contingency theory and is developed according to the strategy implementation school (Venkatraman & Camiluss, 1984) as well as the concept of fit as mediation in contingency research as discussed by Venkatraman (1989). Additionally, a series of hypotheses were developed in line with the model of the study as presented in section 4.3. The conclusion of this chapter is given in section 4.4.

4.2 Model of the Study

The model of the study is presented in a structural form as it will be analyzed by using Structural Equation Modeling (SEM) analysis. As portrayed in Figure 4.1, there are three latent variables under study, namely Total Quality Management (TQM) strategy,

Strategic Control Systems (SCS) and Organizational Performance (OP). TQM is represented by ten observed variables; management commitment, strategic planning, customer focus, benchmarking, human resource management, supplier management, quality information systems, continuous improvement, service design, as well as social responsibility. Organizational performance is represented by four observed variables; financial, customer, internal process, and employee. However, SCS is not represented by any observed variable. The variables under study are derived from a comprehensive literature review as was presented in Chapter 2 and Chapter 3. The inter-relationship between latent variables is developed accordingly with the contingency theory framework.

The premise of contingency theory is that the strategy and control systems must somehow 'fit' together if the strategy is to be successfully implemented. This premise has been widely investigated in the strategy literature as well as management accounting literature with the various operationalization of the concept of fit. As clearly stated in the introduction of this thesis, the previous studies concerning the relationship between TQM strategy and performance has reached an inconclusive point. Consequently, there is urgency for current researchers to investigate the variables that could enhance the success of TQM implementation. Moving from the premise of contingency theory, this study postulates that the unsuccessful stories of TQM implementation could be related to the misfit between TQM strategy and control systems.

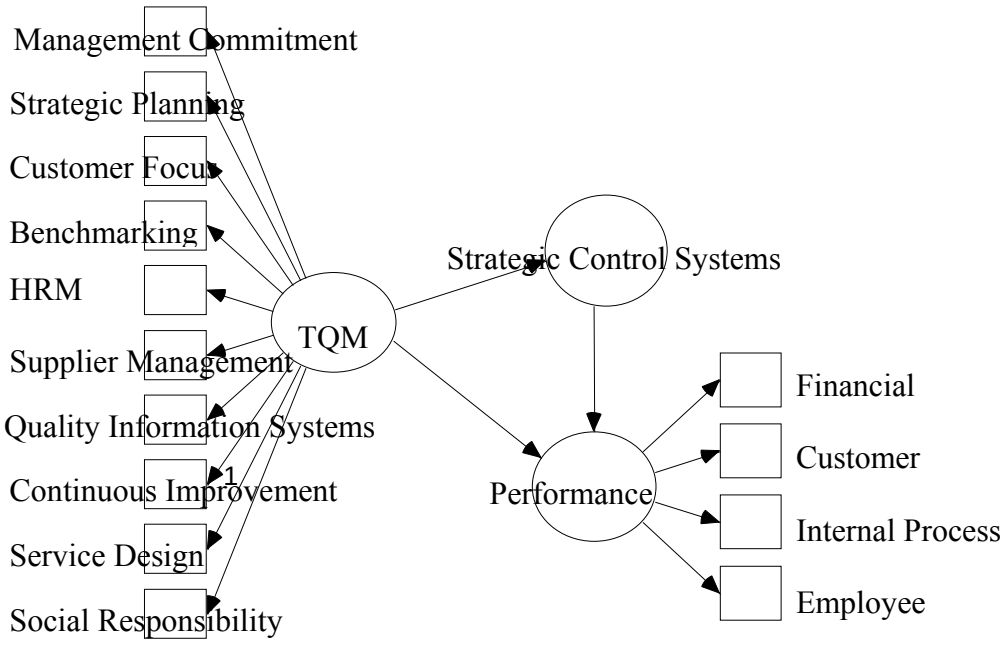

Figure 4.1: A Structural Model Incorporating the Relationship between TQM Strategy, Strategic Control Systems and Organizational Performance.

Given the various ways of researching the concept of 'fit' under contingency theory[17], this study has developed the research framework based on the concept of 'fit as mediation' as put forward by Venkatraman (1989). As has been discussed in section 3.9 of this thesis, the idea behind the concept of 'fit as mediation' is the link between strategy and outcome mediated by the control systems. As presented in the model of the study, the relationship between TQM and organizational performance is mediated by strategic control systems.

[17] According to Selto *et al*. (1995, p.667) – no other theory but contingency theory that directly concerns with 'fit' issues and despite criticism, intuition behind contingency theory continues to be appealing.

4.4 Hypothesis Development

This section discusses on hypothesis development. In line with the research questions as well as objectives of the study discussed in the first chapter, the following discussion deals with the hypotheses that will be tested in this study. All hypotheses are stated in the alternative forms.

4.3.1 The Relationship between TQM Strategy and Organizational Performance

Numerous prior investigations (Arawati, 2005; Arawati & Ridzuan, 2001; Terziovski & Samson, 1999) have investigated the relationship between TQM strategy and organizational performance by combining every set of critical factors of TQM strategy into a single construct. This practice is due to the fundamental assumption that the critical factors of TQM strategy are interrelated between each other. This assumption of critical factors of TQM strategy as interrelated implies that the TQM strategy, when implemented in package contributes to the organizational performance. In each of these studies, the researchers found statistically significant positive relationship between TQM strategy and performance. Terziovski & Samson (1999) define TQM as '*these activities (leadership, people, customer focus, planning, quality assurance of processes, and information and analysis) when effectively linked together would lead to better performance in customer satisfaction, employee relations, operating performance and business performance*' (p.229). The above discussion leads to the following hypothesis to be tested:

H_1: There is a relationship between TQM strategy and organizational performance

In contrast to the definition of TQM as consisting of interrelated critical factors by Terziovski & Samson (1999), Powell (1995) was seriously challenged the assumption of TQM as a 'package' (Dow *et al*., 1999), where he reported that only three of his 12 quality practices were significantly related to organizational performance. Subsequently, other researchers had reported that not all critical factors of TQM strategy were found to be significantly related to organizational performance (Khairul Anuar, 2002; Llorens Montes & Verdu Jover, 2004; Powell, 1995; Yasin *et al*., 2004). In a study of Malaysian local government, for example, Khairul Anuar (2002) found that five quality management constructs such as top management; customer focus; quality training; supplier relationship; and information and communication technology were not significantly related to organizational performance. Given these conflicting findings, it is important to understand which critical factors of TQM strategy drive organizational performance and how each factor of TQM strategy contributes to organizational performance (Moura E Sa & Kanji, 2003). The detailed explanation is presented in the next paragraphs.

Management commitment is one of the essential factors of TQM strategy which is widely stressed in the TQM literature (e.g. Crosby, 1979; Lakhe & Mohanty, 1995; Thiagarajan & Zairi, 1997a). In most organizations, top

management acts as the leader (Deming, 1986); the introducer (Arawati & Abdullah, 2000) or the main driver (Ahire *et al*., 1996) for TQM implementation such as in creating value, goals and systems to satisfy customers. Due to the critical role played by top management, it can be suggested that any TQM effort would be ineffective without the full commitment from top management. In recognizing the importance of management's commitment, most of the national quality awards world-wide have recognized leadership criteria as one of the main evaluation criterias (Chuan & Soon, 2000). In order to perform their functions well, leaders of a TQM organization should excel in communication, teambuilding, measurement, facilitation, teaching, decision making, self-management, and empowerment (Koehler & Pankowski, 1996). If all of those necessities were effectively performed by top management, it could be inferred that the management's commitment towards TQM implementation would lead to better organizational performance in a wide range of dimensions including work process, working environment, cost saving and customer fulfillment. For instance, good communication practices can perhaps improve the work process. The commitment of top management towards teambuilding practices would lead to better working environment. The good practice of measurement would lead to less error, thus improving the ability to satisfy the customers' needs. Empirically, many prior studies recognized the relationship between management commitment and organizational performance (Arawati, 2005; Flynn *et al*., 1995; Llorens Montes & Verdu Jover, 2004; Powell, 1995; Yasin *et al*., 2004). The above discussion leads to the following hypothesis to be examined:

H_{1a}: There is a relationship between management commitment and organizational performance

Strategic planning refers to the activities of formulation, implementation as well as evaluation of organizational strategies which enables an organization to achieve their intended goals (Srinidhi, 1998). Generally, an organization sets to institutionalize more than one strategy at one particular time. Consequently, strategic planning of TQM implementation involves steps taken to align TQM with all the other organizational strategies either short, medium or long-term strategy. By aligning TQM with other organizational strategy, organizations are able to plan their actions, and in turn sustain long-term TQM strategy (Srinidhi, 1998). For instance, the introduction of Key Performance Indicator (KPI) into the Malaysian local government recently should be looked as a complementary initiative of TQM instead of an isolatated initiative. Therefore, strategic planning of TQM implementation should consider the capability of their organization in fulfilling all of their executed strategies or initiatives (Black & Porter, 1996). Among the criteria that must be evaluated in examining the capability of organizations are having adequate funds, skilled employees, as well as adequate time frame. By recognizing the capability of an organization, the implementation of TQM can be linked to the operational strategy (Srinidhi, 1998), thus leading to the effectiveness of TQM.

Strategic planning of TQM implementation also involves the development of detailed and effective long-term plan (Sulaiman & Hashim, 2003). As such,

strategic planning of TQM implementation should detail the ultimate goal of TQM, developing activities that are in line with the intended objectives, as well as establishing detailed guidelines regarding TQM. Moreover, strategic planning of TQM implementation also involves the activities on how an organization links their TQM objectives with the requirements of customers (Sila & Ebrahimpour, 2002). By having a comprehensive strategic planning of TQM, it can be inferred that this strategic plan would be able to ensure the success of TQM implementation, thus increasing the performance of the organization. As reported in previous studies, numerous researchers have indicated a significant relationship between quality strategic planning and organizational performance (Li *et al*., 2003; Wu *et al*., 1997). The above discussion leads to the following hypothesis to be tested:

H_{1b}: There is a relationship between quality strategic planning and organizational performance

As commonly reported in the TQM literature, the highest goal of TQM is to fulfill and satisfy the customers' reasonable needs. Therefore, a TQM implementation is considered a failure if it fails to consistently add value for customers (Thiagarajan & Zairi 1997c). In order to meet the customers' expectation, the TQM organization should focus on the all product and services characteristics that contribute value to the customer and lead to customer satisfaction (Hunt, 1995). In achieving this objective, the interaction between organization and customer is really important (Flynn *et al*., 1995). Through interaction with customers, an organization will be able to determine the

specifications that are critical to the customer by getting many important direct inputs from the market. Among the effective ways that can be practiced to interact with customers include direct customer relationship as well as developing databases on customers needs.

By institutionalizing a customer focus practice, an organization tries to deliver services or produce products timely and at a reasonable price that can satisfy their customers' needs. In other words, organizations that are able to satisfy their customers are actually having a good work process and good cost management. The implementation of TQM also encourages organizations to continually look for new ways to meet customers' needs, interests and expectations (Juran, 1988). In service organizations like the local government, customer satisfaction depends much on the ability of employees to serve and deliver good service. Employees who are satisfied with their job perhaps are able to provide better service to satisfy their customers. Therefore, the institutionalization of customer focus not only brings positive impact on customer satisfaction, but is also able to provide benefits on better internal process, cost management and employee satisfaction. As reported in the literature, there is much evidence indicating that customer focus can result in good organizational performance (Jacob *et al*., 2004; Llorens Montes & Verdu Jover, 2004; Madu *et al*., 1995; Yasin *et al*., 2004). Thus, the above arguments lead this study to hypothesize:

H_{1c}: There is a relationship between customer focus and organizational performance

The essence of benchmarking practice is to gain competitive advantage through a strict and systematic comparison. Benchmarking refers to measuring and analyzing product, services and techniques of leading competitors in the same sector, or leading organizations in other sectors but producing product, delivering services or using similar techniques (Ahire *et al*., 1996). In other words, benchmarking practice promotes organizations to remain at the first in benchmarked criteria. Criteria that can be benchmarked include cost savings, internal process efficiency, customers' satisfaction and also employees' satisfaction. Without doubt, benchmarking can be used to improve the various dimensions of organizational performance. As reported in the literature, many previous quality management studies have revealed a strong relationship between benchmarking and organizational performance (Ahire *et al*., 1996; Arawati, 2005; Powell, 1995; Sanchez-Rodriguez & Martinez-Lorente, 2004). In line with the above discussion, the following hypothesis is forwarded:

H_{1d}: There is a relationship between benchmarking and organizational performance

This study integrates the definition of TQM oriented HRM forwarded by Tari (2005) and Ahire *et al*. (1996). As defined by Tari (2005), TQM oriented HRM refers to practices such as '*the involvement of all members in the firms, training, and work teams*' (p.187). Slightly different with Tari (2005), Ahire *et al*. (1996) proposed TQM oriented HRM as consisting of employee involvement; employee training; and employee empowerment. By integrating these two

definitions, this study operationalized the TQM oriented HRM strategy as represented by four HRM related practices, namely employee empowerment, employee training, employee involvement, and teamwork. It is well recognized that the human resource of an organization is the most strategic asset for any organizations (Arawati, 2005). However, as commonly discussed in the literature, a certain group of organizational members tend to be skeptical towards TQM efforts. Therefore, all of these HRM practices are an important package before the TQM philosophy can be fully internalized by the organizational members. The brief explanation of each practice is presented in the succeeding paragraphs.

Empowerment: Employee empowerment plays the key role in providing assurance of success in TQM initiative. As proposed by Gatchalian (1997), if empowerment at all levels in the organization is insufficient, it probably leads to TQM failure. Thus, employees should be empowered to plan and perform their own responsibility based on their skills and experience in such jobs. Rationally, employee empowerment is crucial to develop trust, openness, a high sense of responsibility and commitment towards organizations.

Training: Empowerment is alarming without having adequate training. As an analogy, it is like giving a driving license to a potential driver without providing enough knowledge on how to drive safely. Therefore, achieving the highest benefit of TQM implementation requires organizations to institutionalize a well-planned and a well-executed quality related training (Arawati, 2005). The

quality related training is an important means for educating the employees on the issues concerning TQM. For example, in a previous study by Antony, Leung, Knowles and Gosh (2002), the TQM related training was revealed as the most important factor for the successful implementation of TQM in Hong Kong.

Teamwork: People who are empowered and have quality related training is not fully effective without having good teamwork. As commonly elaborated in TQM literature, TQM cannot be successfully implemented by an individual, but rather by the collective effort of the entire organizational members. Thus, Juran (1988) strongly promoted the practice of teamwork.

Involvement: People who are empowered, having adequate quality related training and working collectively in a work team are not fully recognized without being involved in the decision making process. Therefore, the implementation of TQM needs extensive involvement and participation of every organizational member and not just members or employees in quality department.

As presented in the preceding paragraphs, TQM oriented HRM strategy consisted of four HRM related practices, namely employee empowerment, employee training, employee involvement, and teamwork. Through an effective training programme, employees can understand what is important and needed to be performed, thus leading to better work performance. Additionally, employee empowerment and involvement are able to provide motivation for employees,

thus increasing employee satisfaction. With better training, perhaps the defect rate also can be decreased thus achieving better financial performance. As reported in the literature, numerous studies have identified the relationship between human resource management and organizational performance (Arawati, 2005; Flynn *et al*., 1995; Khairul Anuar *et al*., 2001; Llorens Montes & Verdu Jover, 2004; Madu *et al*., 1995; Powell, 1995; Sanchez-Rodriguez & Martinez-Lorente, 2004; Yasin *et al*., 2004). The above discussion leads to the following hypothesis to be tested

H_{1e}: There is a relationship between human resource management and organizational performance

The supplier plays a significant role in determining the success of TQM. It has been promoted that, the quality of product produced depends much on the quality of material supplied by the supplier (Ahire *et al*., 1996). Given the importance of the suppliers' role, Deming (1986) in his 14 points stressed that organizations should end the practice of selecting suppliers based on price quotation *per se*, but build up strong relationships with fewer qualified suppliers. A qualified supplier refers to a supplier that is good in terms of reliability, competence and cooperation (Ahire *et al*., 1996; Ittner, Larcker, Nagar & Rajan, 1999). Moreover, a qualified supplier must be able to meet the predetermined organization's specifications and requirements, which in turn increases the quality of products produced.

In many cases, the price that is paid for a qualified supplier is perhaps higher than other suppliers. However, the qualified supplier is able to provide

quality inputs, which in turn decreases the probability of producing defect products. With a lower work defect, cost of quality for a product would decrease. In another perspective, quality material would also lead to better work process, which in turn increases the level of employees' satisfaction. Additionally, with a decrease in quality cost, organizations would be able to produce products at reasonable cost, thus, being able to sell products at a reasonable price and simultaneously exceeding the customers' expectations. Without doubt, long-term relationship with a qualified supplier as well as quality based supplier selection would be able to bring positive consequences to organizations. In previous empirical studies, numerous researchers recognized the relationship between supplier relationship and organizational performance (Ahire *et al*., 1996; Arawati, 2005; Ittner *et al*., 1999; Saraph *et al*., 1998). The above discussion leads to the following hypothesis to be tested

H_{1f}: There is a relationship between supplier relationship and organizational performance

TQM philosophy is built on the spirit of continuous improvement effort by the entire organizational members (Benavent, Ros & Moreno-Luzon, 2005; Deming, 1986) in order to fulfill customers' satisfaction (Gatchalian, 1997). As prescribed by Deming (1986), organizations should improve constantly the system of production and service so as to improve quality and productivity; and then constantly decrease costs. However, today's organizations should expand their continuous improvement practice beyond the context of products and direct processes, where the organization's management itself needs to be continuously

improved (Benavent *et al*., 2005). In other words, quality improvement is not a specific-time agenda but a continuous journey and involves every element of the organization. The institutionalization of continuous improvement philosophy in today's organizations should be stressed by leaders of all organizations due to the increasing level of competition, globalization and the dynamic environment. Given the new market conditions, the effort to satisfy the customer's needs and expectations become tougher and more complex. Therefore, consistent customer satisfaction can be achieved only through continuous improvement effort (Dean & Bowen, 1994). In order to support the continuous improvement effort, excellent quality information systems including gathering, analysis and feedback systems are a must (Escrig-Tena, 2004). As reported in the literature, there is also much evidence indicating that continuous improvement can result in good organizational performance (Anderson *et al*., 1994; Flynn *et al*., 1995; Li *et al*., 2003; Llorens Montes & Verdu Jover, 2004; Powell, 1995). The above discussion leads to the following hypothesis to be tested

H_{1g}: There is a relationship between continuous improvement and organizational performance

In an information systems text, information systems are defined as the combination of hardware, software, people, procedures and tasks that manage and support management in achieving the intended goals (Long, 1989). Given the definition of information systems forwarded by Long (1989), quality information systems are defined as the combination of hardware, software, people, procedures

and tasks that accumulate, store, analyze and disseminate quality related information in harvesting the TQM initiatives.

As documented, the establishment of effective quality information systems is strongly promoted in assuring the success of TQM (Ahire *et al*., 1996). Given its important function, most of the national quality awards, including the MBNQA award, clearly states quality information systems as one of the important criteria that must be effectively managed by TQM organizations (Kartha, 2004). Due to the promising development of current information communication technology (ICT), organizations with a good quality information system would be able to institutionalize better data collection procedures, presentation and dissemination of quality data, and the use of quality data (Saraph *et al*., 1989).

As can be seen, numerous TQM researchers have documented the significant relationship between quality information systems and organizational performance (Flynn *et al*., 1995; Sureshchander *et al*., 2001). Additionally, the information systems literature is replete with research that revealed the significant relationship between organizational performance and strategy related information systems (Brown, Gatian & Hicks, 1995; Dejnaronk, 2000). For instance, the institutionalization of customer-focused related information systems may lead to higher customer satisfaction, which in turn may resul in greater customer loyalty, thus, decreasing the future advertising cost. Therefore, the quality information systems institutionalized by a local government is hypothesized to positively

affect their organizational performance. The above discussion leads to the following hypothesis to be tested

H_{1h}: There is a relationship between quality information systems and organizational performance

A good service design contributes towards improvement in reputation, reduction in customer complaints as well as better service delivery of an organization (Lakhe & Mohanty, 1995). With a good service design, the TQM organization should be able to improve service performance in various dimensions. As has been detailed in Chapter 2, there are five important dimensions of service quality, namely tangible, reliability, responsiveness, assurance, and empathy (Parasuraman *et al*., 1998). Rationally, the improvement in all of these service quality dimensions should result in increased customer satisfaction. For instance, a shorter time taken to respond to customers' needs improves the accessibility of the service offered, thus, satisfying the customer timely. A satisfied customer or constituent for a local government translate into increased local sense and further increased the collection of assessment tax, parking collection, summonses payment, less vandalism as well as the establishment of new development area, which in turn contributes to higher revenue for local government.

In another perspective, good service design leads to better work process, which in turn contributes to significant reduction in cost of poor quality such as scrap, rework, late deliveries, legal cost as well as environmental cost.

Essentially, the financial performance of an organization can be improved in two ways, namely increased revenue and decreased cost. As proven in TQM literature, both of these goals can be fulfilled through the implementation of TQM (Arawati, 2005; Flynn *et al*., 1995; Khairul Anuar *et al*., 2001). Additionally, much previous quality management studies have revealed a strong relationship between service design and organizational performance (Anderson *et al*., 1994; Flynn *et al*., 1995; Llorens Montes & Verdu Jover, 2004). The above discussion leads this study to present the following hypothesis to be tested:

H_{1i}: There is a relationship between service design and organizational performance

Social responsibility is among the main criteria of MBNQA evaluation (Allyn & Bacon, 1992). In practicing social responsibility, a TQM organization should address and have a high sense on the issues of health and safety of their employees and public at large. By promoting a healthier and safer working environment and work procedures accordingly with the requirements of Occupation Safety and Health (OSH) Act, perhaps the probability of employees getting involved in work related accidents is lessened. Consequently, the cost that is incurred and borne by an organization for employees' medical treatment, insurance and legal costs are lower.

Additionally, TQM organization should produce products or deliver services that do not harm their customers. With a good and safe product, an organization would be able to portray a good image among their customers. For a

local government, a good image among their constituents is very important. With a good image, a local government will be easily supported by their constituent on any programme introduced by them, which in turn increases the tax assessment collection. Subscribing to this discussion, this study infers that TQM organization with a high sense of social responsibility would be able to bring about a positive impact not only for their customers and employees but also for better work processes and cost management.

The value of social responsibility is not new in quality management literature. Ishikawa (1985) and Taguchi (1986) for example, see the quality scope as extending beyond the organizational boundaries and consider its impact on the public society. In the same vein, Puay, Tan, Xie and Goh (1998) did a comparative study of nine major national quality awards and reported that social responsibility is recognized as an important factor of TQM which takes a long-term perspective. Despite the fact this practice does influence the formation of customers' quality perceptions, it had received less attention in the TQM literature (Sureshchandar *et al*., 2001). In addition, there have been limited previous studies that investigated the relationship between social responsibility and organizational performance. However, some of previous studies have recognized social responsibility as one of the critical factors of TQM success (Chuan & Soon; 2000; Silvestro, 1998; Sureshchander *et al*., 2001). Chuan and Soon (200), for example, found that social responsibility as one of the major criteria evaluation in 17 national quality awards worldwide. Thus, this study acknowledged social

responsibility as one of the critical factors of TQM strategy. In line with the above discussion, the following hypothesis is suggested to be tested:

H_{1j}: There is a relationship between social responsibility and organizational performance

4.3.2 The Relationship between TQM Strategy and SCS

TQM is an emerging organizational strategy for satisfying customers' reasonable expectations. Given its promising potential, TQM has been widely promoted in the scholarly literature of strategic management, management accounting, marketing, operations management as well as public administration. However, a strategy is only a means to an end (Zakaria, 1999). The other side of the token, control systems is an important facet of organizational design that must be institutionalized to monitor, evaluate and measure the progress of intended strategy. In an empirical study, Govindarajan and Gupta (1985) found that the design of control systems was contingent upon the strategy choice of the organization. The authors also advocated that the establishment of strategy focused control systems was needed to monitor the implementation of organizational strategy. Their finding provides evidence to support the spirit of contingency theory. As forwarded by various proponents of contingency theory, this theory assumes that a close link exists between organizational strategy and control systems. The premise of this theory is that organizational control systems are determined by the type of organizational strategy.

In discussing the suitable control systems for TQM, and in line with the premise of contingency theory, management accounting literature recognizes the short-term perspectives of traditional control systems as being somewhat a misfit for long-term strategy like continuous improvement initiatives to be effectively and efficiently implemented (Chenhall, 2005; Hayes & Abernethy, 1980; Kaplan, 1983). As presented in the scholarly literature, many previous studies have shown that the types of organizational strategies have a significant relationship with the type of control systems. For instance, Daniel and Reitsperger (1991) found that companies following a zero defect quality strategy had modified their control systems to be aligned with the objectives of zero defect quality strategy. In another reported study, Sinclair and Zairi (2001) using case study found that TQM strategy had profoundly affected control systems in their studied organization. Other researchers like Ittner and Larcker (1997) also found a strong positive relationship between quality strategy and quality focused control systems. Given the findings of previous studies, it can be inferred that, the implementation of TQM will encourage organizations to utilize a suitable control systems, particularly TQM focused control systems.

As commonly reported in the TQM literature, most of TQM scholars portrayal TQM as a long-term strategy and its success cannot be precisely evaluated in a short period. Given its long-term focus, TQM implementors must make frequent monitoring, evaluation and feedback on their TQM implementation in order to continuously achieve the TQM objectives. The institutionalization of

TQM requires a high level of employee involvement in order to inculcate the commitment towards TQM among employees. Apart from wide practice of employee involvement, an organization also requires a continuous improvement culture as a way of life among all organizational members. Given this culture and a new way of doing work, the TQM organization needs a TQM focused control systems, which is important to make TQM implementation successful. Hence, following the above explanation, this study hypothesizes:

H_2: There is a relationship between TQM strategy and SCS.

4.3.3 The Relationship between SCS and Organizational Performance

As defined by Schendel and Hofer (1979), SCS is an important control systems for strategy implementation. As documented by them, the ultimate goal of institutionalizing SCS is assuring the achievement of predetermined goals of an organization. In order to perform well, SCS plays the function of monitoring, communicating, measuring, reviewing and analyzing the progress of organizational strategies. Given its strategic focus, the establishment of SCS can be hypothetically assumed to have a positive relationship with organizational strategy related performance. As empirically proven in the literature, many studies have reported the positive relationship between SCS and organizational performance (Goold & Quinn, 1993; Merchant, 1982; Moura E Sa & Kanji, 2003). Merchant (1982) stated that the institutionalization of suitable control systems would lead an organization to perform well. Additionally, Goold and Quinn (1993) using case study, found that SCS had benefited an organization in

achieving greater clarity in planning as well as encouraging higher standards of performance. Therefore, these arguments lead to the following hypothesis:

H_3: There is a relationship between SCS and OP.

4.3.4 The Structural Relationship between TQM strategy, SCS and OP

The first hypothesis of this study discussed the relationship between TQM as an independent variable and SCS as a dependent variable, and the third hypothesis of this study articulated the relationship between SCS as an independent variable and OP as a dependent variable. These first and third hypotheses therefore, lead this study to consider the SCS as a mediating (intervening)[18] variable between the TQM and OP. As presented in Chapter 1 of this thesis, the fourth research question of this study was focused on examining the structural relationship between TQM and OP mediated through the presence of SCS. Here, this study presents discussion that lead to the development of the hypotheses thus answering the fourth research question.

After completing an extensive review of TQM scholarly literature, Sila and Ebrahimpour (2002) concluded that previous empirical evidence on the relationship between TQM and organizational performance had revealed inconsistencies in findings. In response to these conclusive results, Ehigie and McAndrew (2005) suggested that future researchers need to investigate variables

[18] A dependent variable is directly caused by an independent variable. An intervening (mediating) variable is caused by an independent variable and causes a dependent variable. A moderator variable affects the relationship between an independent and dependent variable but does not have a bivariate relationship with either the dependent or independent variable (Shields, Deng & Kato, 2000, p.185).

that could influence the success of TQM implementation. Among key variables that have been widely discussed in the literature and able to shed a light in explaining the relationship between organizational strategy and strategy related performance is control systems. As can be reviewed in management accounting literature, the discussion about the control systems that is required for TQM strategy to be successful has received much attention (Andersen *et al*., 2004; Daniel & Reitsperger, 1991; Ittner & Larcker, 1997; Selto *et al*., 1995).

The relationship between TQM and organizational performance is not restricted to the direct relationship; perhaps it could be indirect through the presence of SCS. As reported by Horovitz and Thietart (1982), the use of the suitable control systems is among the prerequisite for a strategy to be successful. The implementation of TQM strategy, for example, cannot be separated from organizational structure like control systems (Othman, 2000) since the organizational control systems have an important role in supporting TQM implementation (Moura E Sa & Kanji, 2003). As such, the function of organizational control systems is to monitor the development of TQM strategy towards the predetermined goals.

Additionally, Chenhall (2003) claimed that the appropriate organizational control systems must exist to support TQM strategy. In line with Chenhall (2003), Daniel and Reitsperger (1991) also found that the organizational control systems must be consistent with TQM strategy to gain good organizational performance.

Drawing from the findings of Daniel & Reitsperger (1991) as well as the premise of contingency theory, this study postulates that TQM can be implemented more successfully through the presence of TQM focused control systems. This structural relationship is also in line with the concept of 'fit as mediation' proposed by Venkatraman (1989) as discussed in section 3.9. In line with the above discussion, this research hypothesizes:

H_4: The structural model of TQM strategy and organizational performance is mediated by strategic control systems.

4.4 Conclusion

This chapter has put forth the research model of the study followed by the series of hypotheses developed in line with the research model as well as problem statement, research questions, and objectives of the study. The research framework was generated based on the ten critical factors of TQM strategy, SCS and four dimensions of organizational performance. The research framework of the study follows the perspectives 'fit as mediation' as proposed by Venkatraman (1989) as well as the 'strategy implementation school' of Venkatraman and Camillus (1984). By referring to the classification of contingency research of Fisher (1998), the research framework of the study can be classified as level two analysis, where it portrays the joint effect of strategy variable and control systems variable on performance variable.

