CRITICAL FACTORS OF IMPLEMENTATION OF ISO QUALITY MANAGEMENT SYSTEM FOR MALAYSIAN CONSTRUCTION RELATED CONSULTING FIRMS

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DEDICATION

To my family, supervisor and friends

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ABSTRACT

Malaysian construction related consulting firm strives to obtain ISO 9001 certification due to beneficial the company. These Quality Management System (QMS) and procedures which thusly improve the organization's efficiency as to meet the clients' requirements. Implementation of QMS certification in Malaysia is extremely low due to several factors. The philosophy of Quality Management is separated into 5 categories which are: "Quality Concept", "Quality Standard", "Quality Achievement", "Quality Inspection", "Quality Management". Academic researchers have composed writing of "Critical Success Factors for execution of ISO 9001 QMS for the development business in global as well as Malaysian Construction Industry". The obstacles of implementation of QMS were distinguished such as barriers, benefits, and Critical Success Factors (CSFs). The relationship between CSFs that faced by current construction industry and the solution to stay away from the issues is also studied. Quantitative approach by using survey questionnaire was utilized to decide the problems in ISO 9001 QMS execution in the Malaysian Construction Market. A total of 74 respondents which are professional consultants, contractors & land developer will take an interest in this research. Information obtained were analysed in calculations and the Chi-square tests were utilized to make the contrast between 3 different groups.

ABSTRAK

Syarikat perunding berkaitan pembinaan Malaysia berusaha untuk mendapatkan pensijilan ISO 9001 kerana menguntungkan syarikat. Sistem Pengurusan Kualiti (QMS) dan prosedur yang meningkatkan kecekapan organisasi untuk memenuhi keperluan pelanggan. Pelaksanaan sijil QMS di Malaysia sangat rendah kerana beberapa faktor. Falsafah Pengurusan Kualiti dipisahkan kepada 5 kategori iaitu "Quality Concept", "Quality Standard", "Quality Achievement", "Quality Inspection", "Quality Management". Penyelidik akademik telah menulis penulisan "Faktor Kejayaan Kritikal untuk pelaksanaan ISO 9001 QMS untuk perniagaan pembangunan di dunia global serta Industri Pembinaan Malaysia". Rintangan pelaksanaan QMS dibezakan seperti halangan, faedah, dan Faktor Kejayaan Kritikal (CSF). Hubungan antara CSF yang dihadapi oleh industri pembinaan semasa dan penyelesaian untuk menjauhkan diri dari isu-isu juga dikaji. Pendekatan kuantitatif dengan menggunakan soal selidik tinjauan telah digunakan untuk menentukan masalah dalam pelaksanaan ISO 9001 QMS di Pasar Pembinaan Malaysia. Sejumlah 74 responden yang terdiri daripada perunding profesional, kontraktor & pemaju tanah akan mengambil perhatian dalam kajian ini. Maklumat yang diperoleh dianalisis dalam pengiraan dan ujian Chi-square digunakan untuk membuat perbezaan di antara 3 kumpulan yang berbeza.

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LIST OF ABBREVIATIONS

QMS	-	Quality Management System
QM	-	Quality Management
MOD	-	Ministry of Defence
UK	-	United Kingdom
ISO	-	International Standard Organisation
SIRIM	-	Institut Piawaian dan Penyelidikan Perindustrian Malaysia
CIDB	-	Construction Industry Development Board
IEM	-	Institution of Engineers Malaysia
CSF	-	Critical Success Factor
GDV	-	Gross Development Value
KPI	-	Key Performance Indicator
ICE	-	Institution of Civil Engineers
ICT	-	Information and Communications Technology
MVA	-	Mean Value Analysis
BEM	-	Board of Engineers Malaysia
BTPM	-	Board of Town Planners Malaysia
LAM	-	Board of Architects Malaysia
IBM	-	International Business Machines
KMO	-	Kaiser-Meyer-Olkin

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CHAPTER 1

INTRODUCTION

1.1 Introduction

ISO 9001 is a global standard for Quality Management System (QMS). In 1978, British Standard Institution (BSI) came up with the BS 5750 quality framework from the principles of the Ministry of Defense (MOD). The quality framework was in use within the UK's construction industry until 1987. The quality framework brought changes to how they perceive the management of quality in the construction condition. The alteration of the quality framework led to ISO 9000:1987 quality management in 1987, making it the initial edition of the ISO certification (Lester, 2006, p.76). The emergence of ISO 9000 brought wide application to various industries that include manufacturers, property developers, consulting companies and construction contractors. ISO 9000 is likewise known as ISO 9000 Quality Management and Quality Assurance Standards.

