The Quality Management Practices of ISO 9001:2000 and Quality Performance

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Research report in partial fulfillment of the requirements for the degree of Masters of Business Administration

2006

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRAK

Persijilan dan sistem pengurusan kualiti ISO 9000 telah menjadi kehendak umum bagi organisasi perkilangan. Namun demikian, taraf prestasi kualiti bagi organisasi perkilangan yang mencapai persijilan ISO 9001:2000 masih manjadi tanda tanya. Tujuan kajian ini adalah untuk mengenalpasti praktik-praktik pengurusan kualiti ISO 9001:2000 yang mempengaruhi prestasi kualiti organisasi perkilangan di Malaysia. Di samping itu, perbezaaan di atas tahap praktik-praktik pengurusan kualiti di antara organisasi perkilangan yang mendapatkan persijilan ISO 9001:2000 atas dorongan-dalaman dan dorongan-luaran konteks kualiti orgisasi turut dikaji. Analisis statistik ke atas 122 sampel mendapati bahawa praktik-praktik pengurusan kualiti ISO 9001:2000, khususnya tumpuan pelanggan dan penambahbaikan berterusan merupakan penentu utama yang menentukan prestasi kualiti. Selain daripada itu, organisasi mencapai persijilan atas konteks kualiti organisasi dorongan-dalaman didapati mempraktikkan tahap kepimpinan dan penambahbaikan berterusan yang lebih tinggi berbanding deangan organisasi dengan konteks kualiti organisasi dorongan-luaran. Implikasi teori dan pengurusan daripada penemuan kajian ini turut dibincangkan.

ABSTRACT

ISO 9000 quality management system and certification has become a general requirement for manufacturing organizations. Nevertheless, the level of quality performance of ISO 9001:2000 certified manufacturing organizations are still questionable. The purpose of this paper is to investigate the quality management practices of ISO 9001:2000 that influence the quality performance of certified manufacturing organization in Malaysia. In addition, the differences in the level of quality management practices for manufacturing organizations that gained ISO 9001:2000 certifications by internal-driven and external-driven organizational quality context are examined. Statistical analyses of 122 samples discovered that quality management practices of ISO 9001:2000, particularly customer focus and continual improvement are the key determinants in determining quality performance. Besides, organizations gained certification for internal-driven organizational quality context were found practiced higher level of leadership and continual improvement as compared organizations with external-driven organizational quality context. Theoretical and managerial implications of the findings are discussed.

Chapter 1

INTRODUCTION

1.1 Introduction

ISO 9000 quality management system and certification existed for a considerable time. It has become a common quality management and general requirements for manufacturing organizations.

According to International Organization for Standardization (ISO, 2004), at least 500,125 certificates of ISO 9001:2000 had been issued in 149 countries and economies as of December 2003. The top ten countries were China (40,997), Japan (16,813), Italy (14,733), Germany (10,811), United Kingdom (9,301), Spain (8,872), Australia (7,024), France (6,529), Switzerland (5,060), and USA (4,587).

In Malaysian context, up to June 2005, a total of 3,758 organizations have adopted ISO 9001:2000 as the foundation of their quality management system (Bernama, 2005). In 1996, there were merely 1,123 ISO 9000 certified organizations in Malaysia (Chow-Chua, Goh & Tan, 2003). The three folds increased have led to the perceptions of being ISO 9000 certified is synonymous to becoming an international recognized quality organization.

1.2 Background of the Study

ISO 9001:2000 is an international endorsed reference standard for implementing and assessing the effective of the quality management of an organization.

Due to the diversity in industry nature, the ISO 9000 standard only details the essential elements of a formal quality management system without recommending the ways to apply them (Gotzamani and Tsiotras, 2001). In other words, the design and

implementation of an organization's quality management system subjected to the products or services provided, the processes applied, the size and structure of the organization (ISO 9001, 2000).

Therefore, it is not surprising to note that the effectiveness of the ISO 9000 is subjected to the way of adoption and the dept of implementation, as asserted by Gotzamani and Tsiotras (2001) from the summarization of different opinions and assertions.