CHAPTER 5

RESEARCH METHODOLOGY

5.1 Introduction

This chapter discusses the methodology of the study. Specifically, this chapter elaborates on issues on types of data, sample size, sampling procedure, data collection, questionnaire design, measurement, pilot study, reliability and validity tests as well as the statistical procedure for data analysis.

5.2 Nature of this Study

Generally, social research can be divided into four main broad categories, namely descriptive, correlational, experimental and quasi experimental (Leary, 2004). As this study investigates the relationship between various variables as depicted in the model of the study, this study can be categorized as a correlational study. However, as a correlational study, it cannot reveal whether one variable causes the other. Correlational studies are always conducted in the natural settings, and correlational studies done in organizations are called field studies (Sekaran, 2003). Since this study used a survey approach to collect the data and discover the relationship between variables under study,

this kind of study can be classified as 'field study with a quantitative orientation' or 'correlational research design' (Kerlinger & Lee, 2000, p.599).

Survey research has several advantages as synthesized by Zakaria (1999). After reviewing several major research method books, he listed the advantages of using survey as given in Figure 5.1.

1. The scope and coverage is wider. More information can be captured as compared to other methods.
2. Although surveys are more expensive than laboratory and field experiments, the amount and quality of information they yield are more economical. Survey is more expensive and obviously time consuming. But since a wider cross-section of the respondents can be selected, more information can be obtained.
3. Survey research information is also accurate (within sampling error).
4. A large number of cases studied in a given survey, provided opportunity for findings to be replicated among several subsets of the survey sample. The replication of a particular finding among different subgroups strengthens the assurance that it represents a general phenomenon in society. Furthermore, careful reporting of the methodology of a given survey promote replication by other researchers among other samples and subgroups.

Figure 5.1: Advantages of Survey
Source: Zakaria (1999, p.127)

5.3 Unit of Analysis

Unit of analysis of the study is the department of City Council (CC) and Municipal Council (MC). Following Hepworth (1998), the introduction of new management initiatives did not only provide benefits at wide organizational level but at all management levels. However, most of the previous studies in the management accounting and TQM literature were done at wide organizational levels rather than at departmental levels.[19] Thus, this study attempts to contribute to our limited knowledge of TQM and SCS at departmental level.

This research used the department of CC and MC due to their bigger sizes and more complex structures than District Council (DC). Previous research on control systems in accounting literature, for example, used to select bigger organizations as surrogate for organizations with more formal control (e.g.; Mohd Yusoff *et al*., 2001; Poister & Streib, 1999; Widener, 2004; Williams *et al*., 1990). For instance, Williams *et al*. (1990) used only departments of public sector that contained 30 to 50 full-time members. He argued that the bigger department was expected to have more prevalent control systems. Thus, for the purpose of this study, the status of Council (District, Municipal or City) is more 'appropriate' and thus reasonable to make the assumption that Municipal and City Councils have more formal control systems as compared to the District Council. By having this sampling criterion, it is perhaps possible to eliminate the possibility of including very small local councils that might not have formal control systems.

[19] Issues regarding organizational level are inherent and unavoidable in organizational research (Rousseau, 1985, p.31). Different organizational level needs different discussion of conceptual and methodology.

As reported by MAMPU (www.mampu.gov.my), CC and MC are more successful than DC. It has been proven from the list of quality award winners as reported by the official website of MAMPU (2005). Thus, CC and MC are more appropriate to be investigated. Moreover, the approach of selecting big organizations as samples of the study was consistent with the approach of previous studies (e.g. Antony *et al*., 2002). The bigger organizations were believed to have a better and more prevalent quality policies. By focusing on the bigger size of local governments the effect of the 'size' can be controlled[20], thus providing more convincing findings. The previous studies reported that there were significant differences in the relationship between TQM and organizational performance across different sized organizations (Gustafsson & Nilson, 2003; Madu *et al*., 1995; Terziovski & Samson 1999)

Additionally, Mahamad (1996) in his study of Malaysian local governments found that MC had better management practices than DC. In other words, DC is less appropriate to be chosen as samples of this study due the lack of effective and efficient data collection systems (Mahamad, 1996). As suggested in the literature, without an effective data collection system, effective control systems are difficult to be implemented (Ho & Chan, 2002; Chan, 2004). However, better management practices do not promise lesser problems. For instance, Mahamad (1996) further revealed that MCs had more problems than DCs, thus needing more attention from researchers.

[20] The third variable (threats to internal validity) can be controlled through a study's sampling procedure or through explicit inclusion of third variables in a multivariate analysis (Salipante, Notz & Bigelow, 1982, p.337).

5.4 Respondents

The respondents of the study were Heads of Department (HOD). Following Poister and Streib (1999), HOD are more directly involved with managing programmes of local government, while Mayors or City Council Members tend to function in a more oversight role. Based on this argument, perhaps, they were the most representative respondent for this study. Moreover, they are most familiar with their departments' practices and performance results. Addressing survey to appropriate respondents is vital due to the fact that the inappropriate respondents had been a source of inaccurate responses in previous management accounting research using survey methods (Skinner, 1993).

5.5 Population and Sampling Frame

The target population of the study was defined as all departments of City and Municipal Councils in Peninsular Malaysia. Following the latest information from Local Government and Housing Ministry, there are 35 local governments with City or Municipal Council status in Peninsular Malaysia. The newest Municipal Council is Sepang Municipal Council (previously known as Sepang District Council) which has been conferred as Municipal Council since 3 March 2005. The newest City Council is Petaling Jaya City Council which was conferred as City Council on 20 June 2006.

Table 5.1 tabulates the number of existing departments by each city council and municipal council in Peninsular of Malaysia. As can be seen, the total number of existing departments is 341. However, 36 departments were involved at the pilot study stage.

Therefore, the balances of 305 departments were considered as the sampling frame for the main field work. The sampling frame of this study was developed by using three reliable resources, namely official websites of related local governments, and direct contact with officers from related local governments by using email or telephone. The latter approach was used due to the technical problem with official websites of related local governments during the data collection process. For example, Sungai Petani MC did not have an official website, thus a call was made to their Public Relation Officer. Kulim MC did not have such information eventhough they have their official website, thus a call was made to their Head of Administrative Department. Langkawi MC did not develop an official website, thus a call was made to their HOD of Management. Information about Teluk Intan MC was e-mailed by their officer.

Table 5.1: Existing Department by Local Government in Peninsular of Malaysia

Local Government	Existing Department
City Council	
Kuala Lumpur	22
Johore Bharu	7
Alor Star	8
Malacca	13
Ipoh	9
Shah Alam	12
Petaling Jaya	14
Municipal Council	
Batu Pahat	6
Johore Bharu Tengah	9
Kluang	6
Muar	7
Sungai Petani	10
Kulim	10
Langkawi	8
Kota Bharu	**8**
Alor Gajah	11
Seremban	**11**

Table 5.1: Existing Department by Local Government in Peninsular of Malaysia (Cont'd)

Local Government	Existing Department
Nilai	6
Port Dickson	9
Kuantan	11
Temerloh	13
Manjung	10
Taiping	8
Kuala Kangsar	7
Teluk Intan	8
Kangar	8
Pulau Pinang	10
Seberang Prai	10
Ampang Jaya	10
Kajang	**10**
Klang	10
Selayang	11
Subang Jaya	9
Sepang	7
K. Terengganu	**7**
Kemaman	6
Total population	341

Source: Developed by researcher based on information of every local government

5.6 Sample Size

The determination of sample size depends on a number of factors including homogeneity of sampling unit, confidence, precision, statistical power, analytical procedure, cost, time and personnel (Davis 2000):. However, there are various suggestions for determining sample size.

Following the rules of thumb by Roscoe (1975), a sample size larger than 30 and less than 500 are appropriate for most researches. However, in multivariate analysis, the sample size should be several times (preferably 10 times or more) as large as the number of variables in the study.

However, the adequacy of sample size should also be determined according to the statistical analysis that was performed in this study. A few suggestions have been raised by authors on the minimum sample size needed for SEM analysis. As a rule of thumb, a minimum sample size of 100 is adequate for SEM (Medsker, Williams & Holahan, 1994). As suggested by Hair, Anderson, Tatham and Black (1998), the general rule for SEM is that 5 to 10 observations are required for each parameter estimated. However, it has also been suggested that a sample size of 200 may be required to generate valid fit measures (Kelloway, 1998; Marsh, Balla & McDonald, 1988).

As derived from the discussion in this section and also by taking into consideration the probability of non-response, the sample size of 250 was determined for this study. The sample size of 250 is 25% higher than the minimum sample size required for SEM analysis which is 200.

5.7 Sampling Procedure

Sampling is the process by which a researcher selects a sample for a study from the entire population (Leary, 2004). As commonly discussed in the research methods literature, sampling procedure can be broadly grouped into probability and non-probability sampling. There are four general strategies for probability sampling, namely: simple random sampling, systematic sampling, stratified random sampling, and cluster sampling. Probability sampling utilizes some form of random sampling in one or more of their stages. By using probability sampling, every subject in a population has an equal chance to be selected as a sample of the study. Conversely, non-probability sampling

does not utilize random sampling (Kerlinger & Lee, 2000). For the sake of representativeness, this study employed probability sampling (Krosnick, 1999). Moreover, the sample of this study that was selected by using the stratified cluster sampling covers a fairly good cross section of the local government in Peninsular Malaysia.

This study used stratified cluster sampling. Theoretically, stratification can be applied for any type of groups such as age, gender, economic status or geographical location (Beins, 2004). Eventhough the objective of this study was not to differentiate the information between each local government, but stratified cluster sampling approach can still be regarded as the most efficient design following the nature of this study. As discussed by Sekaran (2003), for groups with intragroup heterogeneity and intergroup homogeneity, cluster sampling is most appropriate. Generally, all local governments in Malaysia have the following characteristics:

- Governed under the same act, Local Government Act 1976
- Monitored by the same ministry, Ministry of Housing and Local Government
- Have similar functions, roles, objectives and types of activities as prescribed in Town and Urban Planning Act 976 and Road, Drainage and Building Act 1974.
- Minimal difference in the organizational structure of each local government

- Many departments with different kinds of objectives, functions and activities within each local government. For instance, the Town Service Department and the Engineering Department.

Given the above characteristics of the Malaysian local government, cluster sampling was used. As documented by Davis (2000), cluster sampling is one of the methods more widely used in large scale studies. However, cluster sampling is exposed to larger errors than other probability sampling. This larger error occurs because the selection of each sampling unit within the cluster is dependent on the selection of the cluster, although the cluster is randomly selected.

Therefore, in order to reduce the loss of precision from cluster sampling, selection of cluster was stratified according to the status of the local government. This procedure is reffered to as stratified cluster sampling (Davis, 2000), where it uses cluster at random from pre-specified strata. The succeeding paragraphs explain the details of the sampling process.

At the first stage, the local governments were stratified according to their status, either municipal or city council. At the second stage, all departments attached to city councils were selected due to the small number of departments involved. As given in Table 5.2, there are 85 departments attached to city councils. As discussed in the earlier section, the sample size of 250 was required for this study. Therefore, the balance number of sample, a total of 165 (250 – 85) was selected from departments attached to municipal

councils. The chosen municipal council was randomly selected. One common procedure to select sample randomly is to use a table of random numbers (Leary, 2004). However, due the small number of municipal councils, a step-by-step guidance of Leary (2004) was utilized as follows: (1) name of each local government was written on a slip of paper; (2) the slips of paper were shuffled; and (3) the slips were pulled out one by one until a number of the desired size was obtained.

Table 5.2: Existing Department by Each Local Government Understudy

Local Governments	Existing Departments
City Council	
Kuala Lumpur	22
Johore Bharu	7
Alor Star	8
Malacca	13
Ipoh	9
Shah Alam	12
Petaling Jaya	14
Municipal Council	
Batu Pahat	6
Jhr Bharu Tengah	9
Muar	7
Sungai Petani	10
Kulim	10
Langkawi	8
Alor Gajah	11
Port Dickson	9
Kuantan	11
Temerloh	13
Kuala Kangsar	7
Kangar	8
Pulau Pinang	10
Seberang Prai	10
Ampang Jaya	10
Klang	10
Subang Jaya	9
Kemaman	7
Required sample	250

5.8 Data Collection Method

There are several ways of administering questionnaires such as self-administered, postal, telephone, internet or fax. However, each approach has its strengths and limitations. In other words, there is no one method that is superior to the others in all conditions. Several factors should be considered in the choice of ways of administering questionnaires. Among them are researcher's preference, cost, time constraints, potential response rate and many other important criteria to a study (Frazer & Lawley, 2000).

Table 5.3: Criteria of Questionnaire Administration

Criteria	Mail questionnaire	Personal administered questionnaire	Telephone questionnaire	Internet questionnaire
Length of questionnaire	Long (4-12 pages)	Long (30-60 minutes)	Medium (10-30 minutes)	Long (4-12 pages)
Questionnaire complexity	Simple only	Simple to complex	Simple only	Simple only
Question complexity	Simple to moderate	Simple to complex	Simple only	Simple to moderate
Rapport with respondents	None	High	Moderate	None
Response rate	Low	Very high	Moderate	Moderate

Source: Frazer & Lawley (2000, p.3)

As depicted in Table 5.3, personally administered questionnaire method is superior to other methods in several criteria. Given its superiority and the difficulties faced in the data collection during pilot study, this study used the personally administered questionnaire approach. Sekaran (2003) for example, suggests that 'wherever possible, questionnaires are best administered personally to group of people' (p.236). Personally

administered questionnaires have several advantages. Personally administered questionnaire approach of data collection provides a high response rate, reduces interviewer bias and gives the benefits of mutual personal contact (Oppenheim, 2000). It also permits the researcher to provide necessary explanations to clarify doubts or to put additional necessary information to the respondents as well as it allows the researcher to collect all completed questionnaires within a short period of time (Hayes, 2000; Sekaran, 2003). The next paragraph discusses the process of administering the questionnaire in this study.

Although this study used personally administered approach, to approach each respondent personally, seems impractical as was experienced during the pilot study. The hectic working schedule of targeted respondents makes it impractical to reach each of them personally. Practicality was among the factors that was considered in executing data collection as discussed in the research method literature. Therefore, personal contact was limited to the researcher and the administration department of each local government. He or she was requested to be a coordinator to administer the research instruments within their local government. For protocol reasons, any outsider had to report to the administration department first before other departments could be approached. The purpose and the topic of the study were introduced and explained to the coordinator. A cover letter explaining the purpose of this study was also attached. A timeframe of up to two weeks was given to the respondents. Follow up calls were made to the coordinator. On completion, the research instruments were forwarded to the researcher in a ‘postal

express' enveloped provided by the researcher, so that the time taken for reply would be shorter.

In order to enlist support for this research, the respondents were given the assurance and guarantee of anonymity. As such, the set of questionnaire were not prenumbered for identification. In addition, the cover letter for the questionnaire indicated the guarantee that individual responses will not be communicated to anybody within or outside the organizations. Only summary data from the total responses from all respondents will be published, so that no information could be traced back to any particular respondent.

Since personal administered questionnaire was used and response rate is expected to be high, no test for non-response bias was considered necessary. This is consistent with the step taken by previous researchers. Govindarajan and Gupta (1985) for example, did not test for non-response bias since response rate in their research is high (82%). Merchant (1985) also did not test for non-response bias since the overall response rate for his study is 85%.

5.9 Questionnaire Design

Developing and designing a survey instrument is probably the most difficult stage of survey design (Beins, 2004). Basically, two important issues that need to be addressed are the content and presentation of the questionnaire. Looking from the aspect of content of the questionnaire, the research question plays a role of referral point in determining the

appropriate content (Bradburn, Sudman & Wansink, 2004). Given that the content of the questionnaire of this study was consistently aligned with the research questions and objectives of the study. Additionally, the content of the questionnaire was also supported by a thorough review of the literature as well as rigorous discussion with the experts in the related area, so the content of the questionnaire reflects what it is supposed to measure.

Besides its content, questionnaire format is also critical for a scientific research. Basically, developing a good questionnaire format requires a good understanding on the issues of wording of the questions, the response choices, the instructions as well as the sequence of the questions (Synodinos, 2003). In this study, the wording of the questions was ensured to be easy to read and is understandable. The instructions were clear and precise. The sequence of the items started with the simple and interesting questions, and be ended with the sensitive and classification type question. In other words, the sequence of the question was sure to have a good flow of the questioning process.

In terms of response choices, questions can be designed in the open-ended or close ended format. Following the context in which this study was performed, the closed ended format was used. As such, the hectic working environment of the targeted respondents was taken into consideration. Several advantages can be gauged by having closed ended questions. For example, respondents would be able to make quick decisions to choose among the several alternatives. Closed ended questions would also help the

researcher to code the information easily for subsequent data analysis (Beins, 2004; Hayes, 2000; Oppenheim, 2000; Sekaran, 2003).

The questionnaire was also referred to a research method lecturer at the Universiti Utara Malaysia, for his expert opinion of the instruments. After having discussions with four academicians and four practitioners about the nature of this study, a questionnaire in Bahasa Melayu was considered more appropriate to be used as compared to English.

The questionnaire of this study was printed in a booklet format. Three advantages of using booklet format were outlined by Bradburn *et al*. (2004). First, booklet format prevent pages, particularly rear pages, from being lost. Compared to a single corner staple format, rear pages may get torn off during data collection or data processing. Second, a booklet format makes it easier for respondents to turn the pages. Third, a booklet format is handy, looks tidy and professional.

5.9.1 Scale Design

One important aspect that must be scrutinized when designing a questionnaire is constructing a rating scale (Bradburn *et al*., 2004; Krosnick & Fabrigar, 1997). Therefore, this section is devoted to discuss the issues of number of scale points; label of scale points; and reversal of scale points. As documented by Krosnick (1991), longer scale had the potential to convey more useful information but using too many scale points might reduce the clarity of meaning of the response options. Consequently, Krosnick and his co-author (1997)

suggested that the optimal length of a rating scale was five (5) to seven (7) points. However, McKelvie (1978) found that cross-sectional reliability was greater for 5-points than 7-points. Thus, this study used the 5-points rather than 7-points.

Another equally important design issue is about labelling the scale points. Krosnick and Fabrigar (1997) list two reasons to expect that verbally labelling all scale points might improve data quality: (1) because people rarely express complex conceptual meaning in everyday conversation via numbers, thus verbal label might be a more natural and easier method for respondents to express themselves; (2) numbered scale points have no inherent meaning, other than to suggest equal division between the concept established by verbal label. Therefore, they concluded that including labels on all scales points could help to clarify the meaning of scale points. Other researchers, Dickinson and Zellinger (1980), found that most people preferred to use a rating scale with more verbal labels. In line with the evidence documented by Krosnick and Fabrigar (1997) and Dickinson and Zellinger (1980), this study uitilized fully labelled scales rather than partially labelled scales.

Another important aspect of a good research instrument is the reversal of certain part of the rating scale (Grove & Savich, 1979). The purpose of this format is to reduce the tendency toward stereotyped responses without properly screening the items asked. As suggested by Likert (1967), this format was able to identify the unreliable respondent who automatically chooses one end of the continuum

for all questions. As suggested by Likert (1967), half of the items in the questionnaire set should be in a reversal form.

Overall evidence from literature as have been discussed above, therefore, provide a strong support for recommending that five (5) scale points; fully labelled scale; and reversal points scale of certain parts of the questionnaire to be applied in developing the research instrument of this study.

5.10 Questionnaire Pretesting

Questionnaire pretesting was done by asking experts' comments on the questionnaire. This process can also help the researcher to determine the relevancy of the questions to the study (Bradburn *et al*., 2004). At this stage, a reviewer was asked to critic and comment on the appropriateness of the items and suggested certain changes to refine items of the questionnaire. For this purpose, the draft questionnaire was given out to four academicians and four TQM practitioners for them to fill in.

Although the items were derived from a extensive review of the scholarly literature, but several items were suggested to be reviewed and reconsidered for the following reasons:

- appropriateness of items in the Malaysian public sector context. For instance, instead of asking a question on the ability of local government in maintaining the staff, question on the ability of local government in maintaining the motivation of staff is perhaps more appropriate.

- some of the items were perceived by the reviewers as not being in the proper order. Thus, the order of these items was rearranged as suggested by them. The inappropriate order of the items would jeopardize the motivation of target respondents in giving responses to the items asked.

5.11 Measurement

This section discusses the development of the research instrument of this study. The closed ended questions were used to obtain the necessary data of the variables under study. The advantages of using closed ended questions have been discussed in section 5.9 of this chapter. All questions are presented in the form of five-point Likert scales. An average score was calculated for each of the constructs based on their respective items. Higher score indicates higher practice of TQM strategy, more intense use of SCS and better organizational performance.

5.11.1 TQM strategy

A review of past studies on TQM as presented in Chapter 2 indicates that there have been inconsistencies in the ways of measuring the construct of TQM strategy. For the purpose of comprehensively capturing the critical factors of TQM strategy, this study builds the construct for measuring TQM strategy on the basis of critical factors of TQM strategy as conceptualized and tested by previous TQM scholars. As depicted in the framework of the study, there are ten factors which represent TQM strategy, namely management commitment; strategic planning; customer focus; benchmarking; human resource management; supplier

relationship; continuous improvement; quality information systems; service design and social responsibility.

Management Commitment

The variable of management commitment was measured using five items as listed below. These items were derived from an extensive literature review. The items were anchored on a five-point Likert scale which are (1) strongly disagree; (2) somewhat disagree; (3) neither agree nor disagree; (4) somewhat agree; and (5) strongly agree. The average score of the responses to those five items was calculated. Thus, higher scores reflect higher commitment of management on the TQM strategy. The five items are:

i) Commitment of top management on quality initiatives (Ahire *et al*., 1996; Black & Porter, 1996; Powell, 1995; Saraph *et al*., 1989; Tamimi, 1995)

ii) Support for quality initiatives (Anderson *et al*., 1995; Black & Porter, 1996; Flynn *et al*., 1994; Li *et al*., 2003; Powell, 1995; Saraph *et al*., 1989; Tamimi, 1995)

iii) Participation in the quality initiatives (Black & Porter, 1996; Powell, 1995; Saraph *et al*., 1989; Tamimi, 1995)

iv) Evaluation of the achievement of quality initiatives (Powell, 1995; Saraph *et al*., 1989)

v) Review of quality issues in departmental meeting (Ahire *et al*., 1996; Black & Porter, 1996; Li *et al*., 2003; Saraph *et al*., 1989)

Strategic Planning

The extent to which an organization practices quality strategic planning was measured using four items as described below. The items were anchored on a five-point Likert scale: (1) strongly disagree; (2) somewhat disagree; (3) neither agree nor disagree; (4) somewhat agree; and (5) strongly agree. The average score of the responses to those four items was calculated. Thus, higher scores reflect higher practice of quality strategic planning.

i) Quality plans is comprehensive (Black & Porter, 1996; Li *et al*., 2003; Saraph *et al*., 1989)

ii) Quality plans consider the customer requirement (Black & Porter, 1996; Tamimi, 1995)

iii) Quality plans consider the department capabilities (Black & Porter, 1996; Li *et al*., 2003)

iv) Quality plan is an important agenda (Black & Porter, 1996; Li *et al*., 2003)

Customer Focus

The extent a unit of analysis practices customer focus was measured using five items. Respondents were asked to response to the following five Likert scale: (1) strongly disagree; (2) somewhat disagree; (3) neither disagree nor agree; (4) somewhat agree; and (5) strongly agree. The extent an organization practices customer focus was calculated by using the average score of the responses to these five items.

i) Customer feedback is used effectively (Ahire *et al*., 1996; Black & Porter, 1996; Li *et al*., 2003; Powell, 1995; Tamimi, 1995)

ii) Actively seeks way to improve quality of service (Ahire *et al*., 1996; Black & Porter, 1996; Li *et al*., 2003; Powell, 1995; Tamimi, 1995)

iii) Aware of the results of customer surveys (Ahire *et al*., 1996; Black & Porter, 1996; Li *et al*., 2003; Tamimi, 1995)

iv) Courteous behaviour is widely practiced (Sureschandar *et al*., 2002)

v) Customer complaints is given to manager (Black & Porter, 1996; Sureschandar *et al*., 2002)

Benchmarking

A five-item construct was used to measure the extent to which organization emphasizes benchmarking. The items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The score for the extent the organization utilizes benchmarking is computed by averaging the responses to the following five items to measure the variable of benchmarking.

i) Engaged in extensive benchmarking (Ahire *et al*., 1996; Black & Porter, 1996; Li *et al*., 2003; Powell, 1995)

ii) Benchmark the level of customer satisfaction (Ahire *et al*., 1996; Anderson *et al*., 1995; Black & Porter, 1996)

iii) Benchmark the service (Ahire *et al*., 1996; Black & Porter, 1996; Tamimi, 1995)

iv) Benchmark the service process (Black & Porter, 1996; Sureschandar *et al*., 2002)

v) Benchmark the level of servicescapes (Black & Porter, 1996; Sureschandar *et al*., 2002)

Human Resource Management

This variable is characterized by the practice of teamwork; employee training; employee involvement and employee empowerment. Eight items were used to measure this variable. These items were anchored on a five-point Likert scale: (1) strongly disagree; (2) somewhat disagree; (3) neither agree nor disagree; (4) somewhat agree; (5) strongly agree. The score for the extent the organization implements quality related human resource management was computed by averaging the score of the responses to the following eight items.

i) Practices teamwork (Ahire *et al*., 1996; Anderson *et al*., 1995; Dean & Bowen, 1994; Powell, 1995; Saraph *et al*., 1989; Tamimi, 1995)

ii) Quality related training is given (Ahire *et al*., 1996; Anderson *et al*., 1995; Black & Porter, 1996; Dean & Bowen, 1994; Li *et al*., 2003; Powell, 1995; Saraph *et al*., 1989; Tamimi, 1995)

iii) Quality related training is adequate (Ahire *et al*., 1996, Anderson *et al*., 1995; Black & Porter, 1996; Dean & Bowen, 1994; Li *et al*., 2003; Powell, 1995; Saraph *et al*., 1989; Tamimi, 1995)

iv) Resource for training is available (Ahire *et al*., 1996; Li *et al*., 2003; Saraph *et al*. 1989)

v) Employees responsible for error free output (Ahire *et al*., 1996; Powell, 1995; Saraph *et al*., 1989)

vi) Employees are encouraged to provide suggestions for continuous improvement (Ahire *et al*., 1996; Anderson *et al*., 1995; Black & Porter, 1996; Li *et al*., 2003; Powell, 1995; Saraph *et al*., 1989; Tamimi, 1995)

vii) Involvement of operational workers in quality related decision (Anderson *et al*., 1995; Black & Porter, 1996; Saraph *et al*., 1989)

viii) Employees are recognized for quality achievement (Anderson *et al*., 1995; Black & Porter, 1996; Saraph *et al*., 1989)

Supplier Relationship

The extent to which an organization practices quality related supplier management was measured using eight items. The items were anchored on five Likert scale ranging from 1 to 5 with the following indicators: (1) strongly disagree; (2) somewhat disagree; (3) neither agree nor disagree; (3) somewhat agree; and (5) strongly agree. The score for this variable was calculated by averaging the score of the responses to eight items of this construct.

i) Suppliers are selected based on quality supplier rating systems (Ahire *et al*., 1996; Black & Porter, 1996; Li *et al*., 2003; Powell, 1995; Tamimi, 1995)

ii) Criteria for selecting supplier is comprehensive (Ahire *et al*., 1996; Black & Porter, 1996; Li *et al*., 2003; Powell, 1995, Tamimi, 1995)

iii) Feedback is provided to supplier (Ahire *et al*., 1996; Black & Porter, 1996; Tamimi, 1995)

iv) Rely on reasonably few dependable suppliers (Ahire *et al*., 1996; Black & Porter, 1996; Tamimi, 1995)

v) Supplier involves in product development (Ahire *et al*., 1996; Black & Porter, 1996; Flynn *et al*., 1994; Li *et al*., 2003; Powell, 1995; Tamimi, 1995)

vi) Longer term relationship is offered to suppliers (Ahire *et al*., 1996; Black & Porter, 1996; Li *et al*., 2003; Tamimi, 1995)

vii) Specifications provided to supplier is understandable (Ahire *et al*., 1996)

viii) Suppliers have their own quality programs (Ahire *et al*., 1996; Black & Porter, 1996; Flynn *et al*., 1994; Li *et al*., 2003; Powell, 1995; Tamimi, 1995)

Continuous Improvement

The degree of continuous improvement practiced by the organization was assessed by five items. Respondents were asked to response to the following five Likert scale: (1) strongly disagree; (2) somewhat disagree; (3) neither agree nor disagree; (4) somewhat agree; and (5) strongly agree. The average score of these items was used to measure the extent the organization practices continuous improvement.

i) Quality initiatives is an ongoing process (Black & Porter, 1996; Powell, 1995; Sureschandar *et al*., 2002; Tamimi, 1995)

ii) Believes that 'continuous improvement' result in good performance (Sureschandar *et al*., 2002; Tamimi, 1995)

iii) 'Continuous improvement' is practiced in all operations (Anderson *et al*., 1995; Black & Porter, 1996; Powell, 1995; Sureschandar *et al*., 2002)

iv) 'Continuous improvement' is emphasized in training programme (Powell, 1995; Sureschandar *et al*., 2002; Tamimi, 1995)

v) 'Continuous improvement' overrides short-term result (Anderson *et al*., 1995; Sureschandar *et al*., 2002; Tamimi, 1995).