Table 1.1 Types of ISO Certifications

ISO 9001	**Quality Systems – Model for Quality Assurance in design and development, production, installation, and servicing.**
ISO 9002	Quality Systems – Model for Quality Assurance in Production and Installation.
ISO 9003	Quality Systems – Model for Quality Assurance in Inspection and Testing.
ISO 9004	Guide to Quality Management and Quality Systems Elements.

Note: The combination of ISO 9001, ISO 9002, ISO 9003 & ISO 9004 into ISO 9001 happened in the year 2000 as revision ISO 9001:2000 and later became ISO 9001:2008 in year 2008. The latest revision is known as ISO 9001:2015 which published in year 2015.

There is wide perception in numerous developed countries that the Quality Management ISO 9001 qualifies firms to carry out business trades across other nations. In certain developed nations majorly in the European Union, firms most times do business with firms that have ISO 9001 certification, and firms that have obtained ISO 9001 certification most times refuse to work with firms without the certification. The reason is because ISO 9001 certified firms do things in a more organized manner and reduces unneeded problems. Therefore, firms worldwide have made ISO 9001 as a gold standard or aim for organizations. That has led to the remarkable advancement of ISO 9001 to manage and control quality worldwide. The world market considers the Quality Management System as the fundamental in construction firms because the market is dynamic and competitive (Lo & Yeung, 2018). Firms that have succeeded have shown that QMS technique is compelling of QMS in securing the competitive construction domain. The management of construction site is not the only feature achievable with ISO 9001 QMS but can likewise be integrated into the entire process that includes operations, accounting and others (Keng and Abdul, 2011, p.542).

The intent of QMS is to meet customers' needs as regards the final product in accordance with their specifications (Jackson, 2004, p. 273). The recognition of what quality mean can be as a precise, completed item without imperfection and fulfilling what the clients need and expect. The construction industry in Malaysia has improved remarkably in the past few years and it is a proof of a successful strategy through QMS implementation as a way to attain a good and fruitful result.

1.2 Background

Ashford (2003, p.10) and Noor et al. (2012, pp.38). maintained that the hypothesis of ISO 9001 QMS requisite that is over-reasonable as regards the actual needs that the objective and strategy of a firm need to be the same in its operation. Operational efficiency is the reason for a firm to aim for approaching and accomplishing the ISO 9001 policy. When a firm is successful in managing its system, it can provide motivation to victory. Likewise, when a firm comprehends the ideology of ISO 9001, it enables the management in planning the vision and goals of the firm

and come up with a positive result. The sub-divisions in the approach can be "Quality Concepts", "Quality Standard", "Quality Achievements", "Quality Inspection" and "Quality Management".

The year 1993 is a remarkable period in the history of Malaysian QMS as the Standard and Industrial Research Institute of Malaysia (SIRIM) became conversant with ISO 9001. It was initially to make sure that building contractors acquire the QMS certification and adhere to the stipulations and requirement of ISO 9001 (Jasasikin and Noriah (2011, p.261).

Construction Industry Development Board (CIDB) of Malaysia states that the use of ISO 9001 in determining construction workmanship's quality began towards the end of 1990, a long time following the introduction of ISO 9001 in Malaysia. According to the Institution of Engineers Malaysia (IEM), the Law of Malaysia Act 520, should be revised as it allows the certification of prescribed workmanship; while "construction workmanship" has a wide definition including strategies, manner, or procedures used to build or construct in construction works as well as their outputs (IEM, 2012, p.9). This provides effective means for CIDB Malaysia to certify the construction strategies as regards how they should construct for improved construction quality as well as improved safety.

Abdul (2008, p. viii) maintained that the notions of implementing ISO 9001 QMS has been attractive to majorly the highest of Malaysian grade G7 contractors but the consulting firm. The notion of implementing ISO QMS among construction related consulting firms in Malaysia has been in place since almost three decades ago.

QMS was first launched by the Ministry of Defence of the UK in 1987. There are four quality approach subdivisions: Quality Concepts, Quality Standard, Quality Achievements, Quality Inspection and Quality Management. The introduction of QMS in Malaysia happened about three decades ago but many organisations still do not adapt to it.