1.3 Problem Statement

The recent studies in Malaysia reported contradictory findings in the level of quality management practices among organizations with ISO 9000 and without ISO 9000 certification (Rahman, 1997; Sohail & Teo, 2003).

The works of Rahman (1997) pointed that there was no significant difference between small and medium enterprises with and without ISO 9000 certification with respect organizational performance. However, the study conducted by Yeap (2004) on 73 Malaysian subjects discovered that ISO 9001:2000 certified manufacturing organizations achieved higher mean score in domestic market, operation and personnel performance but no significant difference on export market (Yeap, 2004). Research on Malaysian public listed companies (Naser, Karbhari & Mokhtar, 2004) also indicated that certified companies outperformed non-certified companies in terms of financial performance.

The inconsistency findings on organizational performance may be attributed to the (1) differences in the level of quality management practices among ISO 9001 certified organizations, (2) differences in the level of focus on the key determinants

quality management practices that associated with organizational performance. Therefore, further research in this respect is deemed necessary.

1.4 Research Objectives

The present study is conducted with two objectives. The first objective is to investigate the quality management practices of ISO 9001:2000 that determine the quality performance. The second objective is to examine the variation in the level of quality management practices pertaining to the organizational quality context of ISO 9000:2000 certified organizations. Specifically, the present study attempts:

(1) To investigate whether quality management practices of ISO 9001:2000 influence quality performance of manufacturing organization in Malaysia.

(2) To examine whether there are differences in the level of quality management practices for manufacturing organizations that gained ISO 9001:2000 certification by internal-driven focus and external-driven focus organizational quality context.

1.5 Research Questions

This study attempts to answer the following research questions:

(1) Is there a relationship between the level of quality management practice of ISO 9001:2000 and quality performance of manufacturing organization in Malaysia?

(2) Is there a difference in the level of quality management practices differ by focus of certification?

1.6 Significance of the Study

Organization's knowledge of quality management is one of the major factors that influence actual quality (Adam, Corbett, Flores, Harrison, Lee, Rho, Ribera, Samson & Westbrook, 1997).

The present study attempts to bridge the gap of the literatures between quality management practices (Rahman, 1997; Sohail & Teo, 2003) and performance (Rahman, 2001; Yeap, 2004) by examining the determinants quality management practices of ISO 9001:2000 on quality performance, and whether organizational context differences play a role in influencing the level of quality management practices of ISO 9001:2000 certified manufacturing organization in Malaysia.

The outcome of the study could provide valuable knowledge to top management of ISO 9001:2000 certified manufacturing organizations to refine the quality management practices and influence the organizational quality context, subsequently improve quality performance.

1.7 Definition of Key Terms

The key terms used in the present study are defined as follows:

1.7.1 Quality

There is no universal definition for quality (Adam et al., 1997; Sebastianelli and Tamimi, 2002). In ISO 9000:2000, quality is defined as degree to which a set of inherent characteristics that fulfills stated and implied needs or expectation.

1.7.2 ISO 9001:2000 Certification

In the present study, the term "ISO 9000" is used as a general description of ISO 9000 certification and 1994 version of ISO 9000. ISO 9001:2000 refers to the 2000 version of the quality management system requirements.

Certification is a process where an organization hires an independent certification body (accredited by International Accreditation Forum) to conduct an assessment to verify conformity of the organization's quality management system to the ISO 9001:2000 requirements. The certification body then issues a certificate to the organization describing the scope of its quality management system, and confirming that it conforms to ISO 9001:2000 standards.

Past researchers have used various interchangeable terms, such as approval (Jeng, 1998) and registration (Heras et al., 2002; Naser, Karbhari & Mokhtar, 2004).