Quality Information Systems

The degree to which the organization has good quality related data and uses quality information systems was evaluated by using six items. A five-point Likert scale was used to gather responses with the following scheme: (1) strongly disagree; (2) somewhat disagree; (3) neither agree nor disagree; (4) somewhat agree; and (5) strongly agree. The score for the extent of having good quality related data and using quality information systems was evaluated by averaging the responses to six items of this variable.

i) Quality related data is well collected (Anderson *et al*., 1995; Black & Porter, 1996; Li *et al*., 2003; Powell, 1995; Saraph *et al*., 1989)

ii) Timeliness of quality related data (Black & Porter, 1996; Saraph *et al*., 1989)

iii) Availability of quality related data (Anderson *et al*., 1995; Black & Porter, 1996; Saraph *et al*., 1989)

iv) Quality related data is used to manage quality initiatives (Black & Porter, 1996; Saraph *et al*., 1989)

v) Quality related data is used to evaluate management performance (Black & Porter, 1996; Li *et al*., 2003; Saraph *et al*., 1989)

vi) Quality related data is displayed at work stations (Anderson *et al*., 1995; Black & Porter, 1996; Saraph *et al*., 1989)

Service Design

The variable of service design was measured using four items. The items were anchored on a five-point Likert scale: (1) strongly disagree; (2) somewhat disagree; (3) neither degree nor disagree; (4) somewhat disagree; and (5) strongly disagree. The average score of the responses to those four items was calculated. Thus, higher scores reflect higher practice of quality related service design.

i) New service design review is thorough (Saraph *et al*., 1989)

ii) Coordination among affected departments in the service development is organized (Saraph *et al*., 1989; Tamimi, 1995)

iii) Quality of new service emphasized in relation to cost objective (Black & Porter, 1996; Saraph *et al*., 1989)

iv) Quality of new service is emphasized in relation to human resource capability (Black & Porter, 1996; Saraph *et al*., 1989)

Social Responsibility

The extent to which the organization institutionalized social responsibility was evaluated by using four items. Three items were adopted from Black and Porter (1996). To better reflect the social responsibility variable, another one item was added. This is done to reflect the wider scope of current understanding of

social responsibility. The score for the extent of having good social responsibility was assessed by averaging the responses to four items of this variable.

i) Recognize the responsibilities to public health and safety (Black & Porter, 1996; Taguchi, 1986)

ii) Recognize the responsibilities for the environmental protection (Black & Porter, 1996; Taguchi, 1986)

iii) Recognize the responsibilities for the waste management (Black & Porter, 1996; Taguchi, 1986)

iv) Recognize the responsibility for the community service (Taguchi, 1986)

5.11.2 Strategic Control Systems

Acknowledging the fact that the SCS construct was defined in numerous and inconsistent ways in the previous reported empirical studies, this study used a strategy where one model was selected as a framework for the SCS framework, that was supported by other researchers. The framework of Kaplan and Norton (1996a) was selected as representing the core of SCS construct in this study because the model has been well recognized in the literature. Given that, the variable of strategic control systems (SCS) was operationalized using four dimensions of strategic control framework as suggested by Kaplan and Norton (1996a). The four dimensions refer to: (1) clarifying and translating the vision; (2) communicating and linking; (3) planning and target setting; and (4) strategic feedback and learning. The dimensions of SCS and related literatures are given in Table 5.4.

The extent to which an organization practices SCS was measured using eleven items. The items were anchored on a five-point Likert scale: (1) strongly disagree; (2) somewhat disagree; (3) neither agree nor disagree; (4) somewhat agree; (5) strongly agree. The average score of the responses to those eleven items was calculated. Thus, higher scores reflect a higher practice of SCS.

Table 5.4: Measurement of Strategic Control Systems

SCS dimensions	Items	References
Clarifying and translating the strategy	Translating the strategy into action that is understood	Ittner & Larcker (1997); Kaplan & Norton (1996a); Schendel & Hofer (1979); Sinclair & Zairi (2001)
	Strategy is translated into action that can be communicated	Ittner & Larcker (1997); Kaplan & Norton (1996a); Schendel & Hofer (1979); Sinclair & Zairi (2001)
	Gaining consensus among employee on strategy	Goold & Quinn (1990); Ittner & Larcker (1997); Kaplan & Norton (1996a)
Communicating and linking	Linking rewards to strategy	Goold & Quinn (1990); Ittner & Larcker (1997); Kaplan & Norton (1996a); Sinclair & Zairi (2001)
	Strategy is communicated to entire organization	Goold & Quinn (1990); Ittner & Larcker (1997); Kaplan & Norton (1996a)
	Strategy is translated into specific measures at operational level	Goold & Quinn (1990); Ittner & Larcker (1997); Kaplan & Norton (1996a); Schendel & Hofer (1979)
Planning and target setting	Resource allocation are based on quality initiatives	Goold & Quinn (1990); Kaplan & Norton (1996a)
	Having long-term plan for quality initiatives	Goold & Quinn (1990); Goold & Quinn (1993); Ittner & Larcker (1997); Kaplan & Norton (1996a); Schendel & Hofer (1979); Sinclair and Zairi (2001)

	Programme that are not contributing to quality initiatives are eliminated	Kaplan & Norton (1996a)
Strategic feedback and learning	Management review reports on quality plan, results and problems	Goold & Quinn (1990; 1993); Ittner & Larcker (1997); Kaplan & Norton (1996a); Schendel & Hofer (1979)
	Management gives feedback on quality program, results	Goold & Quinn (1990; 1993); Ittner & Larcker (1997); Kaplan & Norton (1996a); Schendel & Hofer (1979)

5.11.3 Organizational Performance

The items for measuring organizational performance were derived from a scholarly literature review as tabulated in Table 5.5. In this study, perceptual measures were used rather than objective measures. The objective measures of performance of local government under study such as actual absenteeism among staff and the customer complaint rate reside only at the wide organizational level and not at the departmental level. Moreover, a previous study found that the objective and subjective measures of performance had high levels of convergent validity[21] (Venkatraman & Ramanujam, 1986).

In this present study, organizational performance was measured using four generic dimensions of performance derived from the scholarly literature, namely, financial performance; internal process performance; employee performance; as well as customer performance. In total, seventeen items were used to measure organizational performance of the local government understudy.

[21] 'Convergent validity of the measures is provided by the extent to which it correlates highly with other methods designed to measure the same construct" (Churchill, 1979, p. 70).

The items were anchored on a five points Likert scale: (1) strongly disagree; (2) somewhat disagree; (3) neither agree nor disagree; (4) somewhat agree; and (5) strongly agree. The average score of the responses to those seventeen items was calculated. Thus, higher score reflect higher performance of local government understudy.

Table 5.5: Measurement of Organizational Performance

Dimensions / Items	Related source (Support for content validity)
Financial	
1.having good budget management	Chan (2004); Kanji, (2002)
2.operation cost saving	Chan (2004); Kaplan & Norton (1996); Kanji (2002)
3.increasing in productivity	Chan (2004); Kanji (2002); Van de Ven & Ferry (1980)
4. reduced unit cost of service delivered	Chan (2004); Kaplan & Norton (1996)
Customer	
1. having high community demand	Kanji (2002)
2. customer satisfaction	Chan (2004); Fuentes-Fuentes (2004); Kaplan & Norton (1996)
3. timeliness of service delivered	Chan (2004)
4. maintain good reputation	Chan (2004); Fuentes-Fuentes (2004); Kanji (2002); Van de Ven & Ferry (1980)
Employee	
1.maintain motivation of employee	Van de Ven & Ferry (1980)
2.having employee development programme	Chan (2004); Weerakon (1996)
3.maintain high level of employee health and safety	Chan (2004); Fuentes-Fuentes (2004); Weerakon (1996)
4.high job satisfaction among employees	Chan (2004); Fuentes-Fuentes (2004); Kaplan & Norton (1996); Weerakon (1996)
5.work climate support of obtaining department's objectives	Hoque (2004)

Table 5.5: Measurement of Organizational Performance (Cont)

Dimensions / Items	Related source (Support for content validity)
Internal Process	
1. has successfully identified the emerging needs of community	Fuentes-Fuentes (2004); Kaplan & Norton (1996); Kanji (2002)
2. has successfully introduced new product timely	Chan (2004); Kaplan & Norton (1996); Van de Ven & Ferry (1980); Weerakon (1996)
3. utilizes latest technology for increasing effectiveness	Kanji (2002)
4. has successfully developed procedure to improve quality of service offered	Kanji (2002)

5.12 Pilot Study

Several problems with the drafted questionnaire were rectified and corrected during the pretest process. However, this process was inadequate and must be followed by a pilot test procedure. If the pretest evaluation involved academicians and professionals, the pilot test procedure involved respondents similar to those who were sampled in the main study (Bradburn *et al*., 2004). The pilot test was done to: (1) rectify the problem of any difficulties in understanding and answering the questions, (2) determine questions that may be rephrased, (3) record the time taken to fill the questionnaire, and (4) test the goodness of the instrument. The following paragraphs explain the process of pilot test done in this study.

For the purpose of the pilot study, departments of Kota Bharu MC, Kuala Terenganu MC, Kajang MC and Seremban MC were selected. Kota Bharu MC has eight departments. Kuala Terengganu MC has seven departments. Kajang MC has ten departments. Seremban MC has eleven departments. Thus, 36 HODs were involved in

the pilot study. However, after finishing pilot study, only 31 HODs provided responses for analysis.

To reduce any misunderstanding that might arise from the unfamiliar terminology or jargon used, the respondents were asked to comment on the items. For this purpose, respondents were asked to indicate if they did not understand the meaning of any questions in the questionnaire set. As experienced during the pilot study, there was no evidence to indicate misunderstanding, misinterpretation or confusion of the items in the questionnaire set. After completing the pilot test, an analysis on the goodness of the instrument was performed.

5.13 Reliability and Validity Test

The reliability analysis of a measurement instrument is primarily a matter of consistency and repeatability. In other words, if a measurement is reliable, then the same results can be produced when the same object are measured repeatedly. Four methods can be used by researchers to estimate the reliability of their measurement namely as test-retest methods, parallel form or alternative form methods, split half method and cronbach alpha coefficient method (Sekaran, 2003).

However, the first three methods have been criticized for their weaknesses (Davis, 2000). The test retest reliability may produce lower reliability over time due to the changes in the subject form from time to time. Alternative form method is impractical and costly because the researcher needs to develop a different but equivalent form of the

scale. The split half method of reliability assessment would give different coefficients of reliability depending on the way in which the items were divided. However, the weaknesses attached to the first three methods can be overcome by applying the cronbach alpha method. Given its practicality, most of the social science researchers have used this method as compared to the other methods (Davis, 2000).

Due to its practicality, this study used Cronbach's alpha coefficient to evaluate the reliability of the instrument. The Cronbach's alpha coefficient indicates the percentage that the items on the measure are systematically assessing the same construct. A high Cronbach's alpha indicates that items in the sample do have an equal share in describing that specific scale. In fact, there is no solid answer but arbitrary rules on the acceptable level of a reliability coefficient. However, Nunnally (1978) suggests these minimum standards to be followed: Cronbach alphas 0.7 for exploratory research, Cronbach alphas 0.8 for basic research and Cronbach alphas 0.9 for research on very critical issues and have specific scores of measurement. In this study, the reliability analysis was performed separately for the items of each construct under study. If any items must be deleted to increase the Cronbach's alpha, then the item-construct inter-correlation matrix would be used to determine which items contributed least, and which were to be removed.

The analysis of inter item-construct correlation is tabulated in Table 5.6. The table reports the coefficient correlation for the all constructs and the measurement items used in this study. This analysis was performed according to the procedure developed by Nunnally and Beinstein (1994). Given that the score of the constructs were measured by

averaging the score of items of related constructs. For example, the score of management commitment (A), was measured by averaging the score of item 1 to item 5 of the management commitment (A). Therefore, the correlation between items associated with management commitment (A) and the score of management commitment (A) was expected to be higher than the correlation between items of management commitment (A) and other constructs.

As can be seen in Table 5.6, item 1 of management commitment (A) has correlation of 0.783 for management commitment (A); 0.552 for strategic planning (B); 0.692 for customer focus (C); 0.574 for benchmarking (D); 0.690 for human resource management (E); 0.342 for supplier relationship (F); 0.393 for continuous improvement (G); 0.476 for quality information systems (H); 0.525 for service design (I); 0.129 for social responsibility (J); 0.625 for strategic control systems (K); and 0.414 for organizational performance (L). Given the correlation between item 1 of management commitment (A) and construct of management commitment (A) was the highest as compared to other coefficient correlations, it indicated that the item 1 of management commitment (A) has been appropriately assigned to management commitment (A) construct. The same analysis was examined on the other items and constructs as given in Table 5.6. According to the results of analysis of item-construct correlation, it could be concluded that most of the items had been correctly assigned to their intended construct.

Further analysis found that the following items had lower correlations with the constructs they intend to measure relative to other constructs, namely strategic planning

Table 5.6: Pilot Test- Item-Construct Correlation

Constructs	Items	A	B	C	D	E	F	G	H	I	J	K	L
Commitment	1	**0.783**	0.552	0.692	0.574	0.690	0.342	0.393	0.476	0.525	0.129	0.625	0.414
(A)	2	**0.862**	0.703	0.567	0.486	0.670	0.390	0.548	0.409	0.320	0.215	0.623	0.426
	3	**0.811**	0.782	0.677	0.360	0.704	0.524	0.412	0.468	0.407	0.469	0.481	0.532
	4	**0.877**	0.803	0.713	0.515	0.807	0.249	0.646	0.586	0.326	0.301	0.659	0.549
	5	**0.687**	0.608	0.608	0.493	0.685	0.569	0.706	0.680	0.445	0.520	0.612	0.679
Planning	1*	0.838	0.818	0.716	0.392	0.787	0.351	0.730	0.670	0.457	0.388	0.754	0.714
(B)	2	0.534	**0.772**	0.543	0.310	0.530	0.086	0.460	0.277	0.312	0.222	0.456	0.451
	3	0.596	**0.769**	0.484	0.285	0.497	0.294	0.472	0.238	0.184	0.556	0.279	0.428
	4	0.674	**0.756**	0.449	0.415	0.638	0.411	0.229	0.504	0.598	0.241	0.636	0.396
Customer	1	0.751	0.697	**0.800**	0.464	0.741	0.585	0.500	0.490	0.528	0.304	0.550	0.571
(C)	2*	0.786	0.716	0.819	0.586	0.875	0.584	0.663	0.673	0.707	0.389	0.809	0.756
	3	0.473	0.292	**0.704**	0.456	0.576	0.352	0.571	0.468	0.487	0.310	0.399	0.525
	4	0.094	0.150	**0.365**	-0.1	0.246	-0.17	0.275	0.093	0.097	0.071	0.094	0.127
	5	0.733	0.549	**0.821**	0.534	0.720	0.479	0.556	0.542	0.517	0.136	0.580	0.528
Benchmark	1	0.493	0.301	0.433	**0.901**	0.467	0.529	0.369	0.612	0.490	0.362	0.498	0.407
(D)	2	0.511	0.325	0.435	**0.923**	0.469	0.419	0.411	0.569	0.371	0.376	0.534	0.477
	3	0.422	0.292	0.464	**0.866**	0.487	0.442	0.455	0.647	0.487	0.347	0.498	0.466
	4	0.751	0.685	0.722	**0.853**	0.787	0.503	0.615	0.563	0.608	0.417	0.656	0.606
	5	0.409	0.351	0.347	**0.705**	0.428	0.509	0.158	0.489	0.385	0.119	0.386	0.199
Human	1*	0.725	0.691	0.863	0.548	0.801	0.454	0.561	0.556	0.634	0.234	0.653	0.640
resource	2	0.718	0.676	0.545	0.387	**0.788**	0.408	0.623	0.508	0.451	0.366	0.591	0.398
management	3	0.779	0.622	0.717	0.452	**0.827**	0.463	0.655	0.590	0.472	0.181	0.780	0.605
(E)	4	0.680	0.482	0.658	0.261	**0.759**	0.543	0.514	0.399	0.415	-0.00	0.554	0.321
	5*	0.331	0.278	0.402	0.521	0.331	0.176	0.192	0.470	0.318	0.139	0.257	0.329
	6	0.594	0.597	0.547	0.646	**0.709**	0.483	0.671	0.604	0.509	0.542	0.624	0.585
	7	0.534	0.491	0.662	0.263	**0.731**	0.318	0.429	0.418	0.583	0.397	0.554	0.464
		0.533	0.567	0.595	0.360	**0.620**	0.476	0.407	0.329	0.424	0.549	0.375	0.477
Supplier	1	0.477	0.275	0.410	0.418	0.492	**0.659**	0.246	0.301	0.332	0.088	0.390	0.373
(F)	2	0.430	0.365	0.492	0.701	0.491	**0.722**	0.433	0.490	0.393	0.543	0.466	0.361
	3	0.584	0.453	0.465	0.685	0.611	**0.734**	0.501	0.590	0.487	0.465	0.700	0.490
	4	0.560	0.370	0.410	0.490	0.470	0.320	0.280	0.420	0.390	0.200	0.520	0.673
	5	0.268	0.216	0.302	0.188	0.303	**0.560**	0.053	0.323	0.506	0.436	0.356	-0.29
	6	0.142	0.080	0.243	0.163	0.244	**0.585**	0.238	0.073	-0.01	0.167	0.122	0.382
	7	0.326	0.299	0.439	0.488	0.467	**0.592**	0.278	0.467	0.551	0.091	0.318	0.218
	8	0.561	0.413	0.380	0.463	0.539	**0.735**	0.380	0.624	0.385	0.379	0.593	0.300
Continuous	1	0.458	0.476	0.482	0.350	0.524	0.294	**0.798**	0.539	0.150	0.382	0.521	0.446
Improvement	2*	0.608	0.631	0.584	0.505	0.660	0.253	0.611	0.550	0.634	0.382	0.618	0.560
(G)	3	0.450	0.302	0.649	0.203	0.533	0.272	**0.672**	0.370	0.298	0.215	0.527	0.596
	4	0.621	0.527	0.633	0.419	0.711	0.353	**0.850**	0.439	0.353	0.300	0.575	0.474
	5*	0.007	-0.14	0.015	0.068	-0.69	0.120	**0.299**	0.019	-0.27	-0.13	-0.05	0.174
Quality	1	0.505	0.395	0.552	0.721	0.585	0.541	0.590	**0.804**	0.435	0.407	0.631	0.605
information	2	0.500	0.382	0.540	0.502	0.572	0.265	0.468	**0.862**	0.588	0.327	0.572	0.593
systems	3	0.306	0.294	0.429	0.306	0.407	0.345	0.391	**0.705**	0.352	0.434	0.459	0.466
(H)	4*	0.626	0.428	0.547	0.678	0.589	0.456	0.397	0.659	0.461	0.143	0.527	0.438
	5	0.504	0.587	0.398	0.391	0.505	0.487	0.563	**0.604**	0.258	0.495	0.568	0.604
	6	0.328	0.305	0.293	0.339	0.355	0.291	0.167	**0.656**	0.509	0.179	0.551	0.410
Service	1	0.168	0.281	0.305	0.219	0.358	0.392	0.301	0.489	**0.642**	0.487	0.441	0.484
Design	2	0.372	0.388	0.564	0.358	0.580	0.341	0.242	0.573	**0.893**	0.217	0.555	0.465
(I)	3	0.295	0.416	0.448	0.456	0.417	0.326	0.280	0.302	**0.653**	0.244	0.387	0.357
	4	0.613	0.482	0.656	0.628	0.677	0.484	0.279	0.462	**0.825**	0.223	0.600	0.451
Social	1	0.386	0.370	0.519	0.366	0.436	0.335	0.383	0.440	0.349	**0.783**	0.329	0.546
Responsibility	2	0.292	0.363	0.246	0.356	0.327	0.429	0.249	0.312	0.292	**0.886**	0.280	0.442
(J)	3	0.048	0.231	-0.02	0.248	0.085	0.230	0.098	0.254	0.158	**0.732**	0.175	0.257
	4	0.508	0.504	0.390	0.304	0.525	0.446	0.396	0.474	0.418	**0.886**	0.447	0.596

Table 5.6: Pilot Test- Item-Construct Correlation (Cont)

Constructs	Items	A	B	C	D	E	F	G	H	I	J	K	L
Strategic	1	0.754	0.662	0.701	0.599	0.767	0.498	0.707	0.719	0.587	0.300	**0.901**	0.687
control	2	0.756	0.544	0.669	0.553	0.698	0.395	0.494	0.527	0.537	0.165	**0.802**	0.560
systems	3	0.766	0.662	0.674	0.628	0.787	0.656	0.620	0.670	0.639	0.347	**0.871**	0.675
(K)	4	0.574	0.551	0.459	0.506	0.659	0.647	0.531	0.529	0.411	0.310	**0.749**	0.441
	5	0.611	0.543	0.484	0.463	0.601	0.252	0.645	0.661	0.408	0.319	**0.857**	0.674
	6	0.305	0.317	0.436	0.210	0.412	0.252	0.302	0.500	0.487	0.267	**0.642**	0.559
	7	0.488	0.531	0.428	0.357	0.520	0.287	0.313	0.540	0.629	0.378	**0.712**	0.510
	8	0.398	0.368	0.417	0.502	0.507	0.363	0.603	0.489	0.440	0.426	**0.719**	0.652
	9	0.498	0.497	0.488	0.338	0.459	0.315	0.394	0.608	0.427	0.050	**0.701**	0.626
	10	0.625	0.593	0.540	0.459	0.644	0.448	0.472	0.562	0.516	0.141	**0.695**	0.436
	11*	0.369	0.466	0.431	0.430	0.495	0.358	0.549	0.632	0.471	0.519	0.615	0.699
Performance	1	0.457	0.565	0.429	0.309	0.509	0.321	0.436	0.434	0.452	0.550	0.601	**0.714**
(L)	2	0.113	0.190	0.040	0.179	0.181	0.114	0.250	0.372	0.186	0.274	0.418	**0.483**
	3*	0.556	0.425	0.663	0.537	0.637	0.576	0.645	0.509	0.591	0.297	0.724	0.649
	4*	-0.04	0.146	0.061	-0.17	-0.02	-0.27	0.101	-0.16	-0.24	-0.15	-0.28	-0.08
	5*	0.182	0.332	0.189	0.075	0.267	0.435	0.007	0.167	0.411	0.516	0.317	0.442
	6	0.126	0.213	0.262	0.146	0.207	0.109	0.327	0.392	0.284	0.503	0.400	**0.656**
	7	0.357	0.294	0.563	0.273	0.433	0.221	0.383	0.414	0.466	0.316	0.519	**0.696**
	8	0.203	0.174	0.310	0.456	0.243	0.072	0.322	0.528	0.395	0.424	0.433	**0.679**
	9	0.586	0.482	0.585	0.433	0.527	0.331	0.711	0.475	0.287	0.425	0.624	**0.785**
	10*	0.820	0.700	0.780	0.626	0.830	0.557	0.537	0.664	0.566	0.255	0.787	0.694
	11	0.530	0.481	0.485	0.495	0.610	0.492	0.572	0.701	0.411	0.590	0.688	**0.780**
	12	0.460	0.392	0.558	0.361	0.460	0.380	0.378	0.414	0.555	0.306	0.442	**0.566**
	13	0.251	0.239	0.179	0.244	0.335	0.378	0.268	0.445	0.132	0.363	0.395	**0.611**
	14	0.648	0.609	0.675	0.399	0.639	0.098	0.493	0.456	0.453	0.194	0.579	**0.610**
	15*	-0.33	-0.11	-0.23	-0.55	-0.31	-0.28	-0.12	-0.29	-0.29	0.025	-0.36	-0.00
	16*	0.243	0.180	0.262	0.504	0.216	0.270	0.435	0.588	0.212	0.202	0.373	0.429
	17*	0.692	0.663	0.821	0.430	0.739	0.509	0.816	0.634	0.633	0.445	0.715	0.785

(*) items have lower correlations with the construct they intend to measure relative to other constructs.

(item no. 1); customer focus (no. 2); human resource management (no. 1 & 5); continuous improvement (no. 2 & 5); quality information systems (no. 4); strategic control systems (no. 11); and organizational performance (no. 3, 4, 5, 10, 15, 16, 17).

Therefore, the reliability and exploratory factor analysis were further carried out to reexamine these problematic items. According to the results of inter-item construct correlation as reported in Table 5.6, and the reliability and factor analysis tests as presented later in Table 5.7 and Table 5.9, it could be concluded that the results of these three analyses were consistent. In other words, most of the problematic items detected under inter-item construct correlation, face the same condition of being statistically questionable under the test of reliability and exploratory factor analysis.

As presented in Table 5.7, the Cronbach alpha coefficients for all constructs indicate that there was a good level of internal consistency among the constructs; thus indicating a strong reliability. As tabulated, all alpha values for all constructs except for continuous improvement, exceeded the 0.7 cut-off level (Nunnally & Beinstein, 1994). However, following further analysis, item no. 4 of customer focus, no. 5 of human resource management, no. 5 of continuous improvement, and no. 4 and no. 15 of organizational performance were considered to be removed from the questionnaire set. By deleting these items, the higher alpha coefficient achieved included and continuous improvement.

Table 5.7: Reliability Analysis of Pilot Test

Constructs	No. of original items	Cronbach Alpha	Item deleted[@]	Cronbach Alpha if item deleted
Management commitment	5	0.862	nil	0.862
Strategic planning	4	0.778	nil	0.778
Customer focus	5	0.714	4	0.848
Benchmarking	5	0.906	nil	0.906
Human resource management	8	0.848	5	0.877
Supplier relationship	8	0.817	nil	0.817
Continuous improvement	5	0.639	5	0.782
Quality information systems	6	0.810	nil	0.810
Service design	4	0.744	nil	0.744
Social responsibility	4	0.840	nil	0.840
Strategic control systems	11	0.920	nil	0.920
Organizational performance	17	0.851	4,15	0.871

[@] number of item as sequenced in questionnaire

In addition, the corrected item-total correlation of these items as tabulated in Table 5.8 reported lower than the cut-off point of 0.3. Following Nunnally and Bernstein (1994), the items with an item-total correlation less than 0.3 should be removed.

Table 5.8: Corrected Item-Total Correlation of Items Removed

Items	Corrected item-total correlation
No.4 of customer focus	0.031
No.5 of human resource	0.161
No.5 of continuous improvement	-0.038
No.4 of organizational performance	-0.176
No. 15 of organizational performance	-0.121

It is important to note that reliability is a pre-requisite of good measurement but not a sufficient condition of the goodness of measurement (Churchill, 1979; Sekaran, 2003). As such, one measurement could demonstrate high reliability, but it is not a valid measurement because it does not measure the intended construct. Thus, validity refers to the extent to which a measurement measures what it is supposed to measure (Nunnally & Bernstein, 1994). Lliterature on research methods often refers to three types of validity: content validity, criterion related validity, and construct validity (Kerlinger & Lee, 2000; Leary, 2004; Nunnally & Bernstein, 1994).

Content validity is the extent to which a measure appears to measure what it is supposed to measure. It is basically a judgmental evaluation. A construct is considered to have content validity if the constructs had measurement items that cover all important aspects of the constructs being measured. Thus, the exhaustive and comprehensive literature review was completed. In addition, a thorough discussion with several academicians and practitioners was done to construct questions for this study. Further, each survey question was also reviewed, evaluated, critiqued by officers from Kota Bharu MC, Kuala Terengganu MC, Kajang MC and Seremban MC. After having these procedures, the questionnaire items of this study were generally considered to have good

content validity. The construct validity was tested using factor analysis with varimax rotation.

By having factor analysis, we can examine whether items are tapping into the same construct or not. As widely practiced by TQM researchers (Ahire *et al*., 1996; Black & Porter, 1996; Saraph *et al*., 1996), if the sample size is small, researchers should examine factor analysis on each construct separately. Given that, for the purpose of the pilot study, factor analysis was carried out separately for each construct.

Prior to performing factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy were examined to ensure the appropriateness of factor analysis application. As classified by Kaiser (1970) and cited by Hair *et al*. (1998), the KMO value above 0.50 is acceptable. As presented in Table 5.9, the KMO value ranged between 0.53 and 0.83. In other words, the analysis of KMO shows that the factor analysis was appropriate.

Additionally, the value of factor loading of the items on their factor was examined as tabulated in Table 5.9. In examining factor loading, the minimum benchmark of 0.30 was applied to the analysis (Hair *et al*., 1998). This implies that the items with the factor loading of higher than or at least 0.30 were critical to the represented construct. In contrary, the lower factor loading was considered as less meaningful and thus, statistically negligible.

Table 5.9: Factor Analysis of Pilot Test

Constructs	No of Items	Factor loading for items in first factor*	KMO	Eigen-value	% of Variance
TQM					
Mgmt. commitment	5	.754 .850 .832 .884 .707	.823	3.262	65.246
Strategic planning	4	.833 .789 .783 .712	.752	2.437	60.920
Customer focus	5	.837 .861 .760 **.051** .882	.810	2.800	56.006
Benchmarking	5	.902 .921 .867 .853 .707	.825	3.640	72.795
HRM	8	.755 .832 .849 .776 **.196** .743 .762 .598	.687	4.114	51.424
Supplier relationship	8	.764 .724 .856 .693 .597 .425 .579.708	.720	3.692	46.148
Continuous Improvement	5	.801 .710 .700 .894 **-.04**	.664	2.437	48.735
Quality Info. systems	6	.838 .859 .684 .682 .620 .605	.700	3.125	52.076
Social responsibility	4	.777 .892 .726 .892	.712	2.722	68.045
SCS	11	.909 .792 .890 .748 .857 .605 .605 .605 .710 .723 .645	.825	.825	57.443
OP					
Financial	4	.861 .746 .809 **-.330**	.603	2.062	51.55
Customer	4	.646 .885 .842 .780	.653	2.519	62.97
Employee	5	.783 .807 .862 .592 .730	.686	2.892	57.84
Internal Process	4	.723 **-.269**.674 .888	.527	1.839	45.96

*Sequence of items as in questionnaire set

As reported in Table 5.9, the values of factor loading of most items are in the 0.401 to 0.921 range. Also, the factor of all constructs has an eigenvalue greater than 1.000. However, few exceptions were also reported. Five items were reported as having low factor loading, namely customer focus (item no. 4); human resource management (item no. 5); continuous improvement (item no. 5); financial performance (item no. 4) and internal process performance (item no. 2). Due to these items being reported as problematic items under the test for inter-item construct correlation and exploratory factor analysis discussed earlier, these six items were decided to be eliminated from the research instrument as they did not bring meaningful statistical value toward their assigned construct.

Table 5.10 summarizes the result of reliability and validity test on items decided to be removed from the questionnaire set. After removing these six items, the questionnaire set of this study has a good level of internal consistency and provide a valid instrument for main field work. However, the researcher is aware that removing these items from the questionnaire set would change the content validity of the scale. As have been discussed, these items were derived from a comprehensive literature review, so the removal of these items would reduce scale content validity. But, this present study applied a more reasonable approach and removed these items to provide a reliable and valid instrument.

