



UNIVERSITI PUTRA MALAYSIA

***QUALITY MANAGEMENT