1.7.3 The Quality Management Practices of ISO 9001:2000

Quality Management is defined as an integrated approach to achieving and sustaining high quality output (Flynn, Schroeder & Sakakibara, 1994). In this study, eight key practices related ISO 9001:2000 standard based quality management are investigated. The eight quality management practices are customer focus, leadership, people involvement, process approach, system approach, continual improvement, factual approach, and supplier relationships. The variables are defined as follows:

Customer focus means understanding current and future customers' needs and expectations, translating them into internal requirements, measure customer satisfaction and act on it (ISO, 1997; Evans & Lindsay, 2002).

Leadership requires leader to establish unity of purpose and direction of the organization. They should create and maintain the internal environment in which

people can become fully involved in achieving the organization's objectives (ISO, 2000).

People involvement promotes personal ownership of an organization's targets and goals; using its peoples knowledge and experience, and through training to achieve involvement of people in operational decisions and process improvement (ISO, 1997).

A desired result is achieved more efficiently when related resources and activities are managed as a process. *Process approach* refers to explicitly identify internal/external customers and suppliers of processes; focus on the use of resources in process activities, leading to effective use of people, equipment, methods and materials (ISO, 1997).

System approach means identifying a set of processes in a system, and understanding their interdependencies. Align the processes with the organizations goals and targets, and measures results against key objectives (ISO, 1997).

Continual improvement should be a permanent objective of the organization. *Continual improvement* is described as setting realistic and challenging improvement goals, provide resources and tools, opportunities and encouragement to contribute to the continual improvement of the processes (ISO, 1997).

Factual approach is a situation where decisions and actions are based on the analysis of data and information to maximize productivity which minimizes waste and rework. Effort is placed on minimizing cost, improving performance and market share through the use of suitable management tools and technology (ISO, 1997).

Supplier relationships refers to establish strategic alliances or partnerships, ensuring early involvement and participation defining requirements for joint development and improvement of products, processes and systems. Develop mutual

trust, respect and commitment to customer satisfaction and continual improvement (ISO, 1997).

1.7.4 Quality Performance

The quality performance resulting from the quality management practices of ISO 9001:2000 certified manufacturing organizations are being studied. In this study, *quality performance* is defined as the management's perception of the plant's product quality and customer service, relative to its competition (Flynn, Schroeder & Sakakibara, 1995).

1.7.5 Organizational Quality Context

Organizational quality context refers to the organization's quality environment that may affect the practices of quality management (Benson, Saraph, & Schroeder, 1991). The organization quality context influenced organizations towards ISO 9001:2000 certifications can be broadly categorized as external-driven contextual factors and internal-driven contextual factors (Benson et al., 1991; Huarng, Horng & Chen, 1999; Gotzamni & Tsiotras, 2002; Singels et al, 2001).

1.8 Organization of Chapters

This study is divided into five chapters. Chapter 1 highlights the background of the study, the problem statement, research objectives, research questions, significance of the study, and the key terms used in this study. Chapter 2 presents a review of previous studies concerning the independent and dependent variables, and moderator investigated in this study. Based on the literature review, the theoretical framework of the investigation is developed and hypotheses are formulated. Chapter 3 focuses on

the methodology used in the present study. Discussion emphasizes on research design, variables and measurements, data collection technique, and data analysis techniques. Chapter 4 presents the results of the statistical data analyses. Finally, Chapter 5 discusses the research findings, and the implications of the study. Besides, limitations of the present study and suggestions for future research are recommended.

Chapter 2

LITERATURE REVIEW

2.1 Introduction

This chapter presents theories that form the foundation of quality management practices of ISO 9001:2000 and the antecedents of organizational quality context. Then, past literatures on the effect of ISO 9000 certifications on business performance and operational performance; quality management practices and quality performance are discussed. Based on the review of literatures, the theoretical framework and hypotheses are developed.

2.2 Theories Associated with Quality Management

Adam, Hershauer, and Ruch proposed a comprehensive Behavior-Technology Model to enhance the understanding of quality management. It is the only model that adopts an organizational theory perspective toward quality management. The model conceptualized how certain behavior and technical factors are related to quality management (Saraph, Benson and Schroeder, 1989).