Table 5.10: Analysis of Items Removed

Items	Alpha if item deleted	Item-Construct correlation	Item total correlation (threshold>0.3)	Neatly loading on first factor-factor analysis
Customer focus (no. 4)	Increase	Low (0.365)	0.031	No
Human resource (no. 5)	Increase	Low (0.331)	0.161	No
Continuous improvement (no. 5)	Increase	Low (0.229)	-0.038	No
Performance (no. 4)	Increase	Low (-0.08)	-0.176	No
Performance (no. 15)	Increase	Low (-0.00)	-0.121	No

5.14 Statistical Analysis

Data for the study was analyzed using SPSS 12.0 for windows and AMOS. Statistical analysis of this study involved three main stages, namely: (1) descriptive analysis, (2) preparing data for multivariate analysis and (3) hypotheses testing using multivariate analysis.

a. Descriptive Analysis

A variety of techniques were used to describe quantitatively in summary form the data of the study. Thus, descriptive analysis involves analysis of mean, median, response rate as well as useable rate.

b. Preparing Data for Multivariate Analysis

This stage involves testing the assumptions of multivariate analysis and factor analysis, thus involving statistical procedure such as:

i. Skewness, Kurtosis and normal probability plot for assessing normality

ii. Mahalanobis distance for checking outliers

iii. Scatterplot for testing linearity and homoscedacity

iv. Variance Inflation Factor (VIF) for detecting multicolinearity

c. Hypotheses Testing

Hypotheses testing were performed by using two statistical procedures, namely: (a) Multiple Regression and (b) Structural Equation Modeling.

(a). Multiple Regression

Multiple regression is a statistical test for measuring the relationship between a single dependent variable and one or more independent variables (Allison, 1999; Hair *et al*., 1998). R^2 is the statistic that can be used to measure how well the dependent variable can be predicted by independent variables. Sample size has a direct impact on statistical power of multiple regression. It is suggested that the minimum ratio is 5 to

1, meaning that there must be five observations for each independent variable. However, the desired ratio level is between 15 to 20 observations for each independent variable (Hair *et al*., 1998). Four assumptions that must be met under regression analysis are linearity, heteroscedasticity, normality and no serious multicollinearity problem, independence of residual (Coakes & Steed, 2003; Hair *et al*., 1998).

(b). Structural Equation Modeling

SEM combines a two-step approach which are the measurement model and structural model into a simultaneous statistical test (Anderson & Gerbing, 1988; Hair *et al*., 1998). For the measurement model, the researcher validates the measurement model through confirmatory factor analysis. In this step, the researcher also tests for construct validity by testing construct unidimensionality, reliability, convergent validity, discriminate validity and predictive validity. Once the measurement model is validated, the researcher conducts the second step, estimating the structural relationship between latent (unobserved) variables. Given that, the estimation of model fit can be tested in the second step.

5.15 Conclusion

This chapter discusses the methodology of the study. As explained in section 5.2 of this chapter, this study is a correlational study. Departments of CC and MC were selected as units of analysis with HOD were chosen as respondents. This chapter also elaborates on the population, sampling frame and the justification of the sample size of

the study. For the sampling procedure, stratified cluster sampling was used. This chapter also explains the design and format of the questionnaire. In addition, this chapter discusses the measurement development which was developed from a extensive literature review. Thirty-one departments were involved in pilot study and an analysis of reliability and validity were performed. After completing reliability and validity analysis, several items of the questionnaire were removed from questionnaire set, thus providing a theoretically and statistically valid and reliable research instrument.

CHAPTER 6

RESEARCH FINDINGS

6.1 Introduction

This chapter is devoted to report and discuss the findings of the study. This chapter is divided into seven sections. Section 6.2 presents the distribution of respondents. Section 6.3 discusses the descriptive analysis of the constructs under study. Section 6.4 reports the validity test on five dimensions of construct validity. Section 6.5 reports the SEM analysis for model testing. Section 6.6 reports the regression analysis for testing parts of the hypotheses examined and Section 6.7 concludes this chapter.

6.2 Distribution of Respondents

Table 6.1 depicts the distribution of respondent by local government. As can be seen, the 100% response rate was received from Ipoh CC, Seberang Prai CC and Ampang Jaya MC. Overall, the usable response rate received for this study is 82.00%. This high response rate was due to several strategies that were taken during data collection as explained below. These strategies had been proven to be effective in increasing the response rates of previous survey based studies (Frohlich, 2002). The following explanation is an addition to the discussion that was forwarded in Chapter 5.

Table 6.1: Distribution of Respondent by Local Government (n=205)

Respondent local government	Questionnaire distributed	Returned and usable	Percent
City Council			
Kuala Lumpur	22	14	63.64
Johore Bharu	7	6	85.71
Alor Star	8	5	62.50
Malacca	13	10	76.92
Ipoh	9	9	100.00
Shah Alam	12	10	83.33
Petaling Jaya	14	12	85.71
Municipal Council			
Batu Pahat	6	5	83.33
Jhr Bharu Tengah	9	8	88.89
Muar	7	5	71.43
Sungai Petani	10	8	80.00
Kulim	10	8	80.00
Langkawi	8	7	87.50
Alor Gajah	11	9	81.82
Port Dickson	9	7	77.78
Kuantan	11	10	90.91
Temerloh	13	10	76.92
Kuala Kangsar	7	6	85.71
Kangar	8	7	87.50
Pulau Pinang	10	8	80.00
Seberang Prai	10	10	100.00
Ampang Jaya	10	8	80.00
Klang	10	8	80.00
Subang Jaya	9	9	100.00
Kemaman	7	6	85.71
Total	250	205	82.00

- Direct appeal for help was stated in the cover letter, during face-to-face meeting with follow-up calls.
- Consistent, professional and courteous pressure was done through periodic follow-up calls to the coordinator at each local government.
- The questionnaire was channelled to the most suitable and interested coordinator such as head of quality section.

- Prepaid postage or special 'pos express' envelopes with returned address were supplied so that the returned mail went to the right address and within a shorter time period. "Pos express' envelopes with ID numbers facilitates the user to detect the mail.

To look into the reasons for non-response, a further investigation on targeted respondents who choose not to participate in this study was done. Most of the unresponsive respondents informed that they were not able to be involved in this study because they were very new at the current post, did not have time to participate in this study although the response time frame was extended.

Table 6.2 exhibits the distribution of sample by number of employees. As can be seen, most of the departments have fewer than 20 employees or more than 50 employees. Generally, the departments with fewer numbers of employees are departments like Treasury, Legal and Information Technology, which are mostly professionals. In contrast, the departments with a high number of employees are departments like Enforcement and Town Service, which mostly are operational workers.

Table 6.2: Distribution of Sample by Number of Employees (n=205)

Number of employees	Frequency	Percent	Cumulative Percent
50 or more	57	27.8	27.8
40-49	9	4.4	32.2
30-39	48	23.4	55.6
20-29	33	16.1	71.7
Less than 20	58	28.3	100
Total	205	100	100

As reported in Table 6.3, the percentage of departments with ISO 9000 status is higher than the percentage of departments without ISO 9000 status. Table 6.4 depicts that most of the respondents have working experience of more than five years.

Table 6.3: Distribution of Sample by ISO 9000 Status (n=205)

ISO 9000 status	Frequency	Percent	Cumulative Percent
Yes	108	52.7	52.7
No	97	47.3	100
Total	205	100	100

Table 6.4: Distribution of Respondents by Working Experience (n=205)

Respondent working experience	Frequency	Percent	Cumulative Percent
More than 5 years	149	72.7	72.7
2 - 5 years	55	26.8	99.5
Less than 2 years	1	0.5	0.5
Total	205	100	100

6.3 Descriptive Analysis of the Constructs

A descriptive analysis was done in order to gauge the general situation of the local governments understudied concerning TQM strategy, strategic control systems and organizational performance. Table 6.5 reports the mean, standard deviation, minimum and maximum score for each construct. According to the mean score, the implementation of each TQM factor and SCS are expressed as a higher or lower degree of TQM or SCS. In addition, the level of organizational performance is expressed as higher or lower performance.

As tabulated in Table 6.5, the mean value of management commitment is the highest among the TQM factors. This indicated that the commitment of management of local government understudied towards TQM was in a good situation. The minimum and

maximum values of management commitment are 2.00 and 5.00 respectively, with the standard deviation of 0.67. However, the mean value of quality information systems is the lowest among the TQM factors with the value of 3.22. This mean value provided evidence that, more work needs to be done to improve the level of usage of quality information systems of Malaysia local governments. The possible explanation for this situation is that only a small number of local governments were advanced in their quality information systems but not the rest of them.

Table 6.5: Descriptive Statistics of the Constructs (n=205)

Constructs	Mean	Standard Deviation	Min	Max
Management commitment	4.19	0.67	2.00	5.00
Strategic planning	3.85	0.62	2.00	5.00
Customer focus	4.00	0.60	1.00	5.00
Benchmarking	3.72	0.67	1.00	5.00
Human resource management	3.59	0.74	1.00	5.00
Supplier relationship	3.44	0.51	1.00	5.00
Continuous improvement	3.87	0.70	1.00	5.00
Quality information system	3.22	0.69	1.00	5.00
Service design	3.55	0.63	1.00	5.00
Social responsibility	4.03	0.68	1.00	5.00
Strategic Control Systems	3.66	0.61	2.00	5.00
Financial performance	3.67	0.74	1.00	5.00
Customer performance	3.62	0.61	1.00	5.00
Employee performance	3.67	0.66	1.00	5.00
Internal Process performance	3.63	0.69	1.00	5.00

Although supplier relationship is a crucial factor of TQM as widely discussed in the TQM literature (e.g. Deming, 1986), it appears not fully implemented in the local governments understudied. As given in Table 6.5, the mean value of supplier relationship is 3.44 with a standard deviation of 0.51. Although the role of supplier was less visible

for a service organization like local government, but undoubtedly, their function was important for the attainment of TQM objectives. Supplier for a local government can be public works contractors; solid waste management concessionaire; and information technology consultant. If these suppliers were not performing well, their bad performance will result in the bad reputation of the local government. Thus, the low mean value of supplier relationship should be further scrutinized.

The mean value of SCS is moderate with a value of 3.66. This value indicated that the respondents of this study agreed that practices of control systems of local government understudied, had taken into consideration the requirements of TQM in developing their control systems. The mean value of performance related constructs ranged from the value of 3.62 to 3.67. These values were generally at a moderate level, thus providing general support for the average performance of Malaysian local governments. As asserted by Housing and Local Government Minister (The Star, 31 January 2006, p.3), local governments nationwide need to seriously improve their performance.

6.4 Validity Test

This section discusses the tests undertaken to examine the five dimensions of construct validity namely unidimensionality, reliability, convergent validity, discriminant validity, and criterion related validity. Another dimension of construct validity, content validity, is not discussed in detail in this section due the condition of content validity that cannot be proven in the statistical sense. As have been discussed in Section 5.10 in Chapter 5, a comprehensive literature review and a series of discussion with

academicians and practitioners were conducted to ensure the content validity of the construct. Due to the detailed discussion of content validity has been presented in Chapter 5, it is not be discussed again in this section. The remaining dimensions of construct validity have to be tested using statistical analyses, and are discussed in the succeeding sub-sections.

6.4.1 Measurement Model

This study employs a two-step procedure of SEM as suggested by Anderson & Gerbing (1988). This two step procedure has received wide acceptance in the literature. In the first step, the researcher validates the measurement model through confirmatory factor analysis. In this step, validity of construct under study is tested. In the second step, the researcher estimates the structural relationship between latent variables. This section discusses the first step.

In specifying the measurement model, the indicators that represent latent variables should be justified. In this study, first and second order factor measurement model were specified. In order to explain the difference between the first and the second order factor measurement model, the following example is given as depicted in Figure 6.1 and Figure 6.2.

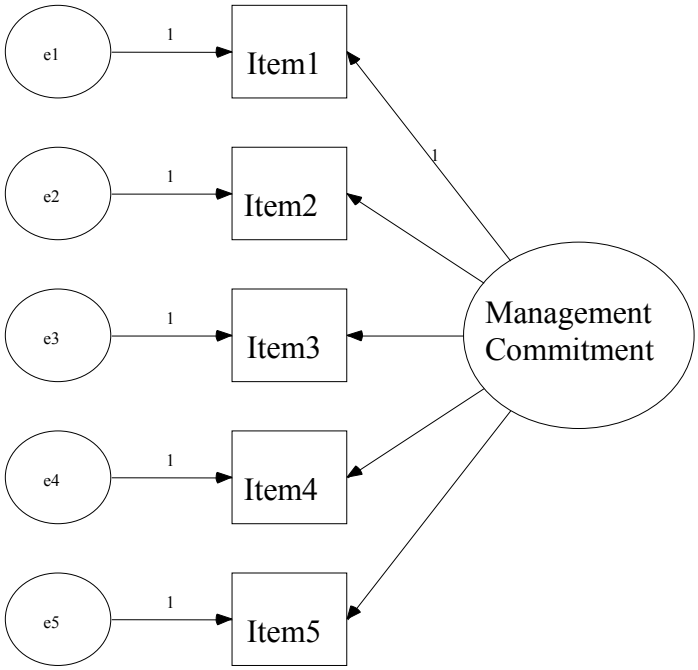

Figure 6.1: First Order Measurement Model

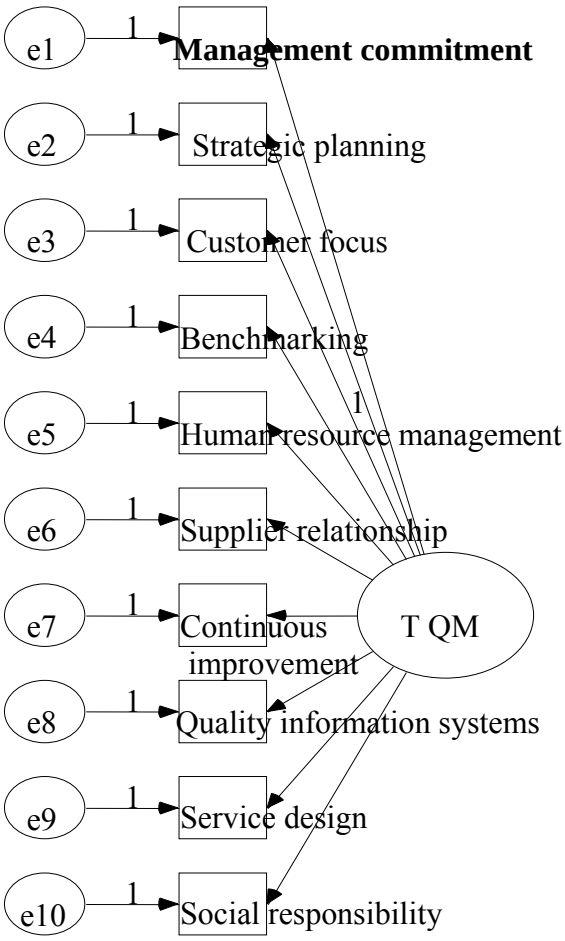

Figure 6.2: Second Order Measurement Model

As depicted in Figure 6.1, in the first order factor, a series of items was considered as observed variables for management commitment, which was considered as a latent variable. In the second order factor as depicted in Figure 6.2, management commitment (in bold) together with other TQM critical factors were considered as an observed variable for TQM (latent variable). In other words, the second order factor may have numerous first order factors embedded within the second order factor. As in this study, TQM and OP represent latent variables represented by several indicators in the

second order factor, and all of these indicators are represented by a series of questions items in the first order factor. Both of the first and second order factor measurement models were tested for construct validity as reported in the following sub-sections. Only after examining the construct validity for both models, can the statistical conclusion about the construct validity be inferred with confidence (Garver & Mentzer, 1999).

6.4.2 Unidimensionality

The first step in the statistical procedure that needs to be undertaken in order to test the construct validity is unidimensionality (Anderson & Gerbing, 1988; Ahire *et al*., 1996; Churchill, 1979). Unidimensionality is the condition that must be satisfied before assessing the reliability of the construct (Dunn, Seaker & Waller, 1994). Unidimensionality refers to the existence of one construct underlying a set of items (Dunn *et al*., 1994). Two methods that can be used to evaluate the unidimensionality of a construct are the traditional method and SEM method. SEM method or specifically confirmatory factor analysis is a more rigorous and precise test of unidimensionality, if compared to traditional techniques such as exploratory factor analysis and item-total correlation (Anderson & Gerbing, 1988). However, in this section, both of the SEM and traditional techniques are discussed. By reporting these two techniques, a comparison on unidmensionality between data of pilot study and data of main study can be undertaken; because the data of the pilot study was examined by using only traditional techniques. The SEM technique was not employed on the data of pilot study due the small sample size involved. As reported in the literature, SEM is a technique that required a minimum sample size of about 100 (Medsker *et al*., 1994).

The two traditional techniques, namely item construct correlation and exploratory factor analysis, were examined and reported in Table 6.6 and Table 6.7. As presented in Table 6.6, all of the items examined but three items have the highest correlation with the construct they intended to measure if compared to other constructs. In other words, it is proven that these items had been correctly assigned to the construct they intend to measure. The three items were Human Resource Management (item no. 3 and item no. 6) and item no. 11 of Strategic Control Systems.

Table 6.6: Item-Construct Correlation

Constructs	Items	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Commitment	1	**.663**	.520	.520	.374	.464	.374	.463	.382	.404	.402	.401	.381	.455	.489	.423
(A)	2	**.732**	.539	.566	.414	.475	.356	.407	.435	.446	.431	.472	.344	.393	.400	.408
	3	**.748**	.457	.358	.352	.353	.326	.384	.319	.338	.386	.450	.233	.306	.314	.348
	4	**.819**	.492	.444	.501	.556	.469	.407	.519	.507	.366	.536	.345	.330	.397	.397
	5	**.699**	.591	.530	.441	.503	.428	.361	.577	.519	.325	.521	.288	.328	.399	.353
Planning (B)	1	.464	**.805**	.418	.446	.396	.409	.353	.472	.382	.280	.458	.427	.307	.395	.512
	2	.616	**.791**	.448	.446	.404	.522	.434	.503	.472	.384	.500	.340	.363	.384	.431
	3	.527	**.715**	.565	.476	.584	.388	.410	.480	.470	.275	.522	.362	.328	.403	.401
	4	.540	**.748**	.623	.615	.565	.511	.611	.513	.480	.470	.576	.375	.475	.514	.521
Customer (C)	1	.512	.634	**.799**	.497	.549	.463	.461	.507	.444	.377	.461	.392	.381	.489	.549
	2	.573	.584	**.827**	.501	.486	.501	.471	.512	.473	.401	.440	.310	.507	.505	.630
	3	.418	.406	**.753**	.309	.577	.304	.353	.359	.363	.293	.350	.283	.419	.500	.361
	4	.557	.458	**.766**	.433	.549	.488	.480	.491	.472	.347	.440	.389	.368	.484	.484
Benchmark	1	.434	.480	.426	**.811**	.521	.370	.353	.419	.430	.340	.462	.324	.347	.318	.360
(D)	2	.477	.545	.482	**.828**	.546	.469	.399	.490	.489	.462	.579	.411	.378	.431	.435
	3	.406	.423	.374	**.771**	.450	.355	.316	.405	.421	.353	.427	.253	.352	.389	.387
	4	.531	.554	.560	**.836**	.608	.565	.512	.540	.516	.535	.634	.416	.441	.475	.476
	5	.471	.600	.509	**.804**	.588	.491	.474	.559	.536	.530	.634	.315	.364	.464	.481
Human	1	.626	.478	.550	.594	**.830**	.543	.534	.574	.638	.599	.642	.393	.413	.575	.427
Resource	2	.496	.613	.501	.545	**.788**	.588	.579	.637	.562	.333	.600	.436	.334	.547	.460
Management	3*	.463	.551	.504	.402	.551	.513	.553	.558	.518	.319	.461	.310	.262	.452	.455
(E)	4	.490	.456	.376	.548	**.635**	.541	.452	.544	.561	.439	.576	.425	.239	.467	.414
	5	.596	.415	.489	.576	**.678**	.476	.530	.554	.435	.424	.599	.332	.383	.427	.402
	6*	.312	.290	.283	.280	.391	.369	.309	.449	.463	.367	.427	.228	.232	.314	.302
	7	.417	.430	.604	.472	**.794**	.467	.427	.528	.504	.310	.464	.371	.391	.547	.476
Supplier	1	.343	.370	.236	.362	.294	**.629**	.298	.393	.452	.411	.416	.282	.322	.261	.336
(F)	2	.312	.425	.478	.433	.551	**.689**	.602	.554	.434	.366	.493	.376	.418	.467	.435
	3	.413	.491	.408	.437	.485	**.693**	.542	.572	.441	.313	.552	.342	.320	.336	.398
	4	.195	.259	.164	.321	.239	**.530**	.257	.271	.279	.291	.348	.148	.202	.133	.264
	5	.173	.167	.271	.132	.368	**.494**	.344	.393	.359	.146	.266	.345	.208	.348	.295
	6	.387	.454	.436	.269	.424	**.652**	.520	.505	.447	.353	.468	.361	.425	.464	.386
	7	.552	.481	.522	.464	.627	**.713**	.553	.611	.545	.395	.540	.393	.361	.513	.425
Continuous	1	.494	.477	.525	.496	.574	.557	**.777**	.603	.502	.484	.623	.455	.512	.588	.568
Improvement	2	.284	.389	.387	.318	.412	.514	**.762**	.405	.317	.304	.405	.377	.308	.411	.422
(G)	3	.431	.466	.426	.381	.538	.561	**.874**	.588	.468	.448	.573	.400	.414	.462	.419
	4	.542	.572	.470	.449	.544	.612	**.828**	.645	.563	.425	.570	.324	.395	.492	.518

Quality information systems (H)	1	.436	.439	.475	.380	.563	.487	.473	**.782**	.560	.333	.614	.392	.394	.601	.540
	2	.462	.543	.438	.498	.575	.615	.651	**.800**	.596	.412	.626	.430	.435	.577	.533
	3	.400	.451	.458	.470	.507	.487	.512	**.752**	.524	.303	.504	.386	.356	.485	.507
	4	.501	.573	.472	.467	.585	.621	.569	**.755**	.613	.513	.654	.398	.478	.542	.547
	5	.559	.489	.466	.570	.558	.598	.545	**.721**	.638	.539	.653	.410	.449	.426	.474
	6	.421	.389	.360	.318	.449	.512	.373	**.670**	.492	.393	.456	.366	.283	.360	.417
Service Design (I)	1	.428	.497	.485	.512	.670	.558	.492	.625	**.774**	.453	.624	.440	.476	.556	.457
	2	.537	.438	.464	.371	.538	.495	.380	.641	**.789**	.479	.536	.388	.436	.470	.404
	3	.327	.394	.313	.409	.376	.427	.412	.401	**.624**	.428	.442	.360	.442	.364	.404
	4	.497	.438	.387	.500	.535	.528	.457	.582	**.791**	.563	.558	.430	.375	.443	.458
Social Responsibility (J)	1	.442	.366	.388	.588	.539	.504	.477	.546	.642	**.873**	.630	.428	.502	.445	.419
	2	.416	.407	.374	.447	.389	.492	.474	.436	.534	**.836**	.531	.408	.519	.371	.357
	3	.324	.302	.335	.368	.352	.292	.288	.351	.421	**.757**	.525	.322	.299	.216	.287
	4	.517	.456	.397	.460	.471	.450	.467	.497	.540	**.856**	.577	.356	.447	.309	.307
Strategic control systems (K)	1	.579	.620	.432	.662	.595	.589	.517	.698	.605	.518	**.784**	.391	.457	.485	.547
	2	.439	.455	.390	.345	.438	.537	.436	.563	.539	.394	**.656**	.458	.397	.441	.447
	3	.308	.421	.227	.473	.436	.434	.357	.533	.451	.429	**.686**	.330	.326	.353	.360
	4	.547	.533	.434	.577	.583	.524	.549	.575	.617	.574	**.785**	.518	.488	.434	.442
	5	.468	.479	.356	.452	.547	.412	.489	.507	.478	.499	**.750**	.426	.409	.370	.393
	6	.385	.441	.403	.474	.432	.542	.405	.477	.439	.530	**.643**	.437	.342	.326	.388
	7	.416	.383	.264	.422	.493	.439	.334	.532	.539	.524	**.725**	.420	.270	.319	.267
	8	.497	.498	.299	.532	.498	.504	.459	.475	.478	.540	**.731**	.497	.418	.378	.360
	9	.519	.456	.474	.460	.556	.500	.595	.623	.515	.452	**.763**	.466	.410	.505	.520
	10	.436	.408	.342	.408	.467	.455	.477	.540	.504	.467	**.717**	.367	.420	.412	.406
	11*	.486	.531	.588	.437	.533	.521	.548	.601	.466	.350	.566	.421	.511	.616	.563
Performance Financial (L)	1	.285	.304	.342	.315	.377	.312	.365	.343	.424	.384	.442	**.868**	.374	.370	.471
	2	.391	.504	.317	.374	.406	.472	.407	.467	.448	.360	.551	**.844**	.426	.378	.484
	3	.401	.396	.438	.376	.463	.464	.425	.517	.477	.397	.523	**.777**	.593	.517	.564
Customer (M)	5	.061	.157	.159	.176	.129	.169	.156	.239	.182	.199	.222	.159	**.558**	.257	.228
	6	.420	.399	.469	.352	.381	.381	.402	.351	.435	.335	.371	.516	**.765**	.563	.568
	7	.455	.332	.471	.404	.428	.357	.392	.421	.530	.529	.494	.367	**.725**	.475	.456
	8	.441	.480	.430	.402	.415	.543	.490	.515	.494	.474	.551	.518	**.828**	.629	.622
Employee (N)	9	.466	.434	.557	.460	.529	.405	.531	.578	.484	.366	.558	.443	.613	**.836**	.613
	10	.557	.541	.470	.494	.591	.508	.512	.568	.566	.313	.479	.314	.468	**.759**	.532
	11	.311	.316	.411	.183	.430	.306	.391	.398	.388	.236	.288	.360	.513	**.752**	.482
	12	.478	.469	.504	.470	.618	.541	.487	.574	.556	.395	.578	.494	.560	**.788**	.624
	13	.175	.310	.427	.303	.445	.333	.351	.385	.355	.203	.286	.283	.399	**.654**	.609
Internal process (O)	14	.489	.571	.571	.554	.570	.538	.555	.586	.531	.401	.571	.566	.640	.653	**.827**
	16	.283	.407	.431	.329	.349	.428	.405	.486	.409	.299	.432	.476	.465	.568	**.814**
	17	.505	.491	.562	.394	.437	.405	.493	.550	.433	.285	.424	.397	.475	.592	**.751**

(*) items had lower correlations with the construct they intend to measure relative to other constructs.

As presented in Table 6.7, the KMO value ranged between 0.62 and 0.85. Due to the minimum value of KMO surpassing the minimum suggested level of 0.50 (Hair *et al*., 1998), the analysis of KMO indicates the sample is adequate for applying factor analysis. Additionally, the test of factor analysis as reported in Table 6.8 shows most of the construct items had a reasonably high factor loading on their single factor. In other

words, the factor loadings of each item fall nicely into their common factor, thus providing evidence to support the theoretical concept of each construct. In assigning factor loadings, the cut-off point of 0.30 was applied to the analysis (Hair *et al*., 1998). Table 6.7 also reports the score of eingenvalue for all constructs were bigger than the value of one (1).

Table 6.7: Factor Analysis

Constructs	No of Items	Factor loading for items in first factor*	KMO	Eigen - Value	% of Variance
TQM					
Management commitment	5	.691 .734 .773 .790 .681	.794	2.702	54.049
Strategic planning	4	.812 .779 .726 .744	.683	2.347	58.665
Customer focus	4	.793 .825 .739 .789	.792	2.479	61.967
Benchmarking	5	.820 .820 .775 .836 .800	.848	3.284	65.671
HRM	7	.792 .784 .663 .725 .764 .540 .704	.809	3.578	51.111
Supplier relationship	7	.545 .736 .736 .431 .483 .683 .769	.762	2.857	40.816
Continuous improvement	4	.763 .770 .881 .827	.770	2.636	65.903
Quality information system	6	.791 .803 .759 .762 .728 .637	.826	3.361	56.017
Service design	4	.798 .755 .653 .781	.623	2.242	56.058
Social responsibility	4	.880 .843 .747 .850	.750	2.767	69.169
Strategic Control Systems	11	.792 .636 .697 .776 .763 .622 .730 .718 .779 .723 .573	.880	5.594	50.859
Performance					
Financial	3	.882 .812 .799	.667	2.074	69.142
Customer	4	.482 .770 .749 .856	.658	2.119	52.975
Employee	5	.835 .746 .773 .792 .643	.809	2.894	57.873
Internal Process	3	.831 .784 .781	.670	1.915	63.830

* Sequenced of items as in the questionnaire set

Two criteria for evaluating construct unidimensionality in confirmatory factor analysis are the overall measurement model fit and the components of the measurement model fit (Steenkmap & Van Trijip, 1991). In order to evaluate the overall measurement model fit, two indices were used in this study as suggested by the literature (Garver & Mentzer, 1999), namely Tucker-Lewis Index (TLI) and Comparative Fit Index (CFI).

Table 6.8 presents the results of overall measurement model fit for first order factor and second order factor. In the first order factor, the indices of six out of ten TQM related measures surpassed the benchmark level of at least one of the two indices examined. The six measures are management commitment, customer focus, benchmarking, continuous improvement, quality information systems and social responsibility. The indices of other four TQM related measures were out of range, but can be marginally accepted. The four measures are strategic planning, human resource management, supplier relationship and service design. For organizational performance related measures, all of the measures evaluated, namely financial, internal process, employee and customer, surpassed the benchmark level of TLI index and CFI index.

In second order factor, the TLI index and CFI index of TQM surpassed the benchmark level that suggests unidimensionality of a construct. However, the indexes examined for strategic control systems and organizational performance measures were marginally accepted.

