



**UNIVERSITI PUTRA MALAYSIA**

**FACTORS INFLUENCING THE IMPLEMENTATION AND  
MAINTENANCE OF ISO 9001:2000 STANDARD IN SELECTED  
ORGANISATIONS IN MALAYSIA**

**ROZIANA OTHMAN.**

**GSM 2006 6**

**FACTORS INFLUENCING THE IMPLEMENTATION AND  
MAINTENANCE OF ISO 9001:2000 STANDARD IN SELECTED  
ORGANISATIONS IN MALAYSIA**

**By**

**ROZIANA HJ. OTHMAN**

**Thesis Submitted to the Graduate School of Management, Universiti Putra  
Malaysia, in Partial Fulfillment of the Requirement for the Degree of  
Master of Science**

**June 2006**



**This thesis is dedicated to:**

My beloved husband, Azman Zainal for his unfailing love, support and sacrifice,  
My parents, Hj Othman Salim and Hjh Zahrah Awang for their understanding,  
prayer and encouragement, and  
My wonderful children, Hilmi and Aikha, the pride and joy of my life.

Without all of you, I would not be able to pursue my studies up to this level.

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in partial fulfillment of the requirement for the degree of Master of Science

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**June 2006**

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Awareness on the importance of quality and having a quality management system to improve organizational performance has been emphasized through the work of many quality proponents. There is a growing awareness and acceptance of ISO 9000 quality management standards for establishing quality management system among organizations in Malaysia. The number of certified organizations increased from 2022 in 2003 to 3249 in 2005 (as at June 2005) and in 2004 there was an annual increase of 51.2% compared to 2003. The implementation and maintenance of a quality management system is important to satisfy customers' requirements and to ensure there is continuous improvement of the system.

This study measures the influence of various factors such as organizational factors, motivational factors in obtaining certification and the perceived benefits on the ease of implementing and maintaining ISO 9001:2000 quality management system. The influence of motivation on perceived benefits was also examined.

The survey was conducted on organizations that had obtained their ISO 9000 certification and were continuing with the implementation of the system with

various certification bodies at the time of the study. The scope of this research covered organizations in all economic sectors and industries listed in the statistics on ISO 9000 certification by the Department of Standards Malaysia. Hypotheses were tested using ANOVA in the Statistical Package for Social Solutions (SPSS) version 13.0 and path analysis in the LISREL 8.72.

The findings revealed that corrective and preventive actions are among the critical issues or factors in the maintenance of an ISO 9000 system. Results also showed that there are significant differences in ease of implementation among the industrial sectors. The path analysis showed that there is a positive relationship between internally perceived benefits and the ease of implementation and maintenance. It was also established that motivation is a significant predictor which influences the benefits gained.

It was also revealed that the motivation for obtaining ISO 9001:2000 certifications seemed to be more internally-driven. Large percentage of respondents agreed that motivation comes from internal factors such as the need to improve internal operation, products, system and processes. As in many previous studies, the most important benefits were mostly from internal factors such as improved internal procedures or documentation and increase in quality awareness among employees. ISO 9000 has provided a platform for a consistent organization-wide approach to continual improvement.

Abstrak thesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi sebahagian daripada keperluan untuk ijazah Master Sains

**FAKTOR-FAKTOR YANG MEMPENGARUHI PERLAKSANAAN DAN  
PENYELENGGARAAN STANDARD ISO 9001:2000 DI KALANGAN  
ORGANISASI TERPILIH DI MALAYSIA**

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Kesedaran terhadap kepentingan kualiti dan memperolehi sistem pengurusan kualiti bagi tujuan memperbaiki prestasi organisasi telah diberi penekanan oleh ramai penganjur kualiti. Terdapat perkembangan dari segi kesedaran dan penerimaan terhadap standard pengurusan kualiti bagi mewujudkan sistem pengurusan kualiti di kalangan organisasi di Malaysia. Jumlah organisasi yang telah dipersijilkan meningkat dari 2022 pada tahun 2003 kepada 3249 pada tahun 2005 (sehingga Jun 2005) dan pada tahun 2004, ini merupakan pertumbuhan tahunan sebanyak 51.2% berbanding pada tahun 2003. Pelaksanaan dan penyelenggaraan sistem pengurusan kualiti adalah penting bagi memuaskan kehendak pelanggan dan menentukan penambahbaikan yang berterusan dibuat kepada sistem.

Kajian ini mengukur pengaruh beberapa faktor seperti faktor organisasi, faktor motivasi memperolehi persijilan, dan tanggapan kepada faedah terhadap kemudahan dalam pelaksanaan dan penyelenggaraan sistem pengurusan kualiti ISO 9001:2000. Kajian juga membuat penelitian dari segi pengaruh motivasi terhadap tanggapan kepada faedah.

