

## 1.1 INTRODUCTION

In today's competitive business world, it is very important for an organization to have a good quality management system to increase its market share, to improve business performance and to gain a competitive advantage (Sohail & Teo, 2003; Vouzas, 2007). In the evolution of systems for managing and improving quality, many organizations around the world focus on creating and ensuring quality in the whole business operation for their quality management system (Fotopoulos & Psomas, 2009a). Today, quality management systems or models, such as ISO 9000 standards, Six Sigma, Lean Production, Malcolm Baldrige National Quality Award Model, European Quality Award (EQA) Model and Total Quality Management, embrace the principles of total quality (Vouzas, 2007; Evan & Lindsay, 2008; Lau & Tang, 2009; BSI, 2008; Fotopoulos & Psomas, 2009a).

ISO 9000 Quality Management System (ISO 9000 QMS) was developed by International Organization for Standardization (IOS) in 1987 and it is widely known as the international standard of quality management (Lee, To & Yu, 2009). According to the ISO Survey of Certifications – 2009, at least 1,064,785 ISO 9001 certificates have been issued in 178 countries with a total increase of 8% in 2008 (IOS, 2011). Since 1993, there was a steady increase for the ISO 9000 certificate issuance number except in 2003 (IOS, 2011; Prajogo, 2011). Many manufacturing and service companies widely accept ISO 9000 QMS and implement it into their management system (Willar, Coffey & Trigunaryah, 2010). However, ISO 9000 QMS is not widely accepted by the construction industry (Bubshait & Al-Atiq, 1999; Said, Abidin

& Shafiei, 2006). Actually, different industries and sectors shall adopt and implement ISO 9000 standards in different ways because the organizations in each different industries and sectors have different needs, objectives, required processes and organizational environment (BSI, 2008; Lee *et al*, 2009).

The benefits that can be gained from ISO 9000 QMS are categorized into external benefits, such as increasing their competitiveness in the market, and internal benefits, such as improvement in the quality of work (Zaramdini, 2007). Substantial research studies have been conducted on ISO 9000 QMS in the past two decades. However, mixed results were found in the past research studies on the relationship between organizational performance and ISO 9000 implementation (Prajogo, 2011). Therefore, there is still a lot of debate on the real impact or benefits that can be brought by ISO 9000 QMS to the organizations' performance and operations management (Boiral & Roy, 2007).

Numerous studies have been conducted to further look into the factors that can influence the implementation and benefits of ISO 9000 QMS (Prajogo, 2011). Motivation for certification and the organization's culture are the two major factors (Mallak, Bringelson & Lyth, 1997; Sun, 2000; Singels, RueËl & Water, 2001; Williams, 2004; Mahmood, Mohammed, Misnan, Yusof & Bakri, 2006; Terziovski & Power, 2007; Jang & Lin, 2008; Srivastav, 2010; Prajogo, 2011). This research only focuses on studying the motivation for certification and its effect on the implementation and benefits of ISO 9000 QMS.

Different industries may have different motivations for seeking ISO 9000 certification (Lee, 1998; Castka, Balzarova & Kenny, 2006). Motivation for certification will determine the effort that an organization will put in to implement ISO 9000 QMS (Leung, Chan & Lee, 1999; Gotzamani & Tsiotras, 2002; Jang & Lin, 2008; Prajogo, 2011). For ISO 9000 certified organizations with external motivation for certification, such as meeting the customer's requirement, using the certificate as a marketing tool is more important than developing an effective quality management system for improving quality (Prajogo, 2011). ISO 9000 certified organizations with internal motivation for certification focus more on how to continue to improve their product quality and increase customer satisfaction with ISO 9000 standards (Prajogo, 2011). Thus, compared to external motivation for certification, internal motivation for certification tends to motivate employees to put in more effort for the implementation of ISO 9000 QMS (Leung *et al*, 1999; Williams, 2004; Jang & Lin, 2008; Kemenade, Hardjono and Vries, 2011; Prajogo, 2011).

Compared to the manufacturing and service industries, not many ISO 9000 research studies have been carried out in the construction industry. This research is an empirical study on ISO 9000 in the construction industry in Malaysia. In the construction industry, there are three major categories of participants, i.e. developers, consultants and architects, and contractors. This study only focuses on the Malaysian contractors.