1.3 Problem Statement

Several constructions related consulting firms in Malaysia are strongly aware of the presence of ISO 9001 QMS, but high number of them do not adapt QMS within their organisation. Implementing ISO 9001 QMS can bring unforeseen challenges to a firm. Such unforeseen challenges can appear as monetary and physical opposition from employees. Hence, the study of the reason for low adaptation of QMS in Malaysia's consulting firm is critical. There is a need to look into the performance of ISO 9001 QMS by considering the approach of the consulting firm towards the critical success factors (CSFs). The determination of the level of performance in the implementation of ISO 9001 is not easy because of various goals in different firms. The performance level in implementing ISO 9001 QMS is majorly based on the way the firm tries to obtain efficiency or monetary benefits. Hence, all constructions related consulting firms cannot obtain benefits at similar level. Consulting firms without ISO 9001 certification are at the risk of moving a stage backwards, instead of advancing. Non-ISO 9001 certified construction firms have the tendency to obtain little opportunity in comparison with the ones with ISO 9001. This is because the ones with ISO 9001 QMS have the tendency to perform better, have more cost-effective and does not disappoint clients.

1.4 Aim and Objectives

This study focuses on the determination and study of Critical Success Factors (CSFs) for implementing Quality Management System by constructions related consulting firm in Malaysia. The objectives include:

(a) To study the advantages of QMS implementation in Malaysian constructions related consulting firm.

(b) The investigate of the CSFs in implementing ISO 9001 QMS by construction related consulting firms within Malaysia.

(c) To examine the relationship between the advantages of implementing ISO 9001 QMS and its critical success factors (CSFs) in Malaysian constructions related consulting firm.

1.5 Scope of the Research

The parties involved in this study are within the construction industry in Malaysia. They are professional consultants, major contractors, subcontractors and property developers. These parties and individuals are from various regional areas and will not be limited to a single location. The locations involved in this research is based on Peninsula Malaysia which includes Johor. Selangor, Kuala Lumpur & Melaka. At the moment, Johor and Selangor are the leading developing cities having high gross development value (GDV) in comparison with other states. The study involved the use of questionnaire given in both hard copies and digital copies and it contained five sections. Survey respondents must be individuals that are registered with the construction-related board of professional party in Malaysia. The study targeted a population for 150 surveys and a minimum of 50 surveys are expected to be completed for further analysis purposes.

1.6 Significance of Finding

Quality Management System (QMS) is well-known among the construction field in Malaysia. However, it is difficult to implement quality management, and from facts, the entire Malaysian construction industry is not doing well, and the profit being obtained is low. Investigating the role of CSFs on the QMS is critical for the study. The narrowing down of the CSFs will be possible when the notions and perspectives of the construction industry experts are obtained. The study outcomes can then help to know whether Malaysia remains fit in supporting the quality management practice for the construction industry.

1.7 Chapter Layout

This master dissertation contains five major chapters arranged logically as introduction, literature review, research methodology formation, carrying out questionnaire survey, collection and analysis of data and research conclusion. The following are the five chapters in detail.

Chapter 1 – Introduction:
This chapter describes the fundamental details of the topic. It briefly describes the ISO 9001 QMS, the study justification, study objective, problem statement, the history of ISO 9001 QMS in Malaysia and summary.

Chapter 2 – Literature review:
This chapter looked into the literature as regards the CSF for ISO 9001 QMS worldwide. It also looked into challenges and benefits in the implementation by the construction industry in Malaysia as well as how the benefit of implementation and CSFs relate. A summary is likewise included.

Chapter 3 – Research Methodology:
This chapter talks about the techniques of the research, how the research was designed, study population, how data was collected, how data was analysed and conclusion.

Chapter 4 – Analysis of data:
This chapter describes the analysis of the retrieved data through SPSS software. The analysis involved the performance of descriptive test to produce ranking. Chi-square tests were utilised for testing how perceived barrier, benefit, and CSFs are associated, as well as to know how the benefits of the implementation of ISO 9001, CSFs, years of establishment, type of business, and duration of ISO certification are related. The tests assigned significance to p-values not up to 0.05.

Chapter 5 – Discussion, Recommendation and Conclusion:
This chapter answered the critical research questions using the study outputs. The answers helped to recommend what needs to be done and highlighted the research

limitations. Part of this chapter includes the conclusion of the summary of the major study issues.

1.8 Chapter Summary

The development and introduction of the QMS happened thirty-five years ago by the Ministry of Defense. It is at the moment called ISO 9000 family. There are five categories under the ideology of ISO 9001 QMS. Going back to 1993, SIRIM governmental authority was in charge of QMS in Malaysia but its duties have been given to CIDB Malaysia towards the improvement of the building construction industry.

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