Pengumpulan data dan analisa yang dijalankan meliputi organisasi yang telah memperolehi persijilan ISO 9000 dan masih terus dengan pelaksanaan dengan badan persijilan semasa kajian. Skop organisasi yang dimasukkan dalam kajian ini meliputi semua sektor ekonomi dan industri yang disenaraikan dalam statistik persijilan ISO 9000 oleh Jabatan Standard Malaysia. Hipotesis diuji menggunakan *ANOVA* dalam *Statistical Package for Social Solutions* (SPSS) versi 13.0 dan kaedah *path analysis* dalam LISREL 8.72.

Hasil kajian menunjukkan bahawa tindakan pembetulan dan pencegahan adalah antara isu kritikal atau faktor dalam penyelenggaraan sistem ISO 9000. Keputusan dari kajian juga menunjukkan perbezaan yang signifikan dari segi mudahnya pelaksanaan di kalangan sektor industri. Kaedah *path analysis* menunjukkan adanya hubungan positif antara tanggapan faedah dalaman dengan kemudahan dalam pelaksanaan dan penyelenggaraan. Motivasi juga telah dapat dibuktikan sebagai pembolehubah signifikan bagi tanggapan terhadap faedah yang diperolehi.

Kajian juga telah menunjukkan motivasi bagi memperolehi persijilan ISO 9001:2000 didapati banyak digerakkan oleh faktor dalaman. Peratusan yang besar di kalangan responden bersetuju bahawa motivasi datang dari faktor dalaman seperti menambahbaik operasi, produk, sistem dan proses dalaman. Seperti kajian sebelum ini, faedah yang paling penting adalah peningkatan terhadap prosedur dan dokumentasi dalaman, peningkatan dari segi kesedaran pekerja terhadap kualiti, dan ISO 9000 telah menyediakan satu suasana bagi pendekatan organisasi secara menyeluruh dan konsisten untuk penambahbaikan berterusan.

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My sincere gratitude to my two seniors in National Productivity Corporation, En. Mohd Razali Hussain, the expert and practitioner of ISO 9000 for his constructive comments and guidance to improve the content of this thesis. I am indebted for his willingness to give critical suggestions and commitment in providing technical inputs, reviewing, editing and criticizing my work constructively which has helped me to produce this piece of quality work. To another senior, Mr. Fred Lew, who helped me in the editorial and suggestion for improvement in my thesis. Thank you for taking up much of your time even when both of you were so busy with your work.

Last but not least, my heartfelt love goes to a special person in my life; my husband, and my family for their understanding, source of strength, and unconditional love in countless ways without which, I would probably not be able to endure the challenges and stress encountered in the completion of this thesis.





I certify that an Examination Committee met on **26<sup>th</sup> April 2006** to conduct the final examination of **Roziana Binti Othman** on her **Master of Science** thesis entitled **“Factors Influencing The Implementation and Maintenance of ISO 9001:2000 Standard in Selected Organisations in Malaysia”** in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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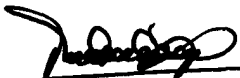
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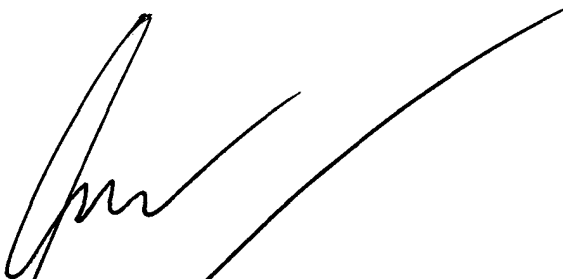
This thesis submitted to the Senate of Universiti Putra Malaysia has been accepted as partial fulfillment of the requirement for the degree of Master of Science. The members of the Supervisory Committee are as follows:

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Date: 12 October 2006

## DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.



**ROZIANA BINTI HJ. OTHMAN**

Date: 25/6/2006

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## LIST OF ABBREVIATIONS

QMS	Quality Management System
MSCI	Malaysia Standard Industrial Classification
ISO	International Organization for Standardization
TQM	Total Quality Management
CFA	Confirmatory Factor Analysis
GFI	Goodness-of-Fit Index
ANOVA	Analysis of Variance
SEM	Structural Equation Model
RMSEA	Root Mean Square Error of Approximation
SPSS	Statistical Package for Social Solutions
PCT	Percentage

# CHAPTER 1

## INTRODUCTION

### 1.0 Introduction

Chapter 1 covers an overview of the whole study. It addresses the importance for the companies to have their quality management systems certified to ISO 9000 Standard. This chapter is organized as follows:

- a. background of the study
- b. problem statement
- c. research question
- d. objectives of the study
- e. justifications of the study
- f. contributions of the study
- g. scope of research

### 1.1 Background of the Study

The awareness and importance of quality and having quality management system to organizational performance has been emphasized through the work of many quality proponents (Crosby, 1979; Juran, 1982; Deming, 1986). The ISO 9000 family of quality management standards and guidelines by the International Organization for Standardization (ISO) has earned a global reputation as the basis for establishing quality management system. Various empirical research evidences indicate an

increase in number of companies obtaining certification on their quality management system to the ISO 9000 standards. This shows that the interest in getting certification is growing and companies are becoming more aware of the needs to be certified. Indeed the number of certified companies in Malaysia has recorded an increase to 3249 companies in 2005 (as at June, 2005) compared to 3058 companies in 2004 and 2022 companies in 2003. The increasing number of certified companies with ISO 9001:2000 according to sectors is shown in Table 1.1:

**Table 1.1: Summary on Quality Management System Certification (QMS) Issued by Department of Standards Malaysia (DSM) Accredited Certification Bodies (cumulative figures read horizontally)**

	Sector	2003	2004	2005 (June)
1	Agriculture, fishing	2	5	8
2	Mining and quarrying	18	24	24
3	Manufacturing	1320	1728	1823
4	Utility	39	453	487
5	Construction	123	316	338
6	Commerce/Trade	92	56	59
7	Transport	77	259	273
8	Finance	49	98	103
9	Government Services	273	46	48
10	Other Services	29	73	86
	<b>Total</b>	<b>2022</b>	<b>3058</b>	<b>3249</b>

What brings most companies towards getting certification has been discussed by many researchers. Findings from most literatures revealed that the motives of companies for obtaining certification are more externally-driven such as gaining market share, improve image, competing in Europe and customer pressure (Llopis & Tari, 2003, Marshall, 2002, Santos & Escanciano, 2002, McAdam & Canning, 2001, Augustyn & Pheby, 2000, Salleh & Goh, 2001, Fuentes *et al.*, 2000). In contrast, there are less number of literatures to show the motives for obtaining certification are from internal reasons such as improvement in internal operations and product

quality, control processes and continuous improvement (Poksinska *et al.*, 2003, Gotzamani and Tsiotras, 2002, McAdam and Jackson, 2002, and Terziovski *et al.*, 2002).

Companies obtained ISO 9000 certification in anticipation that it will bring significant benefits to them. It has been proven by a number of empirical evidences that the benefits reaped were mostly contributed towards operation improvement and efficiency (Santos and Escanciano, 2002, Gotzamani and Tsiotras, 2002, Salleh and Goh, 2001, and, Withers and Ebrahimpour, 2001). Recent study by Magd *et al.*, 2003 have examined the impact of ISO 9000 implementation on organizational performance and suggested that the adoption of ISO 9000 has been justified in terms of many benefits associated with its implementation.

ISO 9000 certification has become a basic competitive prerequisite for many companies doing business in today's global economy (Delpha, 2002). According to Santos and Escanciano (2002), future research will be necessary to analyze the effects of an ISO 9001:2000 so as to determine whether substantial improvements of a commercial nature have been experienced. Although the study found that the benefits gained was on internal efficiency, there is a tendency that firms are more likely to be geared towards gaining benefits of external nature such as improving their market, image and competitive position as these benefits contribute most to the organization's approval of the ISO 9000 certification. Nwankwo (2000) supported that ISO 9000 standards leads company to a continuous progression towards greater professionalism in its approach to maintain successful market positions.

It is also believed that the present version of the standard (ISO 9001:2000) would overcome the limitations and disadvantages experienced using the earlier version of the standard (ISO 9000:1994) in order to improve competitive position of the certified company in the market. Santos and Escanciano (2002), however cited that there is no empirical evidence to establish whether the most market-oriented certified companies obtain better results than those companies with lesser degree of market-orientation.

Terziovski *et al.* (2002) concluded in their study that the emerging question is whether the new ISO 9001:2000 standard will over time capture and meet the conformance and performance requirements of the organization as part of its continuous improvement strategy. It is also predicted that this would be the key determinant of whether the companies would reject or accept the ISO 9000 certification in the future. Terziovski *et al.* (2002) emphasized that rapid process improvement can be facilitated through integrated system with process improvement derived from programmes such as Six Sigma and cycle-time reduction using lean thinking.