## **1.2 PROBLEM BACKGROUND AND RESEARCH OBJECTIVES**

For Malaysia's annual Gross Domestic Product (GDP), the construction industry is one of the major contributors even though it only accounts for less than 6% of GDP for the past 45 years. This is because the output of construction industry affects the growth of other economic sectors, such as manufacturing and financial services, in Malaysia. Therefore, it is very important to maintain the Malaysian construction industry as a good and healthy growing business. As highlighted in the "Executive Summary of Construction Industry Master Plan Malaysia (CIMP) 2006-2015", continuously improving the quality is very important for the local construction industry participants to have a sustainable business in the domestic and global markets. One of the targets as stated in the CIMP 2006-2015 is to have at least 90% of the total Malaysian construction firms to be ISO 9000 certified in 2015.

Based on the Laws of Malaysia, Act 520, the Construction Industry Development Board (CIDB) Malaysia was established in 1994 to provide the functions as listed in Act 520 clause 4(1) for the Malaysian construction industry. All organizations who want to carry out and complete any construction works in Malaysia must register with CIDB Malaysia. According to the CIDB Malaysia official portal, there are three categories of registration and seven grades for each category. The three categories of registration are Civil Engineering Construction, Building Construction and Mechanical & Electrical. The seven grades, as shown in the Table 1.1, are classified based

on the tendering capacity of projects that the registered construction organizations can undertake:-

Table 1.1 CIDB Malaysia Registration Grades

<b>Grade</b>	<b>Tendering Capacity [RM]</b>
G1	Not exceeding 100,000
G2	Not exceeding 500,000
G3	Not exceeding 1 million
G4	Not exceeding 3 million
G5	Not exceeding 5 million
G6	Not exceeding 10 million
G7	No limit

Source: CIDB Malaysia Official Portal

One of the CIDB functions listed in Act 520 is “to promote quality assurance in the construction industry”. In 2006, CIDB Malaysia issued a circular, “surat pekeliling bil. 2/2006”, to impose the regulation that all registered Grade G7 construction firms must obtain the certificate of ISO 9001 starting from 1 January 2009. Otherwise, CIDB Malaysia will lower their grade from Grade G7 to an appropriate grade. CIDB Malaysia contended that ISO 9000 certification can enhance the quality initiative in the construction industry and performance of individual construction firm (CIDB Malaysia, 2007). Actually some Malaysian Grade G7 construction firms, such as Road Builders Sdn Bhd, implemented ISO 9000 QMS in order to increase their competitiveness and improve their quality of works even before CIDB Malaysia announced the above requirement (Choo, 1996). According to most research studies, organizations that adopt ISO 9000 QMS due to external pressure only gain

limited benefit from the adoption (Sampaio, Saraiva & Rodrigues, 2009). On the other hand, the manufacturing sector has standardized products, however, the products of every construction project are very unique (Lau & Tang, 2009). This has caused more challenges for Malaysian construction firms to implement ISO 9000 QMS.

Actually, Hong Kong and Singapore governments enforced the ISO 9000 adoption in construction industry earlier than the CIDB Malaysia. Therefore, numerous studies also investigated the impact of ISO 9000 certification on the performance of Hong Kong and Singapore certified construction firms. However, inconsistent results were found in those studies.

In the study of Dissanayaka, Kumaraswamy & Karim (2001), most of Hong Kong ISO 9000 certified contractors perceived that the certification had improved their record system, competitiveness and operation. Eighty five percent of the respondents perceived that the benefits of ISO 9000 QMS are more than its negative outcome. However, according to the studies by Lo (2002) and Lau & Tang (2009), no improvement in the quality of services was found in the Hong Kong construction industry after the enforcement of ISO 9000 adoption. Satisfying government requirements and improvement in the company image are the main incentives for Hong Kong construction firms to gain certification (Lo, 2002). In addition, Ahmed, Aoieong, Tang & Zheng (2005) also found that Hong Kong ISO 9000 certified contractors did not really understand and practise the concept of process approach that is required by ISO 9000 standards.

Low & Yeo (1997) found that ISO 9000 certification improves the quality of site works and office administration works of the Singapore certified construction firms even though their major motivation for certification is to bid for the government projects. On the contrary, by using the Construction Quality Assessment System (CONQUAS) scores for empirical analysis, Low, Tan & Ang (1999) found that ISO 9000 certification does not lead to higher CONQUAS scores, which indicate better quality construction works.