The system-structural model of the organization theories summarized by Astley and Van de Ven (1983) explicated a theory of quality management. According to the system-structural model, manager's basic role is of fine tuning the organization according to the exigencies that confront it. Change takes the form of adaptation, it occurs as the product of exogenous shifts in the environment. Managers must perceive, process, and respond to a changing environment and adapt by rearranging internal organizational structure to ensure survival or effectiveness (Benson et al., 1991).

Benson, Saraph, and Schroeder (1991) postulates that organization-theory research could contribute significantly to describe, explain, and improve the practice of organization-wide quality management and, in turn, improve quality performance and organization performance. The modified system-structural model instituted managerial problem-solving process into the system-structural view proposed by Astley and Van de Ven (1983). It characterizes that quality management action taken by managers as being triggered by stimuli in their environments or organizational quality context.

The findings of Benson et al. (1991) convinced that both actual quality management (manager's perceptions of the current practice) and ideal quality management (manager's beliefs what quality management should be) influenced by organizational quality context. The actual-ideal quality management gap triggered quality management action. In addition, perceptions of ideal quality management are more influenced by knowledge, leadership and external requirements, rather than size of the company, industry, type of manager, or product characteristics. The evidence refuted the context-free ideal quality management advocated by Crosby, Deming, and Juran.

Adam et al. (1997) further extended the system-structure models of quality management to investigate quality approaches that lead to best quality and business performance across different regions of the world. The major factors found to influence actual quality were the organization's knowledge of quality management, its degree of customer focus, and management involvement. However, the specific factors that best predict performance was found vary from region to region.

The works of Astley and Van de Ven (1983), Benson et al. (1991) and Adam et al. (1997) convinced that quality management and quality performance can be explained through organization theory.

2.3 ISO 9001:2000

The existence of a certifiable ISO 9000 quality standard has lead to wide diffusion and repercussion of concepts related to quality management (Casadesus & Castro, 2005).

The International Organization for Standardization (ISO) is the body that develops and publishes the standard. However, the international organization itself does not conduct certification (ISO, 2005). Following the 15 December 2003 transition deadline from the 1994 version of the ISO 9001, ISO 9002 and ISO 9003 standards to the 2000 version, ISO 9001:2000 became the only ISO 9000 standard for accredited certification recognized by the International Organization for Standardization, and the International Accreditation Forum (ISO, 2004).

ISO 9001:2000 is one of the eleven reference standards in the ISO 9000 family's core series on quality management system. The other references included ISO 9000:2000 (fundamentals and vocabulary), ISO 9004:2000 (guidelines for performance improvements) and ISO 19011:2000 (guidelines for auditing quality and/or environmental management systems). The technical reports that provide supporting tools for addressing specific aspects inclusive of ISO 10006:2003 (project management), ISO 10007:2003 (configuration management), ISO 10012:2003 (measurement management system), ISO/TR 10013:2001 (quality management system documentation), ISO/TR 10014:1998 (the economics of quality), ISO 10015:1999 (training), and ISO/TR 10017:2003 (statistical techniques).

The objective of ISO 9001:2000 is to provide confidence to customers where an organization can consistently provide goods and services that meet customer needs and expectations; complying with applicable regulation if implemented effectively (ISO, 2005).

In general, the ISO 9001:2000 requirements including top management commitment to quality, customer focus, adequacy of resources, employee competence, process management, quality planning, product design, review of incoming orders, purchasing, monitoring and measurement of processes and products, calibration of measuring equipment, processes to resolve customer complaints, corrective and preventive actions and a requirement to drive continual improvement to the quality management system. Last but not least, requirement to monitor customer perceptions about the quality of the goods and services (ISO, 2005).

Conformity to ISO 9001:2000 means that an organization has established a systematic approach to quality management, and is managing its business to ensure that customer needs are clearly understood, agreed and fulfilled to achieve consistent quality goods and services (ISO 2005).