Table 6.8: Unidimensionality Test

	TLI	CFI
Recommended benchmark (Hair *et al*., 1998)	Close to 1.00	≥ 0.90
First order factor		
Management commitment	0.993	0.998
Strategic planning	0.644	0.881
Customer focus	1.024	1.000
Benchmarking	0.932	0.966
Human resource management	0.822	0.882
Supplier relationship	0.821	0.881
Continuous improvement	0.925	0.975
Quality information systems	0.835	0.901
Service design	0.509	0.836
Social responsibility	0.831	0.944

Table 6.8: Unidimensionality Test (Cont)

	TLI	CFI
Recommended benchmark (Hair *et al*., 1998)	Close to 1.00	≥ 0.90
Financial performance	1.000	1.000
Internal process performance	0.941	0.980
Employee performance	0.937	0.969
Customer performance	1.000	1.000
Second order factor		
Total Quality Management	0.912	0.931
Strategic Control Systems	0.790	0.832
Organizational Performance	0.474	0.614

In evaluating components of the measurement model, the researcher should examine the direction, magnitude and statistical significance of the parameter estimate between indicators and latent variable (Steenkamp & Van Trijip, 1991). Therefore, the following criteria are evidences that are used to examine the unidimensionality of the construct:

1) The sign (+,-) of the parameter estimates should be consistent with the theory.
2) The magnitude of the parameter estimate should be at least 0.7
3) Each parameter estimates should be statistically significant ($\alpha < 0.05$) with critical ratio (CR) value ≥ 2.00

As presented in Table 6.9 and Table 6.10, all of the parameter estimates for all measures examined were positive, thus in line with the theory and literature. Additionally, most of the magnitudes of the parameter estimate were achieved the minimum value of 0.7. For each parameter estimated, all of them surpassed the critical ratio value (CR) of 2.00, thus, supporting the unidimensionality of the constructs.

Table 6.9: Component of Measurement Model Test-First Order Factor

Parameter	Standardized estimates (Critical ratio)*
First order factor	
Management commitment	0.580 (N/A); 0.653 (6.710); 0.702 (6.991); 0.740 (7.164); 0.583 (6.235)
Strategic planning	0.802 (N/A); 0.746 (8.431); 0.546 (6.824); 0.561 (6.990)
Customer focus	0.709 (N/A); 0.773 (8.716); 0.624 (7.542); 0.703 (8.926)
Benchmarking	0.761 (N/A); 0.784 (10.967); 0.694 (9.650); 0.804 (11.240); 0.730 (10.189)
Human resource management	0.756 (N/A); 0.727 (9.814); 0.584 (7.856); 0.679 (9.171); 0.722 (9.743); 0.453 (6.058); 0.641 (8.645)
Supplier relationship	0.429 (N/A); 0.686 (5.279); 0.677 (5.257); 0.306 (3.368); 0.386 (3.965); 0.588 (4.977); 0.738 (5.392)
Continuous improvement	0.680 (N/A); 0.669 (8.347); 0.878 (9.818); 0.731 (8.997)
Quality information systems	0.758 (N/A); 0.767 (10.343); 0.727 (9.828); 0.691 (9.333); 0.630 (8.497); 0.533 (7.150)
Service design	0.696 (N/A); 0.690 (7.193); 0.501 (5.769); 0.685 (7.175)
Social responsibility	0.863 (N/A); 0.817 (12.735); 0.624 (9.234); 0.761 (11.813)
Strategic control systems	0.765 (N/A); 0.578 (8.220); 0.660 (9.515); 0.746 (10.922); 0.7146 (10.923); 0.571(8.114); 0.694 (10.067); 0.681 (9.852); 0.752 (11.029); 0.693 (10.042); 0.542 (7.668)
Financial performance	0.896 (N/A); 0.668 (7.551); 0.644 (7.442)
Customer performance	0.272 (N/A); 0.653 (3.527); 0.576 (3.448); 0.906 (3.486)
Employee performance	0.824 (N/A); 0.660 (9.169); 0.683 (9.513); 0.745 (10.380); 0.511 (6.962)
Internal Process performance	0.770 (N/A); 0.635 (6.089); 0.628 (6.080)

* Sequenced as in questionnaire set. Values in parentheses refer to CR.

Table 6.10: Component of Measurement Model Test-Second Order Factor

Parameter	Standardized estimates (Critical ratio)*
Second order factor	
TQM	
TQM-management commitment	0.534 (N/A)
TQM-strategic planning	0.772 (7.737)
TQM-Customer focus	0.734 (7.533)
TQM-Benchmarking	0.731 (7.511)
TQM-Human resource management	0.792 (7.841)
TQM-Supplier relationship	0.809 (7.922)
TQM-Continuous improvement	0.785 (7.803)
TQM-Quality information systems	0.866 (8.817)
TQM-Service design	0.818 (7.969)
TQM-Social responsibility	0.662 (7.094)
Strategic control system	N/A
Organizational Performance	
OP-Financial performance	0.659 (N/A)
OP-Customer performance	0.776 (9.463)
OP-Employee performance	0.846 (10.089)
OP-Internal process performance	0.883 (10.321)

* Values in parentheses refer to CR.

6.4.3 Reliability

As widely used in previous studies, Cronbach coefficient alpha is an index for evaluating the reliability of a scale. Table 6.11 reports the results of the Cronbach coefficient alpha for the scales of the study. As presented, the cronbach coefficient alpha for all measures surpassed the suggested level of 0.7 (Nunnally, 1978). Therefore, all of the measures examined are reliable. The values of cronbach coefficient alpha ranged between 0.7116 to 0.8999. However, the cronbach coefficient alpha for customer performance measures was 0.6952, slightly lower than the benchmark of 0.7. However, as suggested by Hair *et al*. (1998), the minimum acceptable level for reliability test is cronbach alpha coefficient of 0.6.

Table 6.11: Reliability Test

Variables	Number of Items	Cronbach's Alpha
TQM		
Management commitment	5	.7812
Strategic planning	4	.7637
Customer focus	4	.7926
Benchmarking	5	.8679
Human resource management	7	.8331
Supplier relationship	7	.7363
Continuous improvement	4	.8259
Quality information system	6	8393
Service design	4	.7331
Social responsibility	4	.8505
Strategic Control Systems	11	.8999
Performance		
Financial	3	.7690
Customer	4	.6952
Employee	5	.8144
Internal Process	3	7116

However, the cronbach alpha coefficient has three limitations:

a. Coefficient alpha tends to underestimate scale validating (Steenkamp & Van Trijip, 1991)
b. Coefficient alpha test or also known as internal consistency test defines reliability as consistency, but consistency is extremely difficult to test (Bollen, 1989)
c. Coefficient alpha assumes that all items have equal reliabilities, but in most cases, this assumption is rarely met (Bollen, 1989).

In order to overcome the limitation associated with Cronbach coefficient alpha, SEM reliability or known composite reliability measures was used as SEM reliability is designed to overcome those limitations (Bollen, 1989). As popularly suggested in the

SEM literatures, the value of 0.70 is an acceptable threshold for composite reliability (Hair et *al*., 1998; Shook, Ketchen, Hult & Kacmar, 2004). Additionally, each observed variable reliability should be at least 0.50 (Fornell & Larcker, 1981).

The composite reliability of a construct can be calculated as follows (Hair *et al*., 1998, p.612):

Construct reliability = $(\sum \text{standardized loading})^2 / [(\sum \text{standardized loading})^2 + \sum_{ej}]$

The standardized loading can be obtained from the output of AMOS, and the $_{ej}$ is the measurement error for each observed variable. Measurement error for each observed variable can be calculated as 1- (standardized loading)^2.

In order to evaluate each indicator reliability, the square multiple correlation value associated with each latent variable to items assigned was evaluated. The square multiple correlation is usually interpreted as the reliability of the measures (Bollen, 1989). As explained by Arbuckle and Worthke (1999), 'a variable's square multiple correlation is the proportion of its variance that is accounted for by its predictor' (p.119). The remaining portion of unexplained variance is considered to be a measurement error.

As reported in Table 6.12 and Table 6.13, the composite reliability for all of the scales are higher than the benchmark value of 0.7. A further examination revealed that the square multiple correlation of certain items were lower than the benchmark value of 0.5. However, considering the high value of composite reliability for each construct, the items were retained. After each scale is determined to be unidimensional and reliable,

then other dimensions of construct validity can be tested, namely convergent, discriminant and criterion related validity (Anderson & Gerbing, 1988).

Table 6.12: Composite Reliability Test-First Order Factor

Latent variable	∑ standardized loading	$\sum_{ej}$	Composite reliability	SMC of items associated*
Management commitment	3.258	1.742	0.859	0.337; 0.427; 0.493; 0.548; 0.340
Strategic planning	2.655	1.345	0.840	0.643; 0.556; 0.299; 0.315
Customer focus	2.809	1.191	0.869	0.502; 0.598; 0.389; 0.494
Benchmarking	3.771	1.227	0.921	0.586; 0.615; 0.482; 0.647; 0.534
Human resource management	4.562	2.438	0.900	0.572; 0.529; 0.341; 0.462; 0.521; 0.206; 0.411
Supplier relationship	3.810	3.190	0.820	0.184; 0.471; 0.459; 0.093; 0.149; 0.345; 0.544
Continuous improvement	2.958	1.042	0.894	0.462; 0.448; 0.771; 0.534
Quality information systems	4.106	1.894	0.899	0.574; 0.589; 0.529; 0.477; 0.397; 0.284
Service design	2.572	1.428	0.822	0.484; 0.476; 0.251; 0.469
Social responsibility	3.065	0.935	0.909	0.744; 0.667; 0.389; 0.579
Strategic control systems	7.3966	3.6034	0.938	0.585; 0.334; 0.436; 0.556; 0.556; 0.326; 0.482; 0.464; 0.566; 0.480; 0.294
Financial performance	2.208	0.791	0.860	0.803; 0.446; 0.415
Customer performance	2.407	1.593	0.784	0.074; 0.426; 0.332; 0.820
Employee performance	3.423	1.577	0.881	0.680; 0.435; 0.466; 0.556; 0.261
Internal Process performance	2.033	0.967	0.810	0.593; 0.403; 0.394

Table 6.13: Composite Reliability Test – Second Order Factor

Parameter	Composite reliability	SMC
TQM	0.958 ; ∑ standardized loading =7.503; $\sum_{ej=}$ 2.497	
TQM-management commitment		0.286
TQM-strategic planning		0.596
TQM-Customer focus		0.539
TQM-Benchmarking		0.534
TQM-Human resource management		0.628
TQM-Supplier relationship		0.654
TQM-Continuous improvement		0.616
TQM-Quality information systems		0.750
TQM-Service design		0.670
TQM-Social responsibility		0.438
Organizational Performance	0.922 ; ∑ standardized loading =3.164; $\sum_{ej=}$ 0.836	
OP-Financial performance		0.435
OP-Customer performance		0.602
OP-Employee performance		0.716
OP-Internal process performance		0.779

* Values in parentheses refer to CR.

6.4.4 Convergent Validity

As commonly suggested by statistical texts and practiced by previous researchers, the Normed Fit Index (NFI), which is also known as the Bentler-Bonett (1980) coefficient was used to test the convergent validity (e.g., Ahire *et al*., 1996). Convergent validity refers to the extent to which different methods of administering the scale yield the same result (Churchill, 1979). Table 6.14 depicts the NFI index. The NFI index with value of 0.90 or above indicates a strong convergent validity. As reported in Table 6.14, NFI of ten out of 17 measures examined surpassed the benchmark of 0.90. The rest were marginally lower than the suggested level of 0.90 but they still can be accepted.

Table 6.14: Convergent Validity Test

	NFI
First order factor	
Management commitment	0.949
Strategic planning	0.876
Customer focus	0.999
Benchmarking	0.956
Human resource management	0.860
Supplier relationship	0.845
Continuous improvement	0.969
Quality information systems	0.885
Service design	0.831
Social responsibility	0.939
Strategic control systems	0.802
Financial performance	1.000
Customer performance	0.970
Employee performance	0.955
Internal process performance	0.970
Second order factor	
TQM	0.908
Organizational performance	0.607

6.4.5 Criterion-Related Validity

Criterion-related validity refers to the extent to which an independent measure is related to dependent measure of criteria (Badri, Davis & Davis, 1995; Flynn *et al*., 1994). As commonly practiced by previous researches in TQM (e.g.; Ahire *et al*. (1996), the criterion related validity was examined by testing the correlation between each TQM critical factor with quality related performance. As reported in the TQM literature, customer satisfaction is the ultimate goal of TQM strategy. Thus, the correlation between TQM critical factors and customer performance was examined to evaluate the criterion validity of TQM construct. The same procedure was done to test the SCS construct. However, the criterion related validity for OP constructs was not examined due to OP

construct was criteria variable for TQM and OP. Therefore, there was no criteria measure for OP construct that is needed before criterion validity related test can be run. As reported in Table 6.15, the findings indicate the significant correlation between all constructs under study with their criterion variable, thus supporting criterion-related validity.

Table 6.15: Criterion Validity Test

	Customer performance
Management commitment	0.455*
Strategic planning	0.482*
Customer focus	0.535*
Benchmarking	0.465*
Human resource management	0.395*
Supplier relationship	0.510*
Continuous improvement	0.506*
Quality information systems	0.531*
Service design	0.572*
Social responsibility	0.533*
Strategic control systems	0.570*

*Correlation is significant at the 0.01 level (2-tailed).

6.4.6 Discriminant Validity Test

A construct is considered to have discriminant validity if it assigned items estimate only one construct (Davis, 2000). It can be tested using a chi-square pair-wise test. Given that the discriminant validity of construct under study was tested using the chi-square pair wise test procedure developed by Ahire *et al*. (1996). The chi-square pair wise test examines whether a confirmatory factor analysis model representing two measures with two factors fits the data significantly better than a one factor model. The following formula was used to determine the number of pairs needed to be tested:

C (m, 2) = m!/ [(m-2)!*2!] (Ahire *et al*., 1996, p. 40).
m = number of construct

Given the 15 constructs under study, a total of 105 pairs were examined. In order to run this procedure, a series of pairs of construct was developed. Each of these pairs must be tested in the form of two models of confirmatory factor analysis. In the first model, the correlation between the two constructs was free and estimated or referred as an unconstrained model. In the second model, the correlation between the two constructs was fixed into one and referred to as constrained model. The chi-square value of each model was examined and compared as reported in Table 6.16. By referring to the chi-square table in Sekaran (2003), the chi-square difference above 6.64 can concluded as significant, thus providing evidence for discriminant validity. The chi-square difference test was tested at $p<0.01$.

Table 6.16: Chi-square Pairwise Test

Pair	First χ^2	Second χ^2	$\Delta\chi^2$	Pair	First χ^2	Second χ^2	$\Delta\chi^2$	Pair	First χ^2	Second χ^2	$\Delta\chi^2$
1. MC / SP	43.35	589.24	545.89	36. CF / FP	32.35	576.83	544.48	71. CI / SD	50.78	451.69	400.91
2. MC / CF	43.38	624.95	581.57	37. CF / CP	45.42	760.92	715.50	72. CI / Soc	42.80	409.74	366.94
3. MC / BM	25.06	632.38	607.32	38. CF / EP	57.74	537.58	479.84	73. CI / SCS	63.62	390.98	327.36
4. MC / HRM	29.43	454.85	425.42	39. CF / IPP	60.02	459.61	399.59	74. CI / FP	38.15	357.05	318.90
5. MC / SR	24.99	1187.2	1162.2	40. BM / HRM	53.96	310.82	256.86	75. CI / CP	41.54	546.93	505.39
6. MC/ CI	36.05	472.14	436.09	41. BM / SR	47.99	909.83	861.84	76. CI / EP	54.63	373.31	318.68
7. MC / QIS	25.92	565.77	539.85	42. BM / CI	42.11	438.15	396.04	77. CI / IPP	54.27	330.85	276.58
8. MC / SD	28.64	697.12	668.48	43. BM / QIS	53.83	375.05	321.22	78. QIS / SD	74.81	313.29	238.48
9. MC / Soc	28.33	572.30	543.97	44. BM / SD	53.01	501.41	448.40	79. QIS / Soc	47.68	390.65	342.97
10. MC / SCS	28.22	738.06	709.84	45. BM / Soc	47.70	435.68	387.98	80. QIS / SCS	76.98	321.00	244.02
11. MC / FP	25.832	483.32	457.49	46. BM / SCS	64.52	445.31	380.79	81. QIS / FP	44.91	328.59	283.68
12. MC / CP	34.97	671.52	636.55	47. BM / FP	31.52	454.42	422.90	82. QIS / CP	44.88	536.03	491.15
13. MC / EP	39.33	532.02	492.69	48. BM / CP	36.29	670.87	634.58	83. QIS / EP	62.87	335.83	272.96
14. MC / IPP	30.93	537.22	506.29	49. BM / EP	42.87	514.18	471.31	84. QIS / IPP	63.61	290.62	227.01
15. SP / CF	119.65	590.75	471.1	50. BM / IPP	44.79	443.73	398.94	85. SD / Soc	59.84	426.26	366.42
16. SP / BM	60.02	469.65	409.63	51. HRM / SR	55.43	628.52	573.09	86. SD / SCS	69.90	485.39	415.49
17. SP / HRM	53.88	385.88	332	52. HRM / CI	63.11	226.04	162.93	87. SD / FP	45.95	426.29	380.34
18. SP / SR	54.13	1018.19	964.06	53. HRM/ QIS	65.33	224.03	158.70	88. SD / CP	50.29	646.29	596.00
19. SP / CI	52.70	456.79	404.09	54. HRM / SD	60.48	331.59	271.11	89. SD / EP	55.73	499.78	444.05
20. SP / QIS	59.65	422.49	362.84	55. HRM / Soc	35.11	400.59	365.48	90. SD / IPP	50.33	480.31	429.98
21. SP / SD	52.49	618.01	565.52	56. HRM / SCS	60.71	350.99	290.28	91. Soc / SCS	64.69	418.62	353.93
22. SP / Soc	35.98	630.65	594.67	57. HRM / FP	27.58	369.22	341.64	92. Soc / FP	35.03	406.99	371.96
23. SP / SCS	63.14	560.69	497.55	58. HRM / CP	27.58	583.81	556.23	93. Soc / CP	45.09	561.92	516.83
24. SP / FP	39.47	489.62	450.15	59. HRM / EP	46.44	366.47	320.03	94. Soc / EP	28.63	599.89	571.26
25. SP / CP	38.41	787.77	749.36	60. HRM / IPP	44.68	333.38	288.70	95. Soc / IPP	29.63	528.69	499.06
26. SP / EP	47.70	584.73	537.03	61. SR / CI	66.23	622.71	556.48	96. SCS / FP	55.38	389.14	333.76
27. SP / IPP	55.23	464.41	409.18	62. SR / QIS	72.17	587.42	515.25	97. SCS / CP	50.04	684.81	634.77
28. CF / BM	51.79	564.83	513.04	63. SR / SD	63.29	871.31	808.02	98. SCS / EP	52.48	554.74	502.26
29. CF / HRM	55.74	399.45	343.71	64. SR / Soc	43.99	908.36	864.37	99. SCS / IPP	53.49	487.75	434.26
30. CF / SR	48.25	1158.1	1109.8	65. SR / SCS	67.05	875.01	807.96	100. FP / CP	47.55	439.28	391.73
31. CF / CI	48.62	516.62	468.00	66. SR / FP	41.09	774.46	733.37	101. FP / EP	40.86	406.85	365.99
32. CF / QIS	53.14	497.41	444.27	67. SR / CP	42.09	1193.67	1151.58	102. FP / IPP	54.71	285.12	230.41
33. CF / SD	48.06	697.42	649.36	68. SR / EP	48.26	938.72	890.46	103. CP/ EP	63.87	466.76	402.89
34 CF / Soc	34.37	683.01	648.64	69. SR / IPP	50.47	815.57	765.10	104. CP / IPP	61.82	425.42	363.60
35. CF / SCS	45.59	760.56	714.97	70. CI / QIS	66.51	259.59	193.08	105. EP / IPP	74.02	283.36	209.34

6. 5 Structural Equation Modeling Test

SEM using AMOS was employed for examining the structural model of the study as depicted in Figure 6.3. SEM is an appropriate statistical technique for testing a model that is hypothesized to have relationships among latent variables that are measured by multiple-scale items, where at least one construct is both a dependent and independent variable (Hair *et al*., 1998). As given in Figure 6.3, the TQM and OP are represented by oval which denote latent variable. TQM is represented as single latent variable composed of ten observed variables. OP is represented as a single latent variable composed of four observed variables. SCS is only measured by a single variable. As depicted in Figure 6.3, SEM attempts to account for random measurement error as represented by the small circles with the letter 'e'.

The covariance matrix among the variables constituted the input for the SEM analysis. Although in practice both covariance and correlation matrices can be used as the input for SEM analysis, but the usage of covariance matrix is more recommended (Kelloway, 1998). By using AMOS package, the default matrix of this statistical package is covariance matrix.

The analysis of SEM using maximum likelihood estimation as performed in this study requires data to be normally distributed. To satisfy the assumption of normality of the data, the test of normality, namely skewness and kurtosis were performed. As reported in Table 6.17, the value of skewness was between -0.427 and -1.293; and the value of kurtosis was between 0.205 and 2.768 respectively. Based on the results of

skewness and kurtosis test, it indicated that the data of the study is within the acceptable level of normality assumption. As suggested by Kline (1998), if the skewness is lower than 3.00 and kurtosis is lower than 10.00, the data has not violated the normality assumption.

Table 6.17: Skewness and Kurtosis of Constructs

Variables	Skewness	Kurtosis
Management commitment	-0.637	0.870
Strategic planning	-0.872	0.778
Customer focus	-1.037	2.274
Benchmarking	-0.777	0.740
Human resource management	-0.836	0.767
Supplier relationship	-0.683	2.062
Continuous improvement	-0.809	1.330
Quality information systems	-0.427	0.205
Service design	-0.604	1.262
Social responsibility	-1.293	2.768
Strategic control systems	-0.586	0.309
Financial performance	-0.694	0.628
Customer performance	-0.733	0.713
Employee performance	-0.880	1.274
Internal Process performance	-0.809	1.298

The full model (input) is given in Figure 6.3. As can be seen, the path coefficient between TQM and each of the ten indicators and the respective error variances were estimated, except that between TQM and management commitment that was fixed to 1. The path coefficient between OP and each of the four indicators and the respective error

variances were also estimated, except that between OP and financial performance that was fixed to 1. On the other hand, none of the paths of the SCS variable was estimated since the SCS was explained by a single observed variable. Based on the suggestion by Kelloway (1998) in dealing with the condition of one indicator for a latent variable, the path coefficient between SCS and its error variance was set at a fixed value using the value of one.

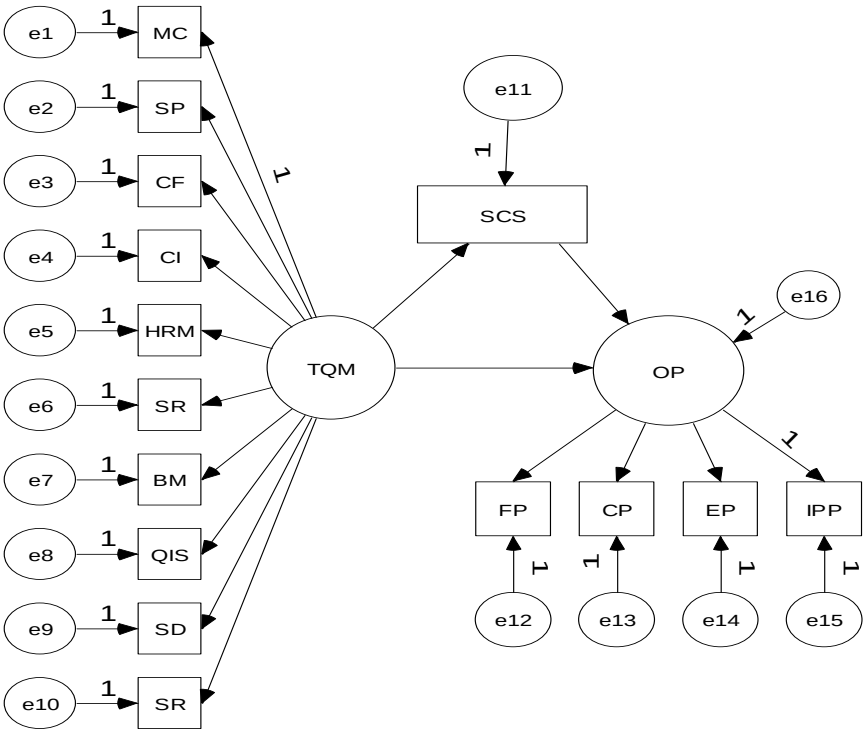

Figure 6.3: Full Model (input)

Prior to testing the hypotheses of the study, the model overall fit must be established (Bollen, 1989). The result of the full structural model with standardized parameter is presented in Figure 6.4. In order to evaluate the full structural model fit, a series of indices provided by AMOS were examined. Model fit determines the degree to which structural equation model fits the sample data. Model fit indices that are commonly used are chi-square (χ^2), goodness of fit index (GFI), adjusted goodness of fit index (AGFI), and root mean square residual (RMS). These indices are based on differences between the covariance matrix of observed model and the implied model (Hair *et al*., 1998). Among these indices, the chi square is the most popular index (Bollen, 1989). In evaluating chi-square value, researchers are interested in obtaining insignificant chi-square value. Generally, smaller chi-square value indicates a better model fit to the data. However, the index of chi-square has been criticized due to this index being very sensitive to the sample size (Bollen, 1989). Instead of relying on any single index of model fit, SEM literature are always suggesting researchers evaluate the model fit based on a range or series of fit indices. Table 6.18 depicts the list of goodness of fit measures and the levels of acceptable fit adapted from Hair *et al*. (1998).

Table 6.18: Levels of Acceptable Fit of Goodness of Fit Measures.

Goodness of Fit Measures	Levels of acceptable fit
Chi-square	$P \geq 0.05$
Chi-square/degrees of freedom	≤ 3.00
Goodness-of-fit Index (GFI)	≥ 0.90
Adjusted Goodness-of-fit Index (AGFI)	≥ 0.90
Normed Fit Index (NFI)	≥ 0.90
Non Normed Fit Index (NNFI) or Tucker Lewis Index (TLI)	≥ 0.90
Comparative Fit Index (CFI)	≥ 0.90
Root Mean Square Residual (RMSR)	≤ 0.08

Adapted from Hair *et al*. (1998)

However, the indices of the full model investigated in this study as given in Figure 6.4, did not achieve the suggested level. Thus, modification on the model must be performed. By referring to the modification index, the model was modified and retested. This step was taken again and again until the model investigated fit the data.

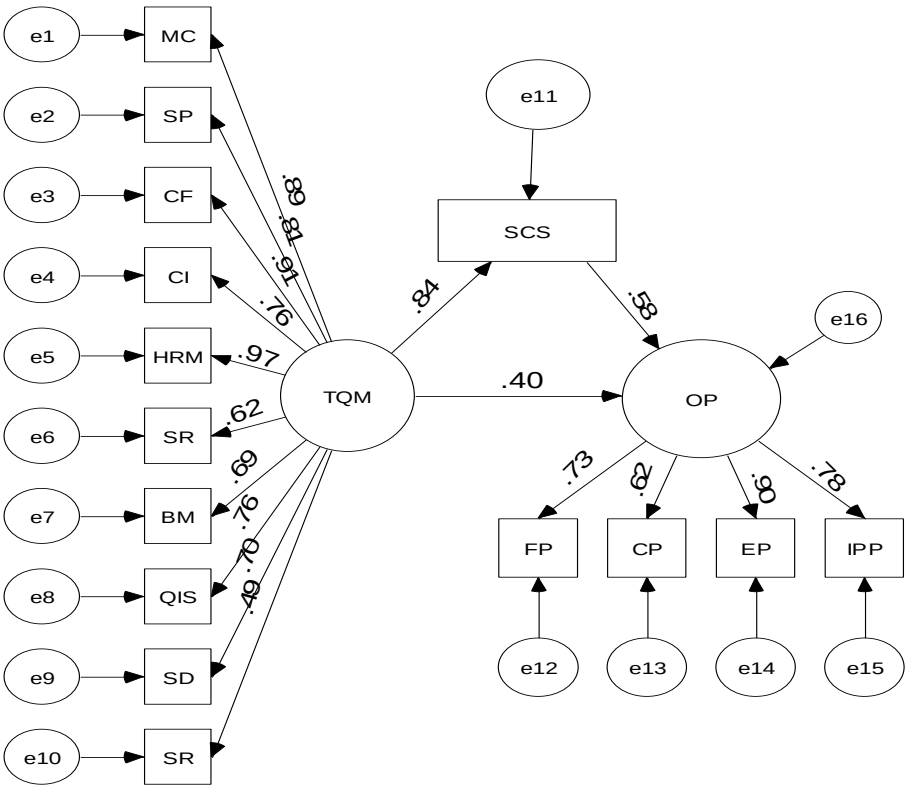

Figure 6.4: Full Model with Standardized Parameter

The modified model is presented in Figure 6.5. The modification index provides the researcher with the information to add additional paths in the model such as

correlation between error variances to improve the overall model fit. As presented in Figure 6.5, the additional paths were added into the model as compared to the earlier model as depicted in Figure 6.4.

In many cases, the modification to the model is difficult to justify theoretically. Therefore, the additional path should only be done with cautioun by the researcher. As presented in Figure 6.5, the correlation between error variance one (1) to error variance ten (10) can be theoretically justified. Error variance one (1) to error variance ten (10) refers to error variance for TQM critical factors. As widely promoted in TQM literature (e.g. Terziovski & Samson, 1999), TQM tends to be implemented in package and having synergistic links between each critical factos. For the correlation between error variance of TQM critical factors and indicators of organizational performance, it also can be theoretically justified. As proven in many previous studies (e.g. Khairul Anuar, 2002), each critical factor of TQM is linked to various performance dimensions.

Additionally, the correlation among error variances of organizational performance dimension also can be theoretically justified. As discussed in the literature review, the dimensions of organizational performance are linked between each other. For the correlation between certain error variance of TQM critical factor and error variance of strategic control systems can perhaps be justified based on the strategy-control linkage literature and contingency theory. However, further investigation is needed to provide a clearer theoretical justification.