Another interesting issue that has been deliberated in many of the research works is whether the benefits or advantages reaped by the companies are tangible. From the literatures, it shows that a number of explanations and definitions were given by the researcher with regards to what is meant by the benefits being tangible. Gotzamani and Tsiotras (2002) showed that motives for true quality improvement will result with improvement in operations and product's quality. Stevenson and Barnes (2001), found that the evidence to prove that real benefits from achieving

certification can be realized in a long term is on an increasing trend. Casadesus and Gimenez (2000) believed that the new ISO 9001:2000 will result in tangible improvement as its structure focus on continual improvement and measurement of customer satisfaction. In addition, findings from Salleh and Goh (2001) showed that internally-driven motives are perceived to be greater beneficial outcomes of the implementation of ISO 9000 quality management system.

Contrary to the earlier findings, Najmi and Kehoe (2001) cited that many companies which have obtained ISO 9000 certification eventually experienced a diminishing business benefits. Their findings show that those companies who did not maintain and sustain its quality system will only experience illusion benefits. Casadesus and Gimenez (2000), found that benefits gained by most companies are more focused on commercial value and quality image and did not relate to the real improvement in quality. The benefits gained were also not real because of lack of improvements in the companies after a given period of time. Gotzamani and Tsiotras (2002) in their study revealed that many companies can get certified without having to prove any business results. It was also found that the ISO 9000 standards lead to an inappropriate emphasis which is bureaucratic or more paperwork rather than quality improvement.

Another important issue that has been brought forward by many researchers was the difficulties encountered before, during and after the implementation of ISO 9000 activities. Findings from Santos & Escanciano, 2002, Escanciano *et al.*, 2001, Dick 2000, and Rissanen, 2000, revealed that the earlier version of the standard (ISO 9000:1994) has created some problems with regards to extra burden and work due to

excessive paperwork, documentation and bureaucracy. Major problem faced by many organizations was related to the human resource aspects such as resistance to change, employee resentment, lack of understanding and information on technical matter, inexperience and fear (Awan and Bhatti, 2003, Amar and Mohd Zain, 2002, Escanciano et al, 2001, Al-Khalifa and Aspinwall, 2000, and, Fuentes et al, 2000). The levels of difficulties in implementation were due to the incapability of the companies in fulfilling the ISO standard requirements fully (Salleh and Goh, 2001 and Chin *et al.*, 2000).

However, Fuentes *et al.* (2000) and, Lo and Humphreys (2000) found that most of the companies studied have difficulty in acquiring right consultant from external sources. Besides facing with limited resources, it was found that time and costs are another issue that has been the obstacles in the implementation of ISO 9000. It was further explored that top management support and involvement are vital to the success in getting certification and ISO implementation (Withers & Ebrahimpour, 2001, Al-Khalifa & Aspinwall, 2000 and Fuentes *et al.*, 2000). Despite the criticism of the standard, the present ISO 9000 standards have undergone revision and it is believed that the certification is worth the difficulties experienced (Dick, 2000 and Rissanen, 2000).

Therefore, this study focused on identifying the organizational impediments or difficulties faced by the certified companies in implementing the quality management system according to ISO 9000 standards and establishing relationships with the motives of certification and the benefits gained by the certified companies.



## 1.2 Problem Statement

The 1994 version was criticized among other things for putting too much stress on documentation and records. Findings from Santos & Escanciano, 2002, Escanciano *et al.*, 2001, Dick 2000, and Rissanen, 2000, revealed that the earlier version of the standard (ISO 9000:1994) has created some problems with regards to extra burden and work due to excessive paperwork, documentation and bureaucracy. The levels of difficulties in implementation were due to the incapability of the companies in fulfilling the ISO standard requirements fully (Salleh and Goh, 2001 and Chin *et al.*, 2000). To overcome these problems, the new standard places far more emphasis on processes and results. However, this raised a question, “Will the improvements to the standard really help to reduce variability in its implementation and maintenance and make the implementation easier?”

Past studies has shown that the researchers look at factors such as motivational factors (Marshall, 2002, Singles *et al.*, 2001, Staines, 2000, Brown *et al.*, 1998), perceived benefits factors (Lee *et al.*, 1999, Koo *et al.*, 1999, Leung and Chan, 1999) and implementation factors (Tang and Kam, 1999, Lipovatz *et al.*, 1999) as separate issues and there were no effort to analyze these 3 variables simultaneously and study the relationships. There were few attempts by Poksinska (2002) to analyze the relationship between motivation and benefits, and by Salleh and Goh (2001) to see the links between reason seeking certification with degree of perceived difficulty and links between organizational factors (European market, ownership and paid up capital) with degree of perceived difficulty. Further to this, due to limited literatures