However, ISO 9001:2000 does not specify requirements for the products or services. Customers shall define and making clear of their own needs and expectation for product by referring to product specifications, drawings, and national or international product standards or other documents as appropriate. Thus, a statement of conformity to ISO 9001:2000 should not be considered as a substitute for a declaration of product conformity (ISO, 2005).

2.4 ISO 9000 Certification and Organization Performance

The relative importance of ISO 9000 as an approach to quality has been studied intensively.

2.4.1 Business Performance

Previous studies found that ISO certification has no mediating effect on cash flow, or sales growth (Terziovski & Samson, 1999). In addition, there was no significant different in business performance between organizations with ISO 9000 and without ISO 9000 certification in terms of cost savings, sales, market share, net profit margin (Singels et al, 2001).

A longitudinal study on 400 non-certified and 400 certified organizations in Europe concluded that there was no evidence of improved business performance resulting from ISO 9000 certification. Although the compound sales growth of certified organizations likely to be superior in performance, the t-tests results lead to the conclusion that the superior performance of certified organizations was attributed to higher pre-certification sales growth (Heras et al., 2002).

The ISO 9000 certified public listed organizations in Singapore appeared to be performed better in return on asset, return on equity, and debt to equity ratios (Chow-Chua et al., 2003). The present researcher argues that asset management is irrelevant to ISO 9000 certification. Besides, longitudinal approach seems to be a more conclusive method to validate the pre-certification and post-certification time lag variance (Heras et al., 2002; Chow-Chua et al., 2003).

The effect of ISO 9000 certification on business performance (return on sales, free cash flow, lender security and economic value added) in a recent study using Malaysian subjects was not supported with empirical evidence (Naser et al., 2004).

The empirical evidence supported the view point that system quality alone may not broadly improve business performance. Adam et al (1997) explained that an organization's approach to quality correlates to actual quality but to a lesser extent to business performance (return on sales, return on asset and average sales growth). The low explained variance in business performance might be attributed variables other than quality, such as proper cash flow management, prudent utilization of automation, effectively matching employees to jobs, and so forth.

2.4.2 Operational Performance

On the other hand, researchers revealed that there were no direct or indirect evidence to support the effects of ISO 9000 certification on operational performance as well (Singels et al., 2001; Terziovski & Samson, 1999; Rahman, 2001).

Previous studies found that there were no significant differences on customer satisfaction, employee relations, operational performance for organization with ISO 9000 or without ISO 9000 certification (Terziovski & Samson, 1999; Rahman, 2001). A similar study which used different operational performance variables (throughput time, technical flexibility, co-ordination of activities, product specifications, delivery and efficiency) derived to the same conclusion (Singels et al., 2001).

The literatures concluded that ISO 9000 certification has little or no explanatory power in explaining operational performance.

2.4.3 Quality Performance

Benson, Saraph and Schroeder (1991) stressed that customers should be the focal point of all quality improvement efforts, customer satisfaction and meeting customer requirement are key elements of quality management. The scope of ISO 9001:2000

also specifies an organization needs to consistently provide product that meets customer requirement and aims to enhance customer satisfaction, through effective application of the system.

Based on the rational, the present researcher argues that the performance constructs of ISO 9000 certification shall be conceptualized around customer satisfactions and consistency of product quality, rather than the inferred operational and business indicators. Nevertheless, it is hardly found any published literature on the effect of ISO 9001:2000 certification on quality performance.

2.5 ISO 9001:2000 and Quality Management Practices

A study on Malaysian subjects found significantly different in quality management practices for organizations with ISO 9000, relative to those without ISO 9000 certification (Sohail & Teo, 2003). The quality management practices being studied were employee training and development, process management, quality measurement and benchmarking, customer involvement and satisfaction, strategy and planning, and top management commitment.

The findings of Sohail and Teo (2003) were consistent with a similar study conducted in Greek. Gotzamani and Tsiotras (2003) reported higher means score in all the eight quality management practices (leadership, strategic quality planning, quality data and analysis, human resource management, process management, suppliers relations, customer relations and product quality design) after ISO 9000 certification, as compared to before certification. However, the comparison analysis was merely based on simple statistics. However, Rahman (2001) discovered that there was no significant difference in quality management practices (leadership, process control, design quality management, strategy and planning, employee empowerment

and involvement) between small and medium enterprises with and without ISO 9000 certification.