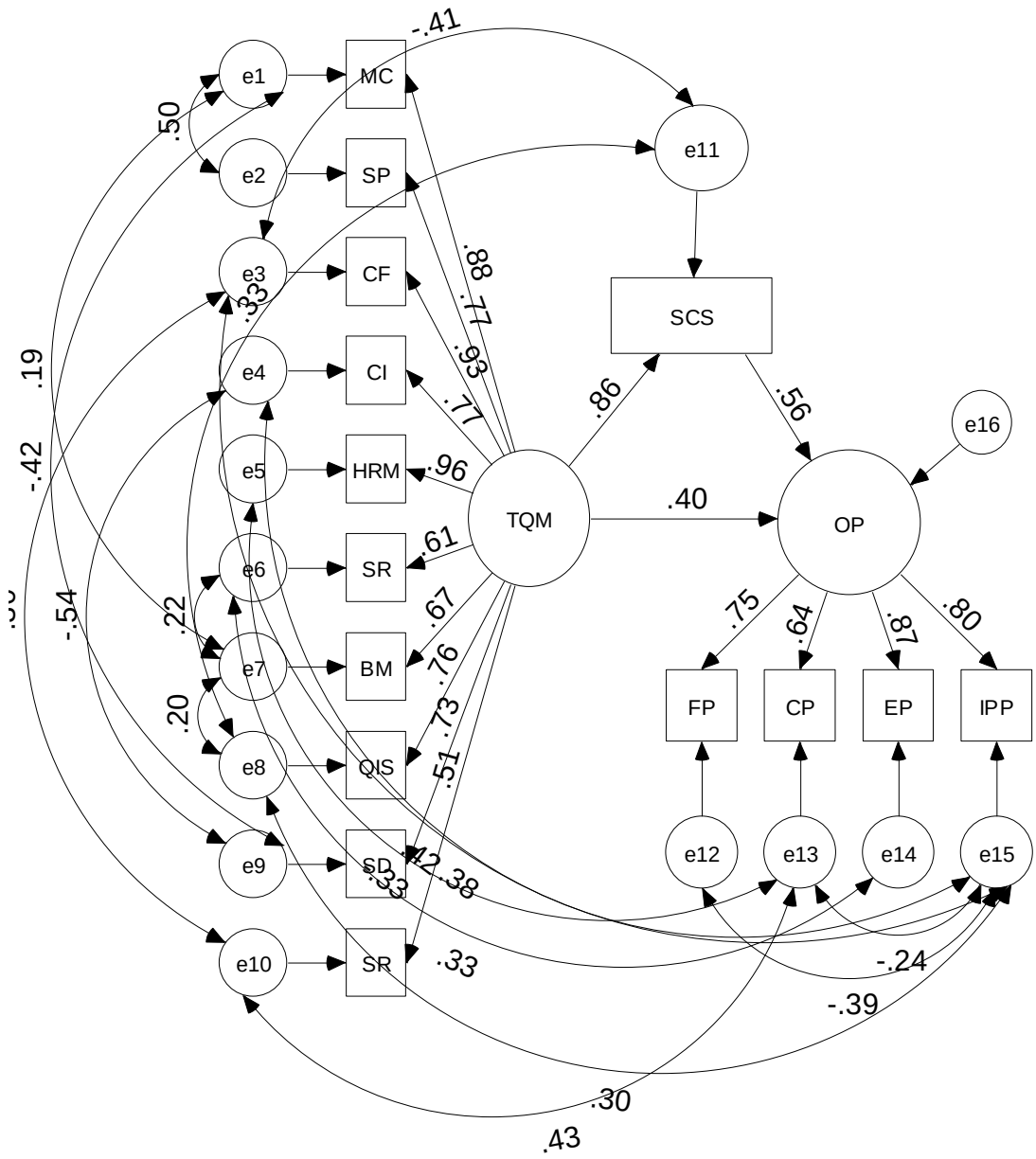

Figure 6.5: Full Modified Model

Table 6.19 reports the indices of the modified model. As presented in this table, the indices of the modified model surpassed or are marginally lower than the benchmark value suggesting the model did fit to the data. Given that hypotheses testing can be evaluated. In order to test the hypotheses H1, H2, H3 and H4 of this study, the significant of the structural paths were investigated by referring to the value of critical ratio (CR) provide by output of AMOS. A critical ratio is defined as the ratio between the standard estimation and its standard error (Arbuckle & Worthe, 1999). Normally, a structural path with CR value larger than 1.96 in magnitude is considered as significant.

Table 6.19: Indexes of Full Modified Model

Indices	Value	Threshold	Acceptability
Goodness of fit index (GFI)	0.848	≥ 0.90	Marginal
Relative fit index (RFI)	0.854	≥ 0.90	Marginal
Normed fit index (NFI)	0.902	≥ 0.90	Acceptable
Incremental fit index (IFI)	0.922	≥ 0.90	Acceptable
Tucker Lewis index (TLI)	0.833	≥ 0.90	Marginal
Comparative fit index (CFI)	0.921	≥ 0.90	Acceptable

Table 6.20: Hypothesis Testing

Path	Standardized estimate	Standard error	Critical Ratio (CR)	Hypothesis	Result
TQM→SCS	0.861	0.039	22.07*	H_1	supported
TQM→OP	0.400	0.071	5.63*	H_2	supported
SCS→OP	0.559	0.059	9.47*	H_3	supported

* significant at CR ≥1.96

Table 6.21: Standardized Direct and Indirect Effect

Path	Direct effect	Indirect effect	Total
TQM→SCS	0.861		
TQM→OP	0.400	0.481	0.881
SCS→OP	0.559		

The first hypothesis of this study (H_1) hypothesize that there is a relationship between TQM and organizational performance. As reported in Figure 6.5 and Table 6.20, the path relating TQM and organizational performance was positive and statistically significant (standardized estimate = 0.400; CR = 5.63), thus providing strong evidence of the relationship between TQM on organizational performance, thereby supporting H_1.

The second hypothesis of the study (H_2), asserts that there is a relationship between TQM and SCS. As given in Figure 6.5 as well as Table 6.20, the path relating TQM and SCS was positive and statistically significant (standardized estimate = 0.861, CR value = 22.07), thus providing a strong evidence to support H_2. This indicates that the adoption of TQM increases the level of usage of SCS.

The third hypothesis of the study (H_3) states that there is a relationship between SCS and OP. As presented in Figure 6.5 as well as Table 6.20, the path relating SCS and organizational performance was positive and statistically significant (standardized estimate = 0.400; CR = 5.63), thus providing strong evidence that SCS has a positive effect on organizational performance.

The fourth hypothesis of this study (H_4) speculates that the structural relationship between TQM, SCS and organizational performance fit to the data. As given in Table 6.19, the index of modified model of this study had achieved the suggested level. Additionally, Table 6.21 presents the results of direct effect and indirect effect between the constructs under study. As can be seen, the total effect of TQM on OP is higher than

the direct effect of TQM on OP. The total effect of TQM on OP can be calculated by adding the direct effect of TQM on OP and indirect effect of TQM on OP through the presence of SCS as follows. The indirect effect of TQM on organizational performance through the presence of SCS is calculated by multiplying the direct effect of TQM on SCS and the direct effect of SCS on OP (0.861 X 0.559 = 0.481). Therefore, the total effect (direct + indirect) of TQM on organizational performance is 0.881. This result provides strong support to indicate that the adoption of TQM increases the level of organizational performance through the presence of SCS. Therefore, H_4 is supported.

6.6 Regression Analysis

To further assess the contribution of each TQM critical factor on OP, this study performs a regression analysis. SEM analysis is not able to provide such an analysis because the analysis of SEM only presents the structural relationship between latent variables. As depicted in the structural model of the study, each critical factor of TQM were considered as observed variable for TQM. Therefore, the contribution of each TQM critical factor towards OP cannot be inferred by using SEM analysis.

In order to confidently draw conclusions from regression analysis, the assumptions of regression analysis were evaluated. It involved five assumptions namely normality, linearity, homoscedacity, outliers, and multicollinearity. As reported in the statistical analysis discussed later, it can be concluded that the regression analysis performed in this study satisfied the five assumptions required to ensure the validity of its results. All these assumptions were examined through output of regression analysis.

a. Normality test

The normality assumption was tested using histogram ands normal P-P Plot of regression standardized residual for dependent variable. As can be seen in Figure 6.6, the normality assumption for regression analysis was not violated.

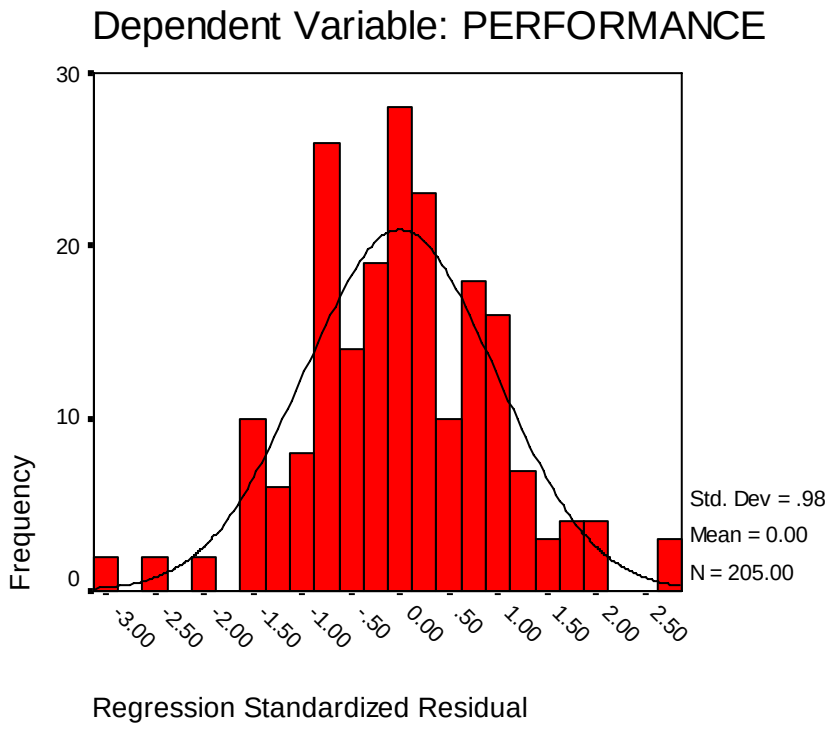

Figure 6.6: Normality Test

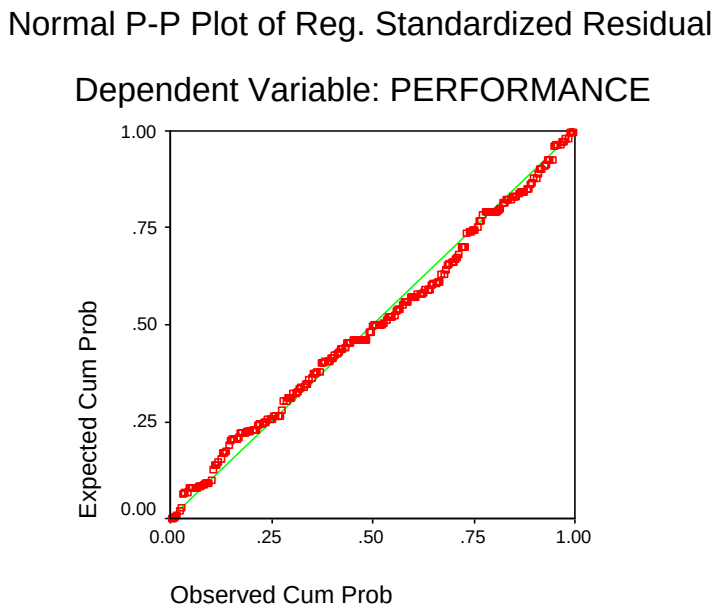

Figure 6.6: Normality Test

b. Checking outliers

Mahalanobis distance values were examined for checking outliers. Mahalanobis distance values ranged between 1.962 and 58.056. As indicated, the upper limit of Mahalanobis distance value was greater than the critical value of chi-square at an alpha level of 0.001 (that is, 29.588) for ten independent variables. Therefore, the Mahalanobis distance value indicates the existence of outlier cases. The critical value for chi-square was obtained from the chi-square table cited in Sekaran (2003, pp.436-437).

In order to trace the outlier cases, a further examination was done by checking the value of Mahalanobis distance for every case one by one as provided by regression analysis. The value of Mahalanobis distance for every case is provided as a new variable in the SPSS data editor. As a result, seven cases were detected as outlier cases with Mahalanobis distance value range between 32.89 to 58.05. Due to the small number of

outlier cases, only seven cases out of 205 cases, these outliers were retained in the data analyzed. The exclusion of the outliers from the data analyzed should only be considered if the number of outliers was big (Coakes & steed, 2003).

d. Linearity and Homoscedacity Test

Linearity and homoscedacity of data were examined using a scatter plot. From the scatterplot result, as shown in Figure 6.7, it can be seen that there is no clear relationship between the residual and the predicted value. In other words, it is consistent with the assumptions of linearity and homoscedacity.

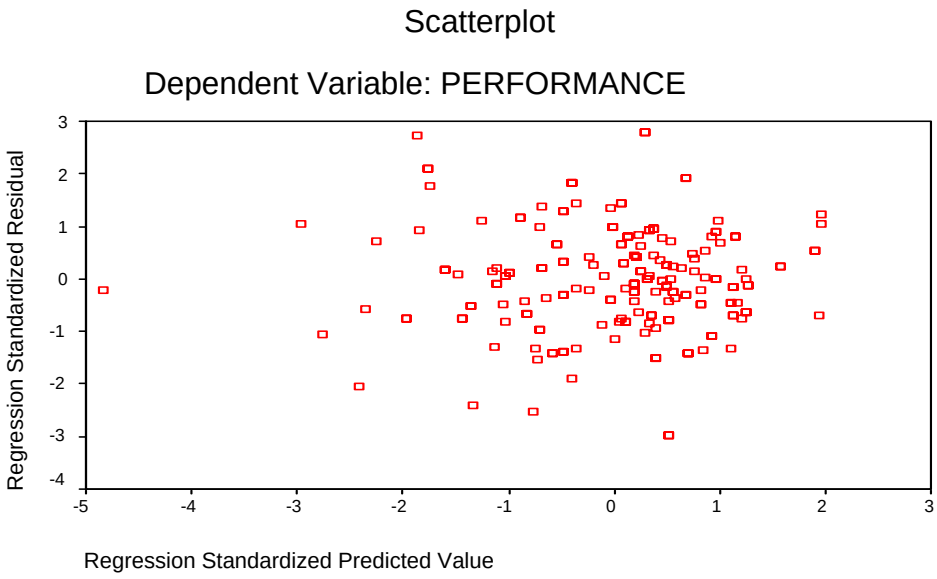

Figure 6.7: Scatterplot

d. Multicolinearity test

The presence of multicollinearity was examined using VIF (variance inflation factor) measures and tolerance value. The VIF measures for all variables under study as given in Table 6.22, were below the threshold value of ten (Hair *et al*., 1998). Table 6.22

also displays the tolerance value for all variables under study were more than 0.1 (Hair *et al*., 1998). In other words, the VIF measures and the tolerance value of the variables under study indicated that there was no indication of severe collinearity amongst the independent variables.

Table 6.22: Multicollinearity Test

Variables	Tolerance value	VIF
Management commitment	0.631	1.585
Strategic planning	0.381	2.622
Customer focus	0.436	2.293
Benchmarking	0.444	2.251
Human resource management	0.382	2.616
Supplier relationship	0.361	2.773
Continuous improvement	0.367	2.723
Quality information systems	0.270	3.699
Service design	0.313	3.193
Social responsibility	0.505	1.982

After satisfying the assumptions for multiple regression analysis, the result of multiple regression analysis was evaluated. The result of regression analysis with OP as the dependent variable and the TQM critical factors as the independent variables is depicted in Table 6.23. As can be seen in Table 6.23, six critical factors of TQM were significantly related to organizational performance, namely: management commitment, customer focus, human resource management, continuous improvement, quality information systems, and service design were significantly related to organizational performance. On the contrary, strategic planning, benchmarking, supplier relationship, social responsibility were not significantly related to organizational performance.

As reported in Table 6.23, management commitment was positively related to organizational performance (b = 0.0166, t = 2.297, $p \leq 0.05$). These findings support the H_{1a}, which propose that local governments with high management commitment towards TQM implementation tend to achieve better performance.

Table 6.23: Regression Result (n=205)

	DV = organizational performance			
	b	s.e	T	sig
Independent variables				
Management commitment	0.166	0.43	2.297	0.023*
Strategic planning	0.050	0.60	0.774	0.440
Customer focus	0.255	0.57	4.196	0.000*
Benchmarking	0.053	0.51	0.881	0.380
Human resource management	-0.15	0.50	-2.306	0.022*
Supplier relationship	0.060	0.74	0.892	0.374
Continuous improvement	0.160	0.54	2.412	0.017*
Quality information systems	0.264	0.63	3.241	0.001*
Service design	0.198	0.65	2.758	0.006*
Social responsibility	0.009	0.47	0.156	0.876
Constant	0.264	0.197	1.340	0.000
$R^2 = 0.688$				
F statistics = 42.769, sig = 0.00				

DV = dependent variable, b = beta, s.e = standard error, *sig = $p < 0.05$

In addition, the findings also support the H_{1c}, proposing that local governments with high practice of customer focus tend to achieve better organizational performance. As reported in Table 6.23, customer focus was positively related to organizational performance (b = 0.255, t = 4.95, $p \leq 0.05$).

The significant positive relationship was also reported for the relationship between continuous improvement and organizational performance (b = 0.160, t = 2.41, $p \leq 0.05$). Therefore, H_{1g} is supported. In other words, the local government with high

practice of continuous improvement tends to positively contribute to the better organizational performance.

Table 6.23 also depicts the significant positive relationship between quality information systems and organizational performance. As the result revealed, this relationship is significant with b = 0.264, t = 3.241 and $p \leq 0.05$. Given that the findings support the H_{1h}, hypothesizing that local government with high practice of quality information systems would be able to achieve higher organizational performance.

Another significant positive relationship was also reported between service design and organizational performance. As given in Table 6.23, the *b* value for this relationship is 0.198 with t = 2.798 and $p \leq 0.05$. Therefore, the H_{1i} of this study is supported. Therefore, it can be concluded that, the higher the practices of quality related service design, the higher the performance will be achieved by local government under study.

Interestingly, the relationship between human resource management and organizational performance was revealed statistically significant but negatively related. As reported in Table 6.23, the *b* value for this relationship is –0.15, t = 2.306 and $p \leq 0.05$. Due to the relationship between human resource management and organizational performance was statistically significant although inversely correlated, H_{1e} is supported.

Additionally, the H_{1b}, H_{1d}, H_{1f} and H_{1j} are rejected. In other words, the practices of strategic planning, benchmarking, supplier relationship and social responsibility were not significantly contributing to the higher organizational performance.

Overall, Table 6.23 displays that the model is significant with Adjusted R^2 = 0.688, F = 42.769, Sig = 0.000. The result indicates that the model is able to explain the variation in organizational performance up to 68%. The significance of overall model indicated that the combination of practices of ten critical factors of TQM, will lead the organization to perform well.

6.7 Conclusion

This chapter presents the findings of the study. As reported in this chapter, the following hypotheses were supported, namely; H_1, H_{1a}, H_{1c}, H_{1e}, H_{1g}, H_{1h}, H_{1i}, H_2, H_3, H_4. In contrary, the other hypotheses were not supported, namely: H_{1b}, H_{1d}, H_{1f}, and H_{1j}. The hypotheses testing was completed using regression analysis and structural equation modeling. The detailed discussion on the findings will be elaborated in the final chapter of this thesis, which is Chapter Seven.

CHAPTER 7

CONCLUSION

7.1 Introduction

This final chapter is devoted to summarize the study, discuss the findings, highlight the contribution of the study to the existing literature as well as practitioners, detail the limitations of the study, suggest the potential avenue for future study and conclude this thesis.

7.2 Summary of Study

This study investigated the structural relationship between TQM, Strategic Control Systems (SCS) and Organizational Performance (OP). The investigation was greatly motivated by the inconsistent findings concerning this relationship that appears in the contemporary literature, thus becoming another important unresolved issue that needs to be scientifically revisited. As commonly recognized, TQM has become a universal strategy for many manufacturing and service organizations in order to continually seek better performance. In line with the assertion of many TQM proponents, many previous studies (Arawati, 2005; Li *et al*., 2003; Yasin *et al*., 2004) have empirically revealed that there is a significant relationship between TQM and organizational performance. Apart

from the successful stories, not all TQM implementers have executed their TQM successfully (Sanchez-Rodriguez & Martinez-Lorente, 2004; Sila & Ebrahimpour, 2002). As suggested by Ehigie and McAndrew (2005), the implication of these inconsistent results is that, future researchers need to investigate the variables that can shed light on explaining the relationship between the TQM strategy and performance. One of the variable that is always discussed in the literature as related with the strategy implementation is control systems. For example, the discussion on the control systems that are required for TQM strategy to be successfully implemented has been widely reported and discussed in the literature (Andersen *et al*., 2004; Daniel & Reitsperger, 1991; Ittner & Larcker, 1997; Selto *et al*., 1995).

Given the unresolved issues relating to the relationship between TQM strategy and organizational performance, this study investigated the structural relationship between TQM strategy, SCS and OP. As typically reported in the control systems literature, the purpose of control systems is to assist the managers of an organization to perform the control function (Macintosh & Daft, 1987). The control systems involve several stages starting from the planning stage to feedback stage. However, the number of the stages involved in control systems was different from one scholar to another. For strategy focused control systems, it is known as strategic control systems (Ittner & Larcker, 1997). In other words, it is defined that strategic control systems should involve all proposed important practices of control systems as discussed in the literature, but every stages must be consistent with the intended strategy.

The objectives of the study as discussed in Chapter 1 of this thesis are represented here as a guidance for the discussion in this section. Given that, the objectives of the study were to:

a. To determine the relationship between TQM strategy and organizational performance.
b. To investigate the relationship between TQM strategy and strategic control systems.
c. To study the relationship between strategic control systems and organizational performance.
d. To justify the structural relationship between TQM strategy, strategic control systems and organizational performance.

In order to achieve the objectives of this study, an extensive literature review was performed and reported in Chapter 2 and Chapter 3. As revealed in Chapter 2, while TQM has been implemented in almost all Malaysian local governments, it had been given comparatively little research attention. In addition, previous studies on the relationship between TQM and organizational performance have revealed inconclusive results. What are the determinants of successful TQM strategy, and why do some organizations try to implement it but are unsuccessful?. While these two questions have received considerable attention from TQM scholars over the past years, they remained largely unanswered.

As widely proposed in the contingency literature, the unsuccessful implementation of organizational strategy is due to the ‘misfit’ or ‘mismatch’ between

organizational strategy and organizational control systems. In line with the contingency theory, many management accounting scholars have conceptually asserted the traditional accounting control systems such as traditional budgetary control systems as misfit or perhaps fail to address the requirement of TQM strategy. On the other hand, the more contemporary or strategy focused control systems was proposed and acknowledged as important for the success of TQM strategy. Therefore, there is a need to investigate the role of strategy focused control systems or SCS in explaining the relationship between TQM strategy and organizational performance. As a response to the call for using a more rigorous statistical analysis, which is SEM in management accounting research, a SEM framework was developed.

After doing a considerable review of TQM literature, as discussed in Chapter 2, ten critical factors of TQM strategy have been recognized as illustrated in Table 2.4, namely management commitment, strategic planning, customer focus, benchmarking, human resource management, supplier relationship, continuous improvement, quality information systems, service design, and social responsibility. Compared to the other nine critical factors of TQM, service responsibility had generally received scant attention in TQM literature.

Additionally, several important issues were raised in Chapter 3. For instance, control systems's literature was lacking a generally accepted framework for the SCS. Second, many researchers have strongly supported the institutionalization of SCS. However, the empirical evidence concerning this practice is still lacking and still at the

infancy stage. Third, many issues of the relationship between organizational control systems and organizational strategy remain unexplored in the accounting literature. Fourth, the empirical evidence concerning the relationship between TQM strategy and control systems is difficult to integrate due to certain methodological flaws of previous studies.

Additionally, Chapter 3 of this thesis has also discussed the organizational performance literature. As could be concluded, organizational performance is a multidimensional construct, where a researcher needs to appropriately define the operational definition in each conducted study. While most of the management accounting scholars had limitedly focused on the financial related performance, this present study operationalized organizational performance construct using a wider scope of definition of organizational performance. Given that, four main important distinct dimensions of organizational performance were derived from the literature, namely financial, employee, customer and internal process. These four dimensions of organizational performance were able to provide a more complete picture of organizational performance construct.

In line with the objectives of this study, as well as the variables and dimensions discussed in Chapter 2 and Chapter 3, the framework of the study was formulated and presented in Chapter 4. This framework had been developed consistently with the premise of contingency theory. Although the contingency theory seems to receive many critics, but researchers in contemporary literature of control systems have been

convincing the ability of contingency theory in explaining the strategy-control-performance linkage. Based on the framework of this study, a series of hypotheses were generated as appeared in Chapter 4.

In order to test the framework under study, a quantitative research methodology was applied as reported in Chapter 5. A series of closed ended questions was used to obtain the necessary data of construct specified within the theoretical framework that is depicted in Figure 4.1. In developing the research instrument, the items of constructs understudy were adapted and adopted from multiple scholarly resources to support the content validity of the constructs. All items were measured by a five-point Likert scale ranging from 1 (one) for 'strongly disagree' to 5 (five) for 'strongly agree'. A final score for each construct was calculated by averaging the score of their respective items. A higher score indicates a higher practice of TQM strategy, a more intense use of SCS and a better organizational performance. In addition to an extensive literature review, the items of constructs under study were also reviewed by academicians and validated using a rigorous validating analysis, thus providing a valid and reliable research instrument.

This study is a correlational study. Departments of CC and MC were selected as units of analysis with HOD were chosen as respondents. For the sampling procedure, Stratified Cluster Random Sampling was used accordingly with the characteristics of the Malaysian local governments. Thirty-one departments of CC and MC were involved in the pilot study and an analysis of reliability and validity were performed. After completing the reliability and validity analysis, several items of the questionnaire were

removed from the questionnaire set, thus providing a valid and reliable research instrument. Hypotheses under study developed were tested using AMOS and SPSS. The next subsection discusses the summary of the findings.

7.3 Conclusion

In order to achieve the first objective of this study**,** the structural path between TQM strategy and organizational performance was examined. As given in Table 6.20 in Chapter 6, the said path indicated a significant and positive relationship between TQM strategy and organizational performance, thus supporting the hypothesis for the relationship between TQM strategy and organizational performance. The finding is consistent with and confirms the empirical findings of previous studies such as Llorens Montes and Verdu Jover (2004). Therefore, this finding suggests that TQM is critical for local government to attain its goals and accomplish the intended performance.

Without doubt, a local government with an effective TQM implementation would be able to satisfy their constituents by having good delivery systems and good customer complaint management. Additionally, a local government with a high degree of effective TQM implementation would lead to better financial performance[22], where TQM institutionalization would be able to prevent significant defect in work process, thus resulting in less repetitive work and scraps. In addition to fewer defects, the practice of

[22] By having a good delivery systems and customer complaint management systems, many managers of Malaysian local government believed that TQM would be able to increase the assessment tax collection of their constituent. This opinion was given by Rosli Osman, Administration and Human Resource Department of Kuantan MC (personal communication, May 25, 2006); Teh Chor Kim, Quality and Training Department Seberang Prai MC (personal communication, May 30, 2006); and Hj Hamyadi Hj Mamat, Administration Department, Malacca CC (personal communication, June 12, 2006).

TQM would also be able to satisfy the reasonable expectation of other stakeholders as elaborated in Government's circular in Malaysia (Development Administration Circulars of Government of Malaysia, 1991). Moreover, a local government with a good reputation in quality would be able to achieve better performance. For example, highly reputable local governments can attract new housing developers, new residents from the higher socioeconomic, as well as new business investors to set up factory, office or shop, thus strengthening and improving their financial performances with the bigger size of tax collectable.[23]

As can be seen in Figure 6.5, the error variance of most critical factors of TQM strategy is related to each other. Perhaps, this finding provides evidence to the 'in package' nature of TQM. Consequently, managers of local government cannot be selective in implementing certain critical factors of TQM strategy and ignoring other factors. Perhaps, all critical factors of TQM strategy have 'synergistic' relationship between them. Therefore, the critical factors of TQM strategy should not be viewed as a menu when managers can implement according to their appetite. For instance, an organization that adopts benchmarking practice is likely to employ other critical factors, such as customer focus[24].

[23] These kinds of competition among certain Malaysian local governments was clearly explained by Teh Chor Khim, Quality Officer of Seberang Prai MC in an interview with researcher on 30 May 2006 by giving an example on the competition between Seberang Prai MC, Pulau Pinang MC and Kulim MC (personal communication, May 30, 2006).

[24] As practiced in Subang Jaya MC, the performance of customer counter service in their organization is benchmarked with corporate organizations like Telekom and commercial banks. This information was given by Hamizun Mohd Basar, a quality pioneer in Subang Jaya MC. (personal communication, June 27, 2006).

However, further examination was done to examine the relative contribution of each critical factor of TQM strategy towards organizational performance. As revealed by previous TQM researchers, the degree of contribution of each critical factor of TQM strategy towards organizational performance varies (e.g., Llorens Montes & Verdu Jover, 2004). From another perspective, the understanding on the critical factor of TQM strategy that contribute most (best predictors of) to organizational performance would help local government's managers with the allocation of limited resources and fund to those factors that have the most significant effect on organizational performance. As reported in regression analysis in Chapter 6, only five out of ten critical factors of TQM strategy understudied were positively and significantly related to organizational performance. The non-significance of the other five needs future examination. As revealed in this study, a local government that emphasizes critical factors of TQM strategy such as management commitment, customer focus, continuous improvement, quality information systems and service design is likely to achieve good organizational performance.

As revealed in this study, the successful implementation of TQM depends on a strong commitment from the management. This finding is in line with the TQM literature that strongly emphasizes the commitment of management as one of the determinants for TQM to be successful. In most organizations, the management of an organization acts as the introducer of TQM implementation (Arawati & Abdullah, 2000). However, for Malaysian local governments, the role of management is more towards the leader or the main driver of TQM implementation. As presented in Chapter 2, the introduction point of TQM implementation in Malaysian public organizations was the launching of the

'Excellent Culture Movement' in 1989. In recognizing the critical role of management commitment, the DAC no. 1 of 1992 that was circulated by the Government of Malaysia to all governmental organizations had listed the role of management as the most important factor for executing TQM.

As reported in the structural model of this study, as depicted in Figure 6.5, the structural loading of management commitment on TQM was among the highest, thus providing evidence on the importance of management commitment statistically. A further discussion was also done with several officers from local government to understand the importance of management commitment in realizing the objective of TQM[25]. However, in case of unsuccessful TQM implementation, managers of local government revealed that the short period of service term of top management[26] inhibited the top management to inculcate the quality culture or executing and evaluating the quality policy. Each new leadership always brings new approach, even not contradictory but sometimes is inconsistent. As currently widely practice in Malaysia, the service term of the Yang Di Pertua or City Mayor is about two to three years. The short service term perhaps inhibit the management of local government from having a long-term vision. As documented by Sohal & Terziovski (2000), the short-term vision of managers was among the obstacles for TQM strategy to be successfully implemented.