Numerous previous studies conducted in Malaysia showed that the implementation of ISO 9000 QMS can improve the performance of Malaysian certified organizations, including construction firms. Arumugan, Ooi & Fong (2008) found that the two TQM practices, customer focus and continual improvement, have an impact on the quality performance of the Malaysian ISO 9000 certified manufacturing organizations. Naser, Karbhari & Mohktar (2004) found that Malaysian ISO 9000 certified public listed companies have a better financial performance than non certified public listed companies. Said *et al* (2006) also found that the organizational performance of Malaysian ISO 9000 certified contractors is better than the non certified contractors. The findings of Kong, Gomez & Hamid (2010) showed that the implementation of ISO 9000 QMS has a positive impact on the organizational performance of Malaysian construction industry related organizations. However, none of the above Malaysia studies included motivation for certification into their research frameworks for investigating the impact of motivation for certification on the implementation and benefits of ISO 9000 QMS.

It is almost five years since the announcement of the requirement of ISO 9000 certification by CIDB Malaysia. Based on the CIDB Malaysia ISO certified organization directory (29 January 2011), 2086 construction firms have been certified by ISO 9000 QMS. Therefore, it is important to find out whether the implementation of ISO 9000 QMS can really improve the organizational performance of Malaysian contractors as what CIDB Malaysia contended. From the literature reviewed, it was found that motivation for certification will determine the implementation effort of ISO 9000 QMS and the improvement of organizational performance. Therefore, for a better understanding of the impact of ISO 9000 certification on Malaysian construction firms, this study examines the relationship between motivation for certification, implementation effort of ISO 9000 QMS and organizational performance of Malaysian construction firms. Actually, in the study of Kong *et al* (2010), their results confirmed that the implementation of ISO 9000 QMS can improve the performance of the Malaysian construction industry's participants, including contractors, developers, consultants, architects and quantity surveyors, and achieve the CIDB Malaysia's contention. However, the business operations of contractors, developers, consultants, architects and quantity surveyors are different. Therefore, for a better confirmation on CIDB Malaysia's contention and proof on the impact of ISO 9000 certification on contractors, this study only focuses on contractors.

In addition, the organization size and the length of ISO 9000 implementation were found to have some effects on the benefits and implementation of ISO



9000 QMS in some studies (Yong & Wilkinson, 2001; Gotzamani & Tsiotras, 2001; Fong *et al*, 2008; Fotopoulos & Psomas, 2009a; Mady, 2009). Thus, it is also important to find out how the organization size moderates the relationship between the motivation for certification and the implementation effort of ISO 9000 QMS and how the length of ISO 9000 implementation moderates the relationship between the implementation effort of ISO 9000 QMS and the organizational performance of Malaysian construction firms.

As a result, the following research questions are intended to be answered in this study:-

- 1) How does the motivation for certification affect the implementation effort of ISO 9000 QMS in the Malaysian construction firms?
- 2) How does the implementation effort of ISO 9000 QMS affect the organizational performance of Malaysian construction firms?
- 3) Does the implementation effort of ISO 9000 QMS mediate the relationship between the motivation for certification and the organizational performance of Malaysian construction firms?
- 4) How does the organization size affect the relationship between the motivation for certification and the implementation effort of ISO 9000 QMS?
- 5) How does the length of ISO 9000 implementation affect the relationship between the implementation effort of ISO 9000 QMS and the organizational performance of Malaysian construction firms?

With the above research questions, this study has the following research objectives:-

- 1) To examine the motivation factors for the Malaysian construction firms to obtain and maintain ISO 9000 certification.
- 2) To examine the impact of motivation for certification on the implementation effort of ISO 9000 QMS.
- 3) To examine the implementation effort of ISO 9000 QMS in the Malaysian construction firms.
- 4) To examine the improvement of organizational performance that can be gained by Malaysian construction firms through the implementation of ISO 9000 QMS.
- 5) To examine the impact of the implementation effort of ISO 9000 QMS on the organizational performance of the Malaysian construction firms.
- 6) To examine the mediating effect of the implementation effort of ISO 9000 QMS on the relationship between the motivation for certification and the organizational performance of Malaysian construction firms.
- 7) To examine the moderating effect of the organization size on the relationship between the motivation for certification and the implementation effort of ISO 9000 QMS.
- 8) To examine the moderating effect of the length of ISO 9000 implementation on the relationship between the implementation effort of ISO 9000 QMS and the organizational performance of Malaysian construction firms.