Despites the variation in quality management practice constructs, the literatures suggested that ISO 9000 certified organizations practices difference level of quality management practices.

2.6 Quality Management Practices and Quality Performance

An international study of quality improvement approach across and within the regions of Asia (South Pacific), Europe and North America found that the quality management model and specific factors which best predict performance varies from region to region (Adam et al., 1997).

The framework for quality management research of Flynn, Schroeder and Sakakibara (1994) asserted that quality management practices are the inputs and quality performance represents the outputs. Quality management practices (statistical control and feedback, product design process, process flow management, and top management support) were found positively correlated quality performance (Flynn et al., 1995).

Surprisingly, the works of Flynn et al. (1995) also revealed that percentage of items passes final inspection without requiring rework was not the key variable of quality performance (Flynn et al., 1995). Nevertheless, a study in semiconductor industry context supported the finding of Flynn et al. (1995). The outcome of the study reaffirmed that quality management practices have no significant correlation with rework rate (Yang, Chen & Su, 2003).

Jeng (1998) examined the performance of ISO 9000 certified organizations in Taiwan with six quality management practices. Customer focus appeared to be the

most powerful discriminated factor of quality performance. The discriminating powers of the remaining five dimensions (leadership, information and analysis, strategic quality planning, human resource development and management, and management of process quality) were relatively low.

The determinants concurred with one of the findings of Adam et al. (1997). Adam et al (1997) suggested that an organization's approach to quality correlates to the management's knowledge in quality management, its degree of customer focus, and management involvement.

Overall, the literatures convinced that quality management practices have positive and significant relationship with quality performance. In ISO 9000 perspective, customer focus was found to be positively correlated with quality performance.

2.7 Organizational Quality Context as Antecedents of Certification

The characteristics of a quality management system are influenced by the organizational quality context (such as managerial knowledge, corporate support for quality, degree of competition, barriers to entry in the industry, external quality requirements, rate of product or process change, proportion of products or services purchased, degree of manufacturing content, product complexity, past quality performance, and size) of an organization (Benson et al., 1991).

Benson et al. (1991) suggested that knowledge of organizational quality context is useful for explaining and predicating quality management practice. Gotzamani and Tsiotras (2002) further explained that organizational context factor determine the way and depth of ISO 9000 quality management practices.

In ISO 9000 perspective, a study on the impact of organization context on performance reported significantly positive relationship between active organization context (improving corporate systemization, and improving product quality) and quality improvement (Huarng et al., 1999). The rest of the organizational quality context constructs (promoting corporate image, customer requests, follow the heat wave of markets, pressure from competitors, enhancing international competitiveness, and develop international markets) were found not significantly related to quality improvement.

The study in Greek (Singels et al., 2001) concurred with the findings of Huarng et al. (1999). Organization that gained ISO 9000 certification out of internal-driven context is expected to achieve better performance than those external-driven organization.

Overall, organizations with internal-driven context were found profited most in terms of performance outcome, whereas organizations with external-driven context mainly achieved external benefits (Santos & Escanciano, 2001; Gotzamani & Tsiotras, 2002).

Following this rationale, the present researcher suspects that organizations certified ISO 9001:2000 out of internal-driven organizational quality context practice higher level of quality management practices. In contrast, organizations certified ISO 9001:2000 to fulfill external-driven organizational quality context practice lower level of quality management practices.

2.8 Theoretical Framework

The past literatures summarized ISO 9000 certified organizations practices higher level of quality management practices as compared with those without ISO 9000

certification, and quality management practices were found positively correlated to quality performance. Besides, the present researcher suspects there are differences in the level of quality management practices between organizations driven by internal and external organizational quality context.

Based on the literature review, the following model is constructed for the present study. As depicted in the model, quality management practices of ISO 9001:2000 is the primary variable investigated.

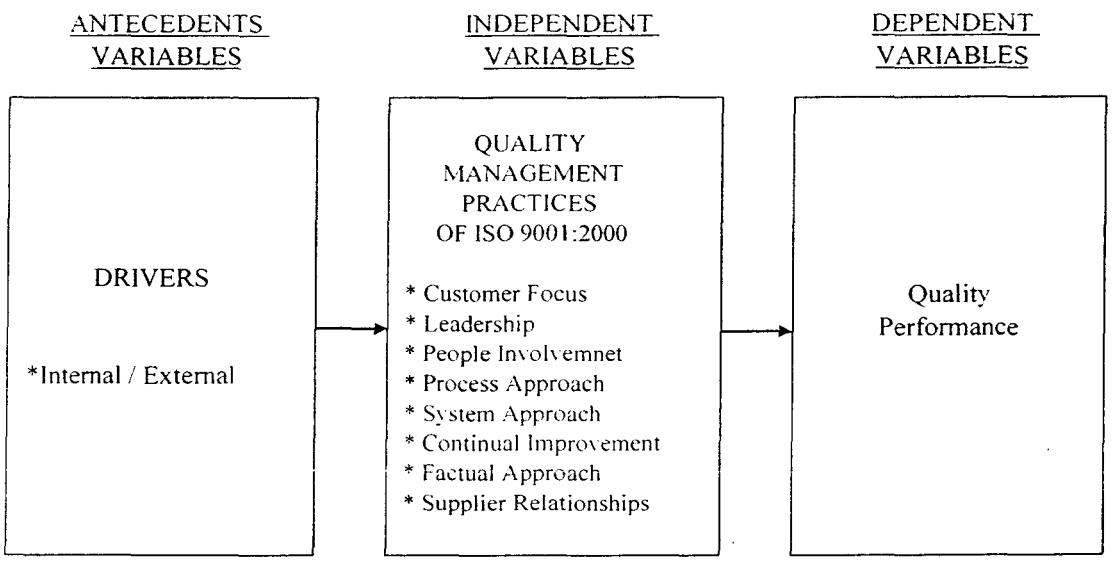

Figure 2.1 Theoretical Framework

The independent variables that determine quality performance (dependent variable) can be categorized into eight quality management practices. The eight quality management practices include customer focus, leadership, people involvement, process approach, system approach, continual improvement, factual approach, and supplier relationships.

ISO 9000 certification process merely examine whether actual quality management practices conform to the documented procedures, which cross reference to the ISO 9001:2000 standards, and are effectively implemented and suitable to

achieve quality objectives (Karapetrovic & Willborn, 1999). The actual-ideal quality management gap is reflected in quality performance. Quality performance outcomes resulting from the quality management practices (independent variable), namely the perceived quality market outcomes (dependent variables) are investigated in the present study.

In addition, the differences in the levels of quality management practices between organizations gained ISO 9001:2000 certifications correspond to internal-driven and external-driven of organization quality context are examined as well.

2.9 Hypotheses Development

Hypotheses development is discussed in two subsections. The first part focuses on the relationship between the quality management practices of ISO 9001:2000 certified organizations and quality performance. The second part hypothesizes organizational quality context and the level of quality management practices.

2.9.1 The Relationship between Quality Management Practices of ISO 9001:2000 certified manufacturing organizations and Quality Performance

The ISO 9001:2000 related quality management practices that influence quality performance are hypothesized as follow:

H1: Quality Management Practices of ISO 9001:2000 is positively related to Quality Performance.

H1a: Customer Focus is positively related to Quality Performance.

H1b: Leadership is positively related to Quality Performance.

H1c: People Involvement is positively related to Quality Performance.

H1d: Process Approach is positively related to Quality Performance.

H1e: System Approach is positively related to Quality Performance.

H1f: Factual Approach is positively related to Quality Performance.

H1g: Supplier Relationships is positively related to Quality Performance.

H1h: Continual Improvement is positively related to Quality Performance.

2.9.2 The differences in the level of quality management practices between internal-driven and external-driven Organization Quality Context

The differences in the level of quality management practices between external-driven and internal-driven organizational quality context are hypothesized as follow:

H2: There is a difference in the level of quality management practices between internal-driven and external-driven Organizational Quality Context.

2.10 Summary

This chapter highlights an overview the underlying theories, quality management practices of ISO 9001:2000 and quality performance, and the antecedents of organizational quality context. Apart from that, literatures on ISO 9000 certification and business, operational and quality performance have been discussed. Finally, the conceptual framework and hypotheses are formulated for this study.

Chapter 3

METHODOLOGY

3.1 Introduction

This chapter discusses the methodology for this research. It covers research design, variables and measurements, data collection technique, and data analysis techniques.

3.2 Research Design

This is a correlation study (Sekaran, 2003) intended to investigate the relationship between ISO 9001:2000 certification and quality performance. It was a field study where all the variables were not manipulated or controlled, and no artificial setting was created (Sekaran, 2003). The sample, unit of analysis, sampling method, and time horizon are discussed.

3.2.1 Sample and Unit of Analysis

The samples for this study consisted of ISO 9001:2000 certified manufacturing organizations in Malaysia. The certified manufacturing organizations were drawn from the list of ISO 9000:2000 certified manufacturers published in SIRIM QAS International Directory (2004). It is the only published directory by certification bodies in Malaysia. In order to gather sufficient data, samples were also picked from the clients list of several local consulting firms. The unit of analysis for this study was the organization.

3.2.2 The Sampling Method

The sampling design of the present study was according to non-probability convenience sampling. The sampling in this study was confined to specific types of people who can provide the desired information (Sekaran, 2003). The quality management representatives (QMR) who are responsible for the quality management system of ISO 9000 certified organization was selected as the respondent. A total of three hundred and ninety ISO 9001:2000 certified manufacturers in Malaysia which are approximately ten percentage of the population were selected for the study.

3.3 Variables and Measurements

This section explains the measurements for (1) quality management practices of ISO 9000 certification and (2) quality performance. All instruments were adopted and adapted from previous published literatures. The questionnaire is attached in Appendix A1.

A four-page questionnaire consists of 71 closed-ended questions was employed. There were four sections in the questionnaire. Section A consisted of 6 items that gather the background information about organizations' profile. Section B measured the quality management practices of ISO 9001:2000. Respondents were required to answer 53 items relating to eight quality management practices dimension. Organizational quality context which consisted of 8 items were measured in Section C. Finally, Section D covered 4 items that measure quality performance. The layout of questionnaire items is depicted in Table 3.1.

Table 3.1 *Layout of Items in the Questionnaire*

Section	Variables	Number of Items	Source
A	Organization Profile	6	
B	Quality Management Practices		
	Customer Focus	8	Jeng (1998)
	Leadership	5	Jeng (1998)
	People Involvement	10	Jeng (1998)
	System Approach	5	Jeng (1998)
	Process Approach	7	Jeng (1998)
	Supplier Relationships	8	Saraph et al. (1989)
	Continual Improvement	5	Anderson et al. (1995) & Saraph et al. (1989)
	Factual Approach	5	Jeng (1998)
C	Organizational Quality Context	8	Huarng et al. (1999)
D	Quality Performance	4	Flynn et al. (1995)
	Total	71	

3.3.1 Organization Profile Variables

In Section A, six organization profile variables of respondents were collected. The variables included nature of business, type of industry, certification body, shareholders, country of origins, and number of employees at present.

3.3.2 Quality Management Practices of ISO 9001:2000

In Section B, a total of fifty-three items were adopted to measure quality management practices of ISO 9001:2000 (Anderson, Rungtusanatham, Schroeder & Devaraj, 1995; Jeng, 1998; Saraph et al., 1989). All items were positively worded and assessed on a 5-point Likert Scale with value "5" representing a very high frequency of practice, and value "1" representing a very low frequency of practice.