[25] Management commitment was also ranked as the most critical factor for TQM to be successful by Mohd Nazri Harun, Head of Building Dept. of Kulim MC (personal communication, May 30, 2006) and by Mariam Hj. Ahmad, Deputy Director of Administration Dept. of Johor Bharu Tengah MC (personal communication, May 8, 2006).

[26] The problem of short-term period of service of Yang DiPertua or Dato Bandar was coded as the barrier for the success of TQM implementation by Siti Aisyah Abu Bakar, Director of Administration and Human Resource Dept. of Port Dickson MC (personal communication, June 14, 2006). This opinion was also shared by Noriah Mohamad from Quality Unit, Service Management Dept. of Shah Alam CC (personal communication, June 28, 2006).

Looking from another perspective, the short-term vision of managers of local government is perhaps the underlying reason for the insignificant relationship between strategic planning and organizational performance. As revealed in regression analysis, the H_{1b} of this study that postulated the relationship between strategic planning and organizational performance was rejected. Perhaps, the practice of strategic planning is unable to be attended without a long-term focus from the management. Statistically, the closeness of the relationship between management commitment and strategic planning can be traced in Figure 6.5. As depicted, the full model of SEM showed that the error variance of management commitment and strategic planning is correlated. In addition to the short period of service term, certain top management of local governments were not able to provide adequate resources[27] to the implementation of TQM. Inadequate supports from management, as well as limited resources are probably the reason for the unsuccessful stories of TQM implementation in certain local government.

Additionally, the finding of this study provides evidence concerning the relationship between customer focus and organizational performance. Through customer focus, a local government tries to deliver services that are able to satisfy the reasonable expectations of their customers or constituents. As suggested by Juran (1988), the practice of customer focus would encourage organizations to consistently review the needs, interests and expectations of their customers. This review process would improve

[27] Inadequate fund was recognized as one of the reasons for unsuccessful implementation of TQM as informed by Abdul Rahman Abdullah, Ass. Director of Cororate Planning (Quality Management) of Johor Bharu CC (personal communication, May 8, 2006).

the capability of local governments in fulfilling their customer needs[28]. The institutionalization of customer focus would also be useful in deterring the implementation of unnecessary amenities project or white elephant project. In this case, a customer survey should be done in order to know the demand and necessity of the constituents. Without a proper survey, a big sum of money would be wasted on unnecessary projects[29].

Without doubt, satisfying the constituents' reasonable expectations is the critical goal of a local government. In most Malaysian local governments, 70% to 80% of their annual income is from the assessment tax collection. Although there is no empirical study reported concerning the relationship between constituents' satisfaction and assessment tax collection, many managers of local governments believed that the satisfied constituents would be more willing to pay the tax without much enforcement effort, thus decreasing the cost of administration of a local government.

The finding of this study also reported the significant positive relationship between continuous improvement and organizational performance. This finding is in line with the results reported by previous researchers such as Gatchalian (1997) and Benavent *et al*. (2005). As commented by Rostam (Sunday Times, p.18, 2005), a Professor of

[28] Various approaches are being taken by local government in practicing the customer focus concept. In Subang Jaya MC and Kuala Lumpur CC, they have appointed new staff with degree requirement as front desk staff in order to deliver better customer counseling and handling customer complaints. In Petaling Jaya CC, the area under PJCC was divided into sections and patrolled by Member of Council for the purpose of handling various constituent complaints; In Ipoh CC, Kuantan CC, Kemaman MC, Temerloh MC, the Customer Care Day has been done for every month.

[29] Examples were given by interviewees concerning the project that launched for the sake of politician but then become neglected. However, as requested by interviewee, the particulars information can not be reported here.

Human Geography, in a local newspaper, local governments in Malaysia should always prepare themselves to deal with rapid urbanization. In other words, rapid urbanization needs a local government to continually be sensitive to the needs of their constituents. In order to continually seek better ways to provide services to their constituents, local governments therefore need to institutionalize continuous improvement. Perhaps, a local government that is unable to continually improve their performance in line with the rapid development would receive more complaints from their constituents. In practicing the continuous improvement, a wider scope should be exercised. As elaborated by Benavent *et al*. (2005), the practice of continuous improvement should go beyond the context of serviced delivered, where the management of an organization itself needs to be continually improved.

Additionally, this study revealed the positive significant relationship between quality information systems and organizational performance. As with many other governmental organizations, local governments in Malaysia also need to respond well to the development of information and communication technology. With a better information systems infrastructure, local governments would be able to effectively manage their quality information systems, thus leading to better performance. Among the positive movement that was implemented by local governments are the e-complaint systems whereby the constituents can directly send their complaints through the internet. The response provided by the local government is also given through the internet thus shortening the time taken. The finding of the significant relationship between quality information systems and organizational performance provided evidence of the

importance of having effective information systems in managing quality management in local governments.

The finding of this study also revealed the significant positive relationship between service design and organizational performance. As documented by Lakhe and Mohanty (1995), a good service design would be able to improve the performance of an organization. The introduction of a one-stop centre in several Malaysian local governments is among the step taken to improve the service offered. By introducing a one-stop centre, time taken to process the customer application or entertaining the customer complaints would be shorter. As mentioned by many managers from the local government, one-stop centre would be able to improve coordination among the related departments or units. Good coordination among related departments is among the prerequisite for the practice of quality related service design (Saraph *et al*., 1989). Moreover, the service offered should be linked to the capability of the staff so that the quality of service delivered could be sustained.

Interestingly, the relationship between HRM and organizational performance was reported as negatively significant. In this study, the TQM-oriented HRM was measured by combining the definition forwarded by Tari (2005) and Ahire *et al*. (1996). The detail discussion on these definitions was presented in Chapter 5 of this thesis. As discussed earlier, this study defined TQM-oriented HRM strategy as being consisted of employee empowerment; employee training; employee involvement; and teamwork. As widely reported in TQM literature, these practices are positively related to organizational

performance. In contrast, this study revealed the inverse relationship between HRM and organizational performance.

Looking at empowerment as an example, the literature suggests a positive relationship between empowerment and organizational performance. However, the case for Malaysian local governments is perhaps different. As commented by the Minister of Housing and Local Government, the empowerment practices in local government, particularly with reference to enforcement officers would lead to corruption and thus jeopardize the overall performance of local governments (New Straits Times, p.14, 29 June 2004). Moreover, the inverse relationship between HRM and organizational performance could be linked to the issue of inexperience of many managers of local governments. As commented by the Mentri Besar of Selangor (The Sun, p.1, 21 April 2004), many heads of department of local government did not understand their job responsibilities. Therefore, it can be presumed that involvement, empowerment and teamwork practices without having adequate experience may lead to negative consequences. Due to inadequate experience, the function of training becomes more critical. However, in order to provide an effective training programme for managers of local governments, a training need analysis should be done[30].

The inverse relationship between HRM and organizational performance can also be linked with the nature of 'closed service' of local governments. As a closed service,

[30] Due to the importance of human resource factor in determining the success of TQM objectives, 'training need analysis' was among the critical steps in quality programme implementation at Johor Bharu Tengah MC, as informed by Mariam Hj. Ahmad, Deputy Director of Administration Dept (personal communication, May 8, 2006).

staff from a local government cannot be transferred from one local government to another local government or another governmental organization. Perhaps this situation would lead to low motivation among employees. Therefore, the issue of HRM should be critically evaluated due to the essential role of employees in determining the successful of TQM implementation[31].

The finding of this study also reported that the factor of supplier relationship was insignificantly related to organizational performance. This finding can perhaps be linked to the situation that most of the local governments, as generally practiced by other Malaysian public departments, award contracts to suppliers who are the lowest bidders as long as they meet the minimum intended specifications. The practice of selecting and awarding the supplier based on the price merit is inconsistent with the quality related supplier management as pointed out by Deming (1986). As elaborated in Deming's 14 points, the organization should consistently develop a relationship with the supplier based on 'quality related merit' rather than the price merit alone[32]. However, the lack of adequate funds is probably the reason for Malaysian local governments to put stress on price based evaluation instead of quality related evaluation. The insignificant relationship between supplier relationship and organizational performance perhaps can also be linked

[31] Human factors were coded as the most important factors for TQM to be successful by Teh Chor Khim, Quality Officer of Seberang Prai MC (personal communication, May 30, 2006). Additionally, lack of good HRM practices was coded as the barrier for any quality improvement programme in Kangar MC, as experienced by Badruddin Baharom, Head of Secretariat Dept of Kangar MC (personal communication, May 15, 2006). The same issue was forwarded by Bohari Samingon, Head of Management Service Dept. of Muar MC (personal communication, June 13, 2006).

[32] 'Political based decision' was also coded as the culprit for practice of rewarding supplier based on quality related merit as voiced out by Badruddin Baharom, Head of Secretariat Department of Kangar MC (personal communication, May 15, 2006).; Siti Aisyah Abu Bakar, Head of Administration and Human Resource Department of Port Dickson MC (personal communication, June 14, 2006).; and Yusof Atan, Officer of Management Service Department of Ampang Jaya MC.

with the nature of local government as a service organization. In a previous study, Llorens and Montes Jover (2004) documented that the service organization in their study had revealed the supplier relationship as among the least important factor for TQM implementation. In another study, Sanchez-Rodriguez and Martinez-Lorente (2004) reported the insignificant relationship between supplier management and customer performance of service organization. Compared to manufacturing organizations, the role of supplier for services organizations, although important, is difficult to be directly linked with the output or services delivered by an organization.

This study also found the insignificant relationship between benchmarking and organizational performance. This finding is in line with the finding of Samson and Terziovski (1999). They revealed that the soft factors, such as management commitment and customer focus, could produce better organizational performance than a hard factor such as benchmarking. However, the insignificant relationship between social responsibility and organizational performance needs further clarification. Perhaps, the institutionalization of factors of social responsibility for a local government is considered as a must and not as an option as with business organizations.

The results of the SEM also indicated that TQM is significantly and positively related to SCS, hence supporting the hypothesis for the relationship between TQM and SCS. Therefore, this study concludes that the higher the level of TQM being implemented, the higher would be the level of SCS being used. This finding confirms the previous studies done by other control system researchers like Govindarajan and Gupta

(1985), who revealed that the practice of control systems was contingent upon the organizational chosen strategy. It is also in line with the findings reported by Goold and Quinn (1990) and Chenhall (2003). They found that SCS had been recognized as important systems for monitoring and implementing organizational strategy. This study also supports the premise of contingency theory, which holds that organizational control systems are determined by the organizational intended strategy. Therefore, for those organizations that are in the process of designing their control systems, it must be co-aligned with their intended strategy.

From the SCS point of view, the finding of this study provided important confirmation. As discussed in Chapter 2, the role of SCS has been recognized as vital in supporting the TQM strategy (Goold & Quinn, 1993; Muralidharan, 2004). In addition, having the significant path coefficient between TQM and SCS seem to support the previous studies (Daniel & Reitsperger, 1991; Ittner & Larcker, 1997; Andersen *et al*., 2004) suggesting that it is important for organizations to co-align their control systems with intended strategy in order to perform better in their performance. In other words, the implementation of TQM strategy must be supported and complemented by the right and effectively implemented control systems[33]. Perhaps, this 'co-alignment' will lead the organization to achieve better performance.

[33] As experienced by Mariam Hj. Ahmad, who lead the quality initiative at Johor Bharu Tengah MC, the introduction of quality programme is only the first step in quality improvement effort, but what is more critical is the monitoring activities of the quality program (personal communication, May 8, 2006). This opinion was also agreed by Hamizun Mohd Basar, who leads the quality initiative at Subang Jaya MC (personal communication, June 27, 2006).

Given the importance of control systems in executing organizational strategy, this study also attempted to identify the intervening role of SCS on the relationship between TQM and OP. As revealed in this study, TQM strategy through the presence of SCS had a stronger relationship with OP, as compared to direct relationship between TQM and OP. In other words, the finding indicated that the explanatory power of TQM toward OP was higher when mediated by SCS than that of TQM directly toward OP. Therefore, it could be concluded that the presence of SCS is essential to the success of TQM strategy. Perhaps, TQM strategy and SCS have a synergistic impact on OP. Therefore, these findings provide support for the earlier conclusion derived by Andersen *et al*. (2004). As reported by them, an organizational strategy could be implemented more successfully with the presence of strategy focused control systems.

TQM strategy needs high inter-functional activities (Groocock, 1986; Feigenbaum, 1986), whereby entire functional activities like research and development, purchasing, production, human resource, accounting and marketing are involved in the attainment of TQM strategy. In order to coordinate these high inter-functional activities, an effective control systems is required (Zakaria, 1999). Therefore, the result suggests that local governments seeking to improve their performance by practicing TQM are subject to the presence of TQM focused control systems[34]. By having TQM focused

[34] As explained by June AC Din, Senior Admin Assistance of Ipoh CC with 28 years working experience, the lack of commitment from lower group of employee towards TQM was because the philosophy of TQM was not explained well by the top management to the lower group of employees. As a consequence, TQM was understood as a gimmick *per se*. She added, the failure of TQM also perhaps due to the contribution of employee towards TQM programme was not given weight in annual staff performance evaluation (personal communication, July 4, 2006). This problem was also experienced at Batu Pahat MC, as explained by A. Hamid Amir, Head of Admin Assistance with 33 years working experience (personal communication, June 13, 2006). The personal experience of these two people perhaps represents the experience of other non-executive employees of local government.

control systems or strategic control systems, TQM would be easier to be understood by all the organizational members and thus would be able to be internalized by them as a way of life.

The finding on the relationship between SCS and OP is consistent with previous studies such as Merchant (1982) and Goold & Quinn (1993). As such, Merchant (1982) stated that the implementation of good control systems will lead to good performance of organization. In addition, Goold and Quinn (1993) in using a case study approach found that the organization with SCS had benefited a number of advantages such as greater clarity and realism in planning and encouraging higher standards of performance.

7.4 Contributions

This study provided insights regarding an important emerging issue of local government, which is the current low performance of local government as widely prescribed in the public newspapers. This study was able to expand the boundary of current literature as it investigated the intervening role of SCS in explaining the relationship between TQM and OP using SEM analysis. By integrating the knowledge of quality management and control systems, this study contributed to the academia and local government's managers as explained below.

7.4.1 Contribution to Literature

For management accounting literature, this study sought to improve the understanding of the relationship between TQM, SCS and organizational

performance. As widely reported in management accounting literature, the inter-relationship between strategy, control systems and performance has become among the major research themes. However, in this area, there is still a lot of issues that needs to be addressed. Among unsettled issues in management accounting research is the role of control systems in executing organizational strategy such as TQM. Therefore, this study has provided an insight on this issue to management accounting literature.

Additionally, this study also contributes to the management accounting literature by using measures that capture the multi-dimensionality of organizational performance. As widely reported, MA literature has limitedly focused on only financial performances (Otley, 1999). While financial performances are of primary importance in assessing the performance of profit organizations, non-financial performance of OP is perhaps more appropriate and relevant in public-oriented organizations (Kaplan & Norton, 2000). Clearly, neither business organizations nor public organizations can be evaluated solely on the basis of their financial performance[35]. The performance of public organizations like a local government should also be judged on their social performance such as staff development and ability to deliver service as expected by the community.

[35] As mentioned by Rosli Osman, Head of Administration and Human Resource Management Section of Kuantan MC with 21 years working experience, the performance of local government was very difficult to be measured precisely due to too many functions and responsibility of local governments (personal communication, May 25, 2006). For example, there are 58 types of customer complaint for Petaling Jaya CC, as informed by Haniza Abdul Hamid, Director of Public and Corporate Affairs Dept. (personal communication, June 26, 2006).

For TQM literature, the results of this study shed light on the unresolved issues concerning the relationship between TQM and organizational performance by examining the intervening role of control systems. This is a significant contribution of this study where there is such substantial disagreement in the literature over the relationship between TQM and organizational performance. Given the fact that most of the research concerning TQM was done by examining the direct relationship between TQM and organizational performance, there is a gap in TQM literature that discusses the issue of fit between TQM and control systems. As widely discussed in contingency literature, an organization must align their strategy and controls systems so as to achieve intended goals.

In the literature for public organizations, this study represents one of very few large scale empirical researches investigating TQM and SCS in public organizations. As mostly reported in the literature, past studies have mainly focused on business sector organizations, and less focus was given on public organizations such as hospitals, universities and local governments, thus raising the issues of generalizability and applicability of the findings to public sector organizations. As discussed in the literature (Hunt, 1995), public sector organizations have their own unique characteristics that must be considered by researchers. Despite the growing awareness of importance of researching issues in public sector organizations, most of the literature in this area in the Malaysian public sector is descriptive, prescriptive and observational in nature. Therefore,

this study of local governments is an attempt to add empirical knowledge concerning this issue.

This study also contributes to the literature by developing a SEM framework as a response to a call made by management accounting scholars (Smith & Langfield-Smith, 2004). This call had been made due to the flaws in the application of more commonly used statistical analysis like regression analysis. Although SEM has become the pre-eminent statistical analysis in many social sciences research (Hershberger, 2003), this is not a case in management accounting. In other words, it appears that management accounting researchers have not taken advantage of the potential benefits provided by SEM. Indeed, the use of SEM provides a big potential for theory development and instrument validation in management accounting research.

In addition to the model testing, this study also reported a rigorous analysis on the instrument validation. As discussed in Chapter 2 and Chapter 3 of this thesis, TQM, control systems and organizational performance were among the regularly investigated constructs in the management accounting literature. However, the control systems and organizational performance construct has been less rigorously tested. Most of the previous studies had limitedly relied on traditional testing procedures like cronbach alpha coefficient and factor analysis. Therefore, by extending the validation analysis to the confirmatory factor analysis, this study was able to contribute to management accounting literature. It

is generally presumed that poor validity of measurement instruments can lead to misleading or erroneous conclusions, which in turn tarnish the development of academic discipline.

7.4.2 Practical Contribution

The results of this study should also be able to further raise awareness among managers of local governments on the importance of institutionalizing TQM in their organizations. This awareness should further be followed by increasing their commitment towards the implementation of TQM. As revealed in this study, management commitment is one of the critical factors for TQM implementation to be effective. As a leader of an organization, their perseverance, long-term vision and customer-oriented mindset are important ingredients for executing TQM. However, as widely discussed in this thesis, strategy is only a means towards an end. What is more critical are good systems for monitoring the implementation of TQM. Given the significant role of control systems in monitoring the development of organizational strategy, the finding of this study suggests that managers of local governments should further take necessary actions in aligning their control systems practices with TQM. For instance, budgetary control systems of local governments should be TQM focused and not implemented in isolation. If the TQM and control systems are not aligned, this would cause an ineffective TQM implementation. This premise has been widely discussed in the literature, particularly in contingency theory literature. The practices of other control systems such as internal communication, standard of

procedure, recognition and annual staff evaluation should also take into consideration the TQM needs. By integrating the TQM and control systems, managers of local government would be able to reap various benefits of TQM. More importantly, these benefits could be translated by delivering better services to the government, parliament and community at large.

7.5 Limitations

As other reported scientific research, this study is not without limitations and it is important to recognize these limitations explicitly. For the greatest benefit, limitations of this study should be considered when interpreting its results or before drawing any implications from its results. Three important limitations of the study that need to be addressed are generalizability, methodology and causality.

In terms of generalizability, this study is only limited to the city councils and municipal councils in Peninsular Malaysia and excludes those in Sabah and Sarawak as well as the district councils. The other local authorities that are specifically built for the purpose of administering the new development areas such as Pasir Gudang local authorities, Putrajaya Corporations and Kulim-Hitech local authorities were also excluded from the sampling frame of this study. Therefore, the findings of this study would give a deeper understanding into the practice of TQM, SCS and the level of local government's performance by including district council and those in Sabah and Sarawak and other local authorities that are specifically established for administering a new development area.

In terms of methodology, this study selected Head of Department (HOD) as a single key informant from each local government understudied. In measuring organizational performance variable, for example, the findings of this study should be confirmed in future studies by using information directly obtained from suppliers, employees and customers or constituents. Even though the respondents of this study were an authoritative person and a reasonable informant, but the performance of local government should also be evaluated by other stakeholders like taxpayers, the public, corporate sector and ministry. Future research should scrutinize this matter. If organizational performance variable is asked to the public, a lot of underlying issue should be taken into consideration. As such, evaluation by the public might be influenced by news on media, their colleague experience, intensity of their communication with local governments, different political background, economic, social and educational status and not their knowledgeable evaluation.

This study also used perceptual measures to measure organizational performance theoretical constructs. Even though extra care was taken to ensure reliability as well as validity of the construct by running a pilot study and assessing their reliability and validity, future research could benefit from the use of more objective data. Future research can also use the combination of perceptual and objective measures to provide a convincing conclusion regarding the organizational performance construct.

In terms of causality, this survey study uses a cross-sectional sample made at one particular point in time. Consequently, while causal relationship can be inferred, they

cannot be strictly proven. As widely discussed in the literature, TQM is a long-term initiative. Given its long-term nature, the relationship between TQM and organizational performance can be analyzed relative to the time of its implementation. In other words, a longitudinal study would be necessary to properly test the effects of TQM strategy on performance of local government.

7.6 Direction for Future Research

Several fruithful suggestions for future research emerged from this present study. In this study, data was gathered using a survey approach. Consequently, data of this study only presents a static view of variables under study. In other words, the survey approach limits the ability to reveal the dynamic nature of the relationships between the variables. In order to reveal the dynamic nature of the relationship, case study is one potential approach that can be applied by future researchers. Therefore, results might be different if a case study approach is used, as a case study research provides the potential for a deeper investigation of the process involved in the relationship between TQM strategy, strategic control systems, and organizational performance. Also, case studies can allow a wide range of control systems to be investigated including those that are difficult to be measured with a survey's instrument.

Furthermore, data of this present study was collected using a cross-sectional approach using a set of questionnaire as a research instrument. Therefore, future researchers are able to extend this present study by collecting the data using a longitudinal approach. Longitudinal study enables researchers to investigate the complex

relationship between various variables. Additionally, longitudinal study is able to reveal on how these variables and their relationship develop over time. Therefore, it provides more in-depth study. As for the issue of the relationship between TQM strategy and control systems, a longitudinal study is able to explain the processes by which a strategic control system develops and changes in response to TQM strategy.

7.7 Conclusion

As a conclusion, issues of the performance of local governments will remain an important agenda for political leaders, managers and employees of local governments, academicians, researchers and community at large. Therefore, TQM which was first introduced into the public sector in the early 1990s, and the Best Local Government Authority Quality award which was first introduced in 2000, were among the focus of the Malaysian government to increase the performance of local governments. For those who are skeptical as to whether the institutionalization of TQM strategy could improve the performance of local governments, the findings of this study strongly suggests that TQM is an important ingredient for maintaining and increasing the performance of local governments.

This study also examined the structural relationship between TQM, SCS and OP. TQM, as widely reported in the literature review, is a widely practiced strategy for achieving OP, and in turn a competitive advantage. However, a good strategy *per se* may not be enough (Chenhall & Langfield-Smith, 1998). The more critical issue is the 'fit' between organizational strategy and organizational control systems (Selto *et al*., 1995).

Indeed, SCS has been articulated in the literature as an important control system for an organization in designing, executing, monitoring, and evaluating their TQM strategy. Without the presence of a suitable control systems, a local government will probably have difficulty in monitoring and evaluating the attainment of TQM objectives.

The results of this study strongly suggest the establishment of SCS as a complement for TQM strategy implementation. Given its significant function, the findings of this study also suggest that local governments implementing TQM must be willing to make changes in their current control systems if they wish their TQM strategy to be successful. In other words, the empirical findings of this study provided evidence that the significant success of implementing TQM strategy could be yielded by having a complementary presence of SCS.

As revealed in this study, management commitment was among the important critical factors of TQM. Consequently, it is important for management of local government to continuously motivate officers and staff so that they truly internalize the need to have the interest of stakeholders, customers and citizens at heart. The customer first culture of an organization can be achieved by making everyone take a public interest in everything he does, and understanding that his contributions are essential, critical and valuable to the well-being of the entire local government. Additionally, public complaints should continue to be effectively used as an important input for the improvement of the quality of service delivered by the local government to the public. Indeed, what the

private sector does with its own money, by and large, is its own business. On the other hand, what is done with public sector funds is everybody's business (Fadzilah, 1989).

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Appendix 1: Deming's 14 Points (Source: Walton, M, 1990, pp.17-18)

1. *Create constancy of purpose for improvement of product and service*. Dr. Deming suggests a radical new definition of a company's role. Rather than making money, it is to stay in business and provide jobs through innovation, research, constant improvement, and maintenance.
2. *Adopt the new philosophy*. Americans are too tolerant of poor workmanship and sullen service. We need a new religion in which mistakes and negativism are unacceptable.
3. *Cease dependence on mass inspection*. American firms typically inspect a product as it comes off the line or at major stage. Defective products are either thrown out or reworked; both are unnecessarily expensive. In effect, a company is paying workers to make defects and then to correct them. Quality comes not from inspection but from improvement of the process. With instructions, workers can be enlisted in the improvement.
4. *End the practice of awarding business on the basis of price tag alone*. Purchasing departments customarily operate on orders to seek the lowest-price vendor. Frequently, this leads to supplies of low quality. Instead, they should seek the best quality and work to achieve it with a single supplier for any one item in a long-term relationship.
5. *Improve constantly and forever the system of production and service.* Improvement is not a one time effort. Management is obligated to continually look for ways to reduce waste and improve quality.
6. *Institute training*. To often, workers have learned their job from another worker who was never trained properly. They are forced to follow unintelligible instructions. They cannot do their jobs because no one tells them how.
7. *Institute leadership*. The job of a supervisor is not to tell people what to do or to punish them, but to lead. Leading consists of helping people do a better job and of learning, by objective methods, who is in need of individual help.
8. *Drive out fear*. Many employees are afraid to ask questions or to take a position, even when they do not understand what the job is or what is right or wrong. People will continue to do things the wrong way, or to not do them at all. The economic loss from fear is appalling. It is necessary for better quality and productivity that people feel secure.
9. *Break down barriers between staff areas*. Often an organization's departments or units are competing with each other, or have goals that conflict. They do not work as a team so they cannot solve or foresee the problem. Worse, one department's goals may cause trouble for another.
10. *Eliminate slogans, exhortations, and targets for the work force*. These never helped anybody do a good job. Let workers formulate their own slogans.
11. *Eliminate numerical quotas*. Quotas take into account only numbers, not quality or methods. In contrast, they usually guarantee inefficiency and high cost. To hold a job, a person meets a quota at any cost, without regard for the larger organization.
12. *Remove barriers to pride of workmanship*. People are eager to do a good job and distressed when they cannot. Too often, misguided supervisors, faulty equipment, and defective materials stand in the way of good performance. These barriers must be removed.

13. *Institute a vigorous programme of education and retraining.* Both management and the work force will have to be educated in the new methods, including teamwork and statistical techniques.
14. *Take action to accomplish the transformation*. It will require a special top management team with a plan of action to carry out the quality mission. Workers cannot do it on their own, nor can managers. A critical mass of people in the organization must understand the 14 points.

Appendix 2: Juran's 10 steps. (Source: Juran, J. M., 1988)

1. *Build awareness of the need and opportunity for improvement*. Before a quality improvement programme can be successfully launched, managers and administrators need to be convinced that a problem exists. This can be done by acknowledging the loss of customers due to foreign competition, poor records of delivery times, etc.
2. *Set goals for improvement*. Ford Motor set its goals as "Quality is Job One." Some companies decide to be very specific with goals like "We will cut the cost of poor quality by 25% within two years'. The major reason goals are important is to announce to all that a change is taking place within the company and that quality is important.
3. *Organize the overall programme*. Juran suggests the development of a quality improvement council that actively involves upper management. This group of upper managers guides, supports and coordinates the overall programme. The council helps to identify training needs, establishes support for team designs recognition plans and plans for publicity.
4. *Provide training*. The implementation of a quality improvement effort assigns new role to every associate. To be successful requires training in concept, skills and tools of continual improvement.
5. *Carry out projects to solve problems*. Juran teaches that breakthroughs in quality improvement are achieved project-by-project, and in no other way. A project is a problem chosen for a solution and is also a managerial way of life. There is no such thing as an improvement in general.
6. *Report progress*. Reporting progress is critical to ensure that there really is a 'meeting of the minds' as to what is happening and what plans are in store for the future. Reports keep managers informed so that they can help the team overcome obstacles.
7. *Give recognition*. There are numerous ways that recognition can be given to project teams including certificates, plaques, and dinners, in addition to the opportunity to report in the office of the ranking local manager.
8. *Communicate results*. Good communication is an essential component of a continual improvement effort. Communication can be enhanced through regular stories in the company's newsletter and local newspapers, posters and notes on bulletin boards.
9. *Keep score.* Scores can be kept in several ways, including 'progress on individual improvement projects, progress on projects collectively and merit rating of individuals with respect to quality improvement'. Juran states that there is no debate on revising the merit system to include performance on quality improvement. To do otherwise weakens the emphasis on quality.
10. *Institutionalize the annual improvement process*. Quality improvements need to become a regular component of the manager's job along with supervising, monitoring etc. Quality efforts should not be viewed as an 'add-on' to the other responsibilities of anyone working in the company. No meetings should be held without quality playing an important role in the agenda.

Appendix 3: Crosby's 14 steps (Source: Crosby, 1980)

1. *Management commitment*. Make it clear that management stands on quality, and that the final product will conform to standards at the optimum price.
2. *Quality improvement teams*. Representatives from each department will participate on teams because each is a contributor to defect levels.
3. *Quality measurement*. Quality measurement provides an overview of current and potential non-conformance problems that allow objective evaluation and corrective action. The measurement reports are straightforward and expressed in terms that can be understood and used.
4. *Cost of Quality*. Define and evaluate the cost of quality and explain its use as a management tool. Crosby states that the cost of quality is composed of the costs of scrap, rework, warranty, service (except regular maintenance), inspection labour, engineering charges, purchase order charges, software correction, consumer affairs, audit, quality control labour, test labour, acceptance equipment cost, and other cost of doing things wrong. The total expense of these costs should be no more than 2.5 percent of sales dollar.
5. *Quality awareness*. It is important that the personal concern for quality be raised by all within the company. This can be accomplished in an number of ways including regular meetings to discuss non-conformance problems, through articles in the company newsletter, etc.
6. *Corrective action*. The goal of corrective action is to provide a systematic method of resolving forever the problems that are uncovered through previous action steps. Corrective action is best accomplished when teams work on the most serious problems first-following the Pareto principle.
7. *Zero defect planning*. The purpose of this planning by a special quality improvement tasks team is to list all the individual action steps that must be taken before the zero defect day to ensure success. The concept and programme of zero defects are explained to all supervisors so that they may explain it to their staff. A time scheduled is prepared; functions outlined, and the method of launching the program decided.
8. *Supervisor training*. The key to a successful quality improvement program is the supervisor. Supervisors need to be knowledgeable and skilled in what to do to carry out their part of the quality improvement programme.
9. *Zero defect day*. The purpose of zero defects days is to let all employees realize through a personal experience that there has been a change. Zero defect is a new way of life, and accomplishing this requires a personal commitment and understanding that is new to most people.
10. *Goal setting*. Shortly after zero defects day, the supervisors should meet with their individual workers to determine what kinds of goals they should set for themselves. The goals should be specific and measurable. The goals should be developed by the people themselves rather than by their supervisors, and should be challenging. The goals should be posted by the worker in a conspicuous place.
11. *Error-cause removal*. Individual employees should communicate to management any obstacle that makes it difficult to meet their goals. This is important because one of the most difficult problems employees face is in communicating with management.

12. *Recognition*. People appreciate recognition. Initially, they come to work for the money, but once the salary is established, their concern is for appreciation. Through recognition they realize that management seriously needs and values their help.
13. *Quality council*. Quality councils offer the opportunity for professional quality people to communicate on a regular basis to share their problems, feelings, and experiences with each other.
14. *Do it over again*. The purpose of this step is to emphasize that quality improvement programme never ends.

Appendix 4: List of Departments by Local Government as Reported on their Official Website

City Council (CC) / Municipal Council (MC)	Number of departments	Source (date assessed)
Kuala Lumpur CC	22 departments human resource management; administration; public works; cultural, arts, tourism and sports; architect and special project; health; mechanical engineering; valuation and property management; quantity surveyor; enforcement directorate; financial; housing management; master plan; town transportation; drainage and river management; building planning and control; licensing; legal and public relation; landscaping and town cleanliness control; economic planning and building coordination; IT and communication; community and social development.	www.dbkl.gov.my (26.04.2005)
Johor Bharu CC	7 departments planning; engineering; health; administration; society; finance; valuation	www.mbjb.gov.my (26.04.2005)
Alor Setar CC	8 departments treasury; management service; building; engineering; society; health and town; property management and valuation; development	www.mbas.gov.my (26.04.2005)
Malacca CC	13 departments valuation and management property; management; license and health; information technology; legal and enforcement; flat maintenance and community project; financial; town planning; corporate management and public relations; town landscaping; building control; parks systems management; engineering	www.mbmb.gov.my (26.04.2005)
Ipoh CC	9 departments planning; health; finance; community and public relations; administration and development; licensing and enforcement; landscape; valuation; engineering	www.mbi.gov.my (26.04.2005)
Shah Alam CC	12 departments finance; valuation and property management; planning; parks and recreation; building; management services; engineering; town service; corporate; enforcement; licensing and hawkers; IT and communication	www.mbsa.gov.my (26.04.2005)
Petaling Jaya CC	14 departments service; treasury; environment development; development planning; library and information management; valuation & estate management; corporate & public affairs; development & maintenance; mechanical & electrical; society development; building control; information technology; landscape; enforcement & safety	www.mppj.gov.my (26.04.2005)
Batu Pahat MC	6 departments health; legal & enforcement; valuation; secretariat; finance; engineering	www.mpbp.gov.my (26.04.2005)

Johor Bharu Tengah MC	9 departments administration; treasury; computer & IT; town & urban planning; building & engineering; valuation & property management; legal; health & licensing; landscaping & recreation	www.mpjbt.gov.my (26.04.2005)
Kluang MC	6 departments treasury; valuation; management service; legal; development; health	www.mpkl@johordt.gov.my (26.04.2005)
Muar MC	7 departments management service; finance; legal & enforcement; valuation & property management; planning & development; health & town service; engineering	www.mpmuar.gov.my (26.04.2005)
Kota Bharu MC	11 departments management service; finance; valuation; enforcement; licensing; corporate development; planning & building; engineering; town service; public affairs; Islamic development	www.mpkb.gov.my (26.04.2005)
Alor Gajah MC	11 departments management service; finance; legal; information technology; valuation & estate management; town service; town planning; building control; engineering; landscape; corporate & community	www.mpag.gov.my (26.04.2005)
Seremban MC	11 departments administration & personnel; valuation & properties; town planning; engineering; license; landscape & beautification; sports, recreation, art & heritage; building; finance; legal; ICT	www.mpsns.gov.my (26.04.2005)
Nilai MC	6 departments management service; treasury; valuation; planning & development; engineering; health & town service	www.mpn.gov.my (26.04.2005)
Port Dickson MC	9 departments management service; treasury; license & town service; building control; town & urban planning; landscape; engineering; legal & enforcement; valuation	www.mppd.gov.my (26.04.2005)
Kuantan MC	11 departments treasury; valuation; business development & control; planning & development; engineering & technical; management service; health & cleanliness control; social development & tourism; legal & enforcement; parks & recreation; mechanical engineering & electrical	www.mpk.gov.my (26.04.2005)
Temerloh MC	13 departments valuation & property management; development; finance; town planning; cleanliness & control; licensing; landscaping; public relations; service & general administration; legal & enforcement; information centre; health & environment; procurement & store	www.mptemerloh.gov.my (26.04.2005)
Manjung MC	10 departments management service; information systems; community development; treasury; laws; valuation; town planning; health & town service; building; engineering & maintenance	www.mpm.gov.my (26.04.2005)
Taiping MC	8 departments account & finance; engineering; valuation & property management; health & town service; town development planning; zoo; management service; building	www.mptaiping.gov.my (26.04.2005)

Kuala Kangsar MC	7 departments administration & organizational management; finance; engineering; town planning; laws & enforcement; licensing & cleanliness; valuation & property management	www.mpkkp.gov.my (26.04.2005)
Kangar MC	8 departments finance; secretariat; licensing; planning & development: laws; town service; valuation; engineering	www.perlis.gov.my/mpk (26.04.2005)
Pulau Pinang MC	10 departments secretariat; treasury; public health; building; engineering; valuation; legal; town planning & development; licensing; urban service	www.mppp.gov.my (26.04.2005)
Seberang Prai MC	10 departments management service; laws; treasury; health & urban service; licensing; engineering; building; town planning & beautification; valuation; social service	www.mpsp.gov.my (26.04.2005)
Ampang Jaya MC	10 departments management service; corporate planning; society; valuation & project management; town service & health; urban planning; building & architecture; treasury; landscape; laws & enforcement	www.mpaj.gov.my (26.04.2005)
Kajang MC	10 departments administration; corporate affairs; treasury; development & environment; valuation & estate management; legal & enforcement; engineering, infrastructure & development; building; town planning; landscape & recreation	www.mpkj.gov.my (26.04.2005)
Klang MC	10 departments management services; engineering; town planning; health; valuation & property management; finance; building; park & recreation; control & surveillance; community	www.mpklang.gov.my (26.04.2005)
Selayang MC	11 departments administration; public relations; treasury; public valuation; property management; town planning; building plan; engineering; licensing & health; legal & enforcement; information technology	www.mps.gov.my (26.04.2005)
Subang Jaya MC	9 departments corporate planning & society development; management services; development & maintenance; building; license & enforcement; treasury; health & town services; valuation & estate management; development planning	www.mpsj.gov.my (26.04.2005)
Sepang MC	7 departments administration & secretariat; engineering & building; town planning & landscape; valuation & estate management; revenue & finance; health & town service: enforcement & legal	www.mdsepang.gov.my (26.04.2005)
Kuala Terengganu MC	7 departments License, town service and society service; treasury; valuation & estate management; town planning & recreation; building; infrastructure & public works; mechanical & electrical engineering	www.mpkt.terengganu.gov (26.04.2005)
Kemaman MC	6 departments management services; treasury; property valuation & management; planning & development; engineering; town services and health	www.mpkemaman.gov.my (26.04.2005)

Appendix 5: Questionnaire in Bahasa

ARAHAN

Kepada responden yang budiman,

Sila jawab semua soalan dengan membulatkan jawapan yang bersesuaian mengikut penilaian anda.

Tiada jawapan yang betul atau salah bagi mana-mana soalan.

Sila kembalikan soalselidik yang telah lengkap dijawab terus kepada coordinator.

Maklumbalas yang anda berikan akan dirahsiakan dan akan digunakan bagi tujuan kajian sahaja.

Walaupun ringkasan hasil kajian ini mungkin dihantar ke organisasi anda, tiada data dari soal selidik akan didedahkan.

Tidak ada Pihak Berkuasa Tempatan yang akan dikenalpasti secara spesifik dan hasil kajian hanya akan didedahkan secara umum.

Kerjasama dan bantuan anda dalam melengkapkan soals elisdik ini amatlah dihargai.

Terima Kasih.

Jika anda mempunyai sebarang persoalan mengenai soal selidik ini, sila hubungi saya:
Zulnaidi Yaacob
Tel: 012-3675384
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BAHAGIAN 1 – STRATEGI PENGURUSAN KUALITI MENYELURUH (TQM)

Soalan- soalan di dalam bahagian 1 berkaitan tentang strategi pengurusan kualiti menyeluruh bagi jabatan anda. Sila jawab dengan membulatkan di nombor yang bersesuaian dengan maklumbalas kepada penyataan-penyataan berikut.

No	Perkara	Sangat tidak setuju	Tidak setuju	Tidak pasti	Setuju	Sangat setuju
Komitmen Pengurusan						
1	Pihak pengurusan amat komited terhadap tanggungjawab berkaitan pencapaian kualiti	1	2	3	4	5
2	Pihak pengurusan **tidak** memberi sokongan yang wajar ke arah perkhidmatan pelanggan yang cemerlang	1	2	3	4	5
3	Pihak pengurusan mengambil bahagian di dalam aktiviti penambahbaikan kualiti	1	2	3	4	5
4	Pihak pengurusan **tidak** membuat penilaian terperinci ke atas pencapaian objektif kualiti	1	2	3	4	5
5	Penelitian tentang isu-isu kualiti di dalam mesyuarat peringkat jabatan adalah menyeluruh	1	2	3	4	5
Perancangan Strategik						
6	Perancangan kualiti di peringkat jabatan adalah komprehensif	1	2	3	4	5
7	Pembentukan perancangan kualiti jangka panjang **tidak** mengambil kira keperluan pengguna	1	2	3	4	5
8	Pembentukan perancangan kualiti jangka panjang mengambilkira keupayaan jabatan	1	2	3	4	5
9	Isu tentang kualiti **bukan** perkara penting di dalam pembentukan perancangan jangka panjang jabatan	1	2	3	4	5
Tumpuan Pelanggan						
10	Jabatan ini menggunakan maklumbalas pelanggan secara efektif bagi meningkatkan prestasi perkhidmatan	1	2	3	4	5
11	Jabatan ini **tidak** berusaha dengan bersungguh-sungguh untuk meningkatkan kualiti perkhidmatan utama yang ditawarkan	1	2	3	4	5
12	Kakitangan jabatan ini sentiasa mengamalkan sikap sopan snatun terhadap pelanggan	1	2	3	4	5
13	Ringkasan tentang aduan pelanggan **jarang** diserahkan kepada ketua jabatan	1	2	3	4	5
14	Jabatan ini sentiasa mengambil tindakan susulan yang wajar terhadap hasil soal selidik ke atas kepuasan pelanggan	1	2	3	4	5

No	Perkara	Sangat tidak setuju	Tidak setuju	Tidak pasti	Setuju	Sangat setuju
Tandaaras						
15	Jabatan ini komited terhadap aktiviti penandarasan	1	2	3	4	5
16	Jabatan ini **tidak** memberi penekanan ke atas tandaras tentang tahap kepuasan pelanggan	1	2	3	4	5
17	Jabatan ini sentiasa membandingkan perkhidmatan yang ditawarkan dengan organisasi lain yang menawarkan perkhidmatan yang sama	1	2	3	4	5
18	Jabatan ini **tidak** menitikberatkan tandaras tentang proses perkhidmatan yang ditawarkan	1	2	3	4	5
19	Jabatan ini menekankan tandaras tentang tahap persekitaran perkhidmatan (seperti keselesaan, kemudahan dan keceriaan)	1	2	3	4	5
Pengurusan sumber manusia						
20	Kakitangan di jabatan ini **tidak** menitikberatkan amalan budaya kerja berpasukan	1	2	3	4	5
21	Jabatan menyediakan latihan yang mencukupi kepada semua kakitangan bagi menyokong perlaksanaan program kualiti	1	2	3	4	5
22	Program latihan yang dijalankan oleh jabatan **tidak** memberi penekanan kepada pengetahuan tenatng teknik statistic kualiti	1	2	3	4	5
23	Jabatan memperuntukan sumber yang mencukupi bagi menyediakan latihan kepada kakitangan	1	2	3	4	5
24	Tanggungjawab bagi menghasilkan produk/servis tanpa kecacatan **tidak** diserahkan kepada kakitangan	1	2	3	4	5
25	Kakitangan jabatan sentiasa digalakkan untuk memberi cadangan ke arah penambahbaikan beterusan	1	2	3	4	5
26	Tahap penyertaan kakitangan sokongan di dalam proses pembuatan keputusan berkaitan kualiti adalah **rendah**	1	2	3	4	5
27	Kakitangan jabatan diiktiraf bagi pencapaian kualiti yang cemerlang	1	2	3	4	5
Pengurusan pembekal						
28	Pemilihan pembekal bagi jabatan ini **lebih berasaskan** kepada faktor **harga** berbanding faktor kualiti	1	2	3	4	5
29	Kriteria yang dipertimbangkan bagi pemilihan pembekal adalah sangat terperinci	1	2	3	4	5
30	Jabatan ini **tidak** memberi maklumbalas kepada pembekal berhubung produk/servis yang diterima	1	2	3	4	5
31	Jabatan ini bergantung kepada sejumlah kecil bilangan pembekal yang boleh diyakini	1	2	3	4	5
32	Pembekal kami **tidak** terlibat di dalam proses pembangunan produk/servis	1	2	3	4	5
33	Hubungan jangka panjang dengan pembekal adalah dititikberatkan	1	2	3	4	5
34	Maklumat spesifikasi yang disediakan oleh jabatan berkaitan produk/servis yang diperlukan **sukar** difahami oleh pembekal	1	2	3	4	5
35	Pembekal kami melaksanakan program penambahbaikan bagi menjamin kualiti produk/servis yang dibekalkan	1	2	3	4	5

No	Perkara	Sangat tidak setuju	Tidak setuju	Tidak pasti	Setuju	Sangat setuju
Penambahbaikan berterusan						
36	Program kesedaran kualiti di kalangan kakitangan merupakan aktiviti yang berterusan	1	2	3	4	5
37	Jabatan ini **tidak** mempercayai bahawa penambahbaikan berterusan akan dapat meningkatkan prestasi jabatan	1	2	3	4	5
38	Penambahbaikan berterusan diamalkan di dalam semua opearsi peringkat jabatan	1	2	3	4	5
39	Penambahbaikan berterusan **tidak** dititikberatkan di dalam program latihan yang disediakan kepada kakitangan	1	2	3	4	5
40	Matlamat penambahbaikan kualiti adalah lebih penting dari pencapaian matlamat jangka pendek	1	2	3	4	5
Sistem maklumat kualiti						
41	Data tentang kualiti di dalam jabatan ini dikumpul dengan lengkap	1	2	3	4	5
42	Data tentang kualiti di dalam jabatan ini **sukar** dirujuk pada masa yang diperlukan	1	2	3	4	5
43	Data tentang kualiti di dalam jabatan ini boleh diakses dengan mudah	1	2	3	4	5
44	Data tentang kualiti **tidak** digunakan sebagai alat bagi melaksanakan program kualiti	1	2	3	4	5
45	Data tentang kualiti digunakan bagi meniali pencapaian pihak pengurusan	1	2	3	4	5
46	Data tentang kualiti **tidak** dipamerkan di kawasan pekerja bertugas atau 'workstations'	1	2	3	4	5
Rekabentuk servis						
47	Semakan ke atas rekabentuk produk/servis baru adalah menyeluruh sebelum ianya dikeluarkan	1	2	3	4	5
48	Koordinasi di kalangan bahagian-bahagian yang berkaitan bagi pembangunan sesuatu produk/servis adalah **lemah**	1	2	3	4	5
49	Perancangan kualiti bagi produk/servis baru turut mengambilkira aspek kos	1	2	3	4	5
50	Perancangan kualiti bagi produk/servis baru **tidak** mengambilkira kemampuan sumber jabatan	1	2	3	4	5
Tanggungjawab social						
51	Jabatan ini mengambil berat tanggungjawab tentang kesihatan dan keselamatan awam	1	2	3	4	5
52	Jabatan ini tidak mengambil berat tanggugjawab tentang perlindungan alam sekitar	1	2	3	4	5
53	Jabatan ini mengambil berat tanggungjawab tentang pengurusan sisa	1	2	3	4	5
54	Jabatan ini tidak mnengambil berat tanggungajwab tentang perkhidmatan komuniti	1	2	3	4	5

BAHAGIAN 2 – SISTEM KAWALAN STRATEGIK

Soalan- soalan di dalam bahagian 2 berkaitan tentang Sistem Kawalan Strategik bagi jabatan anda. Sila jawab dengan membulatkan di nombor yang bersesuaian dengan maklumbalas kepada penyataan-penyataan berikut.

No	Perkara	Sangat tidak setuju	Tidak setuju	Tidak pasti	Setuju	Sangat setuju
55	Strategi kualiti jabatan diterjemah ke dalam bentuk tindakan yang senang difahami	1	2	3	4	5
56	Strategi kualiti jabatan **tidak** mendapat sokongan sebulat suara dari kalangan kakitangan	1	2	3	4	5
57	Strategi kualiti jabatan diterjemahkan ke dalam bentuk tindakan yang senang dibincangkan	1	2	3	4	5
58	Prestasi kualiti jabatan **tidak** diambilkira dalam menilai prestasi kakitangan	1	2	3	4	5
59	Strategi kualiti jabatan dikomunikasikan kepada seluruh kakitangan jabatan	1	2	3	4	5
60	Matlamat kualiti **tidak** diterjemahkan kepada matlamat yang senang diukur di peringkat perlaksanaan	1	2	3	4	5
61	Sumber jabatan diagihkan selari dengan strategi kualiti	1	2	3	4	5
62	Jabatan mengekalkan aktiviti yang **tidak** menyumbang kepada pencapaian matlamat kualiti	1	2	3	4	5
63	Jabatan sentiasa membuat semakan ke atas laporan perancangan kualiti	1	2	3	4	5
64	Jabatan **tidak** membuat semakan ke atas laporan hasil usaha penambahbaikan kualiti	1	2	3	4	5
65	Jabatan sentiasa menyediakan maklumbalas ke atas usaha penambahbaikan kualiti	1	2	3	4	5

BAHAGIAN 2 – PRESTASI JABATAN

Soalan- soalan di dalam bahagian 2 berkaitan tentang Prestasi jabatan anda. Sila jawab dengan membulatkan di nombor yang bersesuaian dengan maklumbalas kepada penyataan-penyataan berikut.

No	Perkara	Sangat tidak setuju	Tidak setuju	Tidak pasti	Setuju	Sangat setuju
66	Jabatan berjaya menguruskan belanjawan dengan baik	1	2	3	4	5
67	Jabatan gagal mencapai penjimatan di dalam kos operasi	1	2	3	4	5
68	Produktiviti jabatan menunjukkan peningkatan yang konsisten	1	2	3	4	5
69	Kos seunit produk/servis yang disediakan oleh jabatan sentiasa meningkat	1	2	3	4	5
70	Produk/servis yang disediakan oleh jabatan mempunyai permintaan komuniti yang tinggi	1	2	3	4	5
71	Tahap kepuasan pelanggan terhadap produk/servis yang disediakan oleh jabatan adalah rendah	1	2	3	4	5
72	Jabatan berjaya menyediakan produk/servis kepada pelanggan dalam jangkamasa yang disasarkan	1	2	3	4	5
73	Reputasi jabatan di kalangan pelanggan adalah tidak memuaskan	1	2	3	4	5
74	Tahap motivasi kakitangan jabatan sentiasa berada pada tahap tinggi	1	2	3	4	5
75	Program latihan kepada kakitangan jabatan tidak berjalan dengan efektif	1	2	3	4	5
76	Risiko keselamatan dan kesihatan kakitangan semasa bertugas adalah terjamin	1	2	3	4	5
77	Kakitangan jabatan mempunyai tahap kepuasan kerja yang rendah	1	2	3	4	5
78	Persekitaran kerja di peringkat jabatan dapat menyokong pencapaian matlamat jabatan	1	2	3	4	5
79	Jabatan tidak peka di dalam mengenalpasti perubahan terhadap keperluan pelanggan	1	2	3	4	5
80	Jabatan mengambil masa yang sinkat untuk memperkenalkan sesuatu produk/servis baru	1	2	3	4	5
81	Teknologi yang digunakan oleh jabatan untuk melaksanakan tugas adalah ketinggalan	1	2	3	4	5
82	Jabatan berjaya membentuk prosedur kerja bagi meningkatkan kualiti produk/servis yang disediakan	1	2	3	4	5

BAHAGIAN 4 – MAKLAUMAT LATARBELAKANG ANDA

Soalan-soalan di bahagian ini adalah berkaitan dengan maklumat anda dan jabatan anda. Sila penuhkan ruangan kosong yang disediakan.

83. Bilangan kakitangan di jabatan anda: ____
84. Adakah jabatan anda mendapat pengiktirafan ISO: Ya ____ / Tidak ____
85. Bilangan tahun anda bertugas di jabatan sekarang: ____

Kami amat menghargai bantuan yang anda berikan dalam menjawab soal selidik ini. Terima Kasih di atas kerjasama dan masa anda.

Appendix 6: Cover Letter in Bahasa Malaysia

Appendix 7: Fit Measures of Modified Model

Fit Measures

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	315.433	0.000	3202.927	CMIN
Degrees of freedom	71	0	105	DF
P	0.000		0.000	P
Number of parameters	49	120	15	NPAR
Discrepancy / df	4.443		30.504	CMINDF
RMR	0.023	0.000	0.229	RMR
GFI	0.848	1.000	0.171	GFI
Adjusted GFI	0.743		0.053	AGFI
Parsimony-adjusted GFI	0.502		0.150	PGFI
Normed fit index	0.902	1.000	0.000	NFI
Relative fit index	0.854		0.000	RFI
Incremental fit index	0.922	1.000	0.000	IFI
Tucker-Lewis index	0.883		0.000	TLI
Comparative fit index	0.921	1.000	0.000	CFI
Parsimony ratio	0.676	0.000	1.000	PRATIO
Parsimony-adjusted NFI	0.610	0.000	0.000	PNFI
Parsimony-adjusted CFI	0.623	0.000	0.000	PCFI
Noncentrality parameter estimate	244.433	0.000	3097.927	NCP
NCP lower bound	193.119	0.000	2916.867	NCPLO
NCP upper bound	303.296	0.000	3286.295	NCPHI
FMIN	1.546	0.000	15.701	FMIN
F0	1.198	0.000	15.186	F0
F0 lower bound	0.947	0.000	14.298	F0LO
F0 upper bound	1.487	0.000	16.109	F0HI
RMSEA	0.130		0.380	RMSEA
RMSEA lower bound	0.115		0.369	RMSEALO
RMSEA upper bound	0.145		0.392	RMSEAHI
P for test of close fit	0.000		0.000	PCLOSE
Akaike information criterion (AIC)	413.43	240.000	3232.927	AIC
Browne-Cudeck criterion	421.774	260.426	3235.480	BCC
Bayes information criterion	708.955	963.727	3323.393	BIC
Consistent AIC	625.261	758.761	3297.772	CAIC
Expected cross validation index	2.027	1.176	15.848	ECVI
ECVI lower bound	1.775	1.176	14.960	ECVILO
ECVI upper bound	2.315	1.176	16.771	ECVIHI

MECVI	2.068	1.277	15.860	MECVI
Hoelter .05 index	60		9	HFIVE
Hoelter .01 index	66		10	HONE

Appendix 8: Decscritpive Statistics, Skewness and Kurtosis of Constructs

Descriptives

			Statistic	Std. Error
COMMITME	Mean		4.19	4.68E-02
	95% Confidence Interval for Mean	Lower Bound	4.10	
		Upper Bound	4.28	
	5% Trimmed Mean		4.23	
	Median		4.00	
	Variance		.449	
	Std. Deviation		.67	
	Minimum		2	
	Maximum		5	
	Range		3	
	Interquartile Range		1.00	
	Skewness		-.637	.170
	Kurtosis		.870	.338

Descriptives

			Statistic	Std. Error
PLANNING	Mean		3.85	4.30E-02
	95% Confidence Interval for Mean	Lower Bound	3.76	
		Upper Bound	3.93	
	5% Trimmed Mean		3.88	
	Median		4.00	
	Variance		.379	
	Std. Deviation		.62	
	Minimum		2	
	Maximum		5	
	Range		3	
	Interquartile Range		.75	
	Skewness		-.872	.170
	Kurtosis		.778	.338

Descriptives

			Statistic	Std. Error
CUSTOMER	Mean		4.00	4.20E-02
	95% Confidence Interval for Mean	Lower Bound	3.92	
		Upper Bound	4.08	
	5% Trimmed Mean		4.03	
	Median		4.00	
	Variance		.362	
	Std. Deviation		.60	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		.50	
	Skewness		-1.037	.170
	Kurtosis		2.274	.338

Descriptives

			Statistic	Std. Error
BENCHMAR	Mean		3.72	4.65E-02
	95% Confidence Interval for Mean	Lower Bound	3.63	
		Upper Bound	3.81	
	5% Trimmed Mean		3.75	
	Median		4.00	
	Variance		.443	
	Std. Deviation		.67	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		.60	
	Skewness		-.777	.170
	Kurtosis		.740	.338

Descriptives

			Statistic	Std. Error
HUMANRES	Mean		3.59	5.17E-02
	95% Confidence Interval for Mean	Lower Bound	3.49	
		Upper Bound	3.69	
	5% Trimmed Mean		3.63	
	Median		3.50	
	Variance		.549	
	Std. Deviation		.74	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		1.00	
	Skewness		-.836	.170
	Kurtosis		.767	.338

Descriptives

			Statistic	Std. Error
SUPPLIER	Mean		3.44	3.55E-02
	95% Confidence Interval for Mean	Lower Bound	3.37	
		Upper Bound	3.51	
	5% Trimmed Mean		3.46	
	Median		3.57	
	Variance		.259	
	Std. Deviation		.51	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		.86	
	Skewness		-.683	.170
	Kurtosis		2.062	.338

Descriptives

			Statistic	Std. Error
CONTINUO	Mean		3.87	4.89E-02
	95% Confidence Interval for Mean	Lower Bound	3.77	
		Upper Bound	3.96	
	5% Trimmed Mean		3.90	
	Median		4.00	
	Variance		.491	
	Std. Deviation		.70	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		.75	
	Skewness		-.809	.170
	Kurtosis		1.330	.338

Descriptives

			Statistic	Std. Error
QSYSTEMS	Mean		3.32	4.84E-02
	95% Confidence Interval for Mean	Lower Bound	3.23	
		Upper Bound	3.42	
	5% Trimmed Mean		3.34	
	Median		3.50	
	Variance		.480	
	Std. Deviation		.69	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		1.17	
	Skewness		-.427	.170
	Kurtosis		-.205	.338

Descriptives

			Statistic	Std. Error
SERVDESI	Mean		3.55	4.37E-02
	95% Confidence Interval for Mean	Lower Bound	3.46	
		Upper Bound	3.64	
	5% Trimmed Mean		3.57	
	Median		3.75	
	Variance		.391	
	Std. Deviation		.63	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		1.00	
	Skewness		-.664	.170
	Kurtosis		1.262	.338

Descriptives

			Statistic	Std. Error
SOCIALRE	Mean		4.03	4.75E-02
	95% Confidence Interval for Mean	Lower Bound	3.94	
		Upper Bound	4.12	
	5% Trimmed Mean		4.08	
	Median		4.00	
	Variance		.462	
	Std. Deviation		.68	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		.50	
	Skewness		-1.293	.170
	Kurtosis		2.768	.338

Descriptives

			Statistic	Std. Error
SCONTROL	Mean		3.66	4.28E-02
	95% Confidence Interval for Mean	Lower Bound	3.58	
		Upper Bound	3.75	
	5% Trimmed Mean		3.69	
	Median		3.82	
	Variance		.375	
	Std. Deviation		.61	
	Minimum		2	
	Maximum		5	
	Range		3	
	Interquartile Range		.73	
	Skewness		-.586	.170
	Kurtosis		.309	.338

Descriptives

			Statistic	Std. Error
FIN	Mean		3.67	5.14E-02
	95% Confidence Interval for Mean	Lower Bound	3.57	
		Upper Bound	3.77	
	5% Trimmed Mean		3.69	
	Median		3.67	
	Variance		.542	
	Std. Deviation		.74	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		.67	
	Skewness		-.694	.170
	Kurtosis		.628	.338

Descriptives

			Statistic	Std. Error
CUS	Mean		3.62	4.28E-02
	95% Confidence Interval for Mean	Lower Bound	3.54	
		Upper Bound	3.70	
	5% Trimmed Mean		3.64	
	Median		3.75	
	Variance		.375	
	Std. Deviation		.61	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		.75	
	Skewness		-.733	.170
	Kurtosis		.713	.338

Descriptives

			Statistic	Std. Error
EMP	Mean		3.67	4.58E-02
	95% Confidence Interval for Mean	Lower Bound	3.58	
		Upper Bound	3.76	
	5% Trimmed Mean		3.70	
	Median		3.80	
	Variance		.430	
	Std. Deviation		.66	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		.80	
	Skewness		-.880	.170
	Kurtosis		1.274	.338

Descriptives

			Statistic	Std. Error
INT	Mean		3.73	4.80E-02
	95% Confidence Interval for Mean	Lower Bound	3.64	
		Upper Bound	3.83	
	5% Trimmed Mean		3.76	
	Median		4.00	
	Variance		.471	
	Std. Deviation		.69	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		.67	
	Skewness		-.809	.170
	Kurtosis		1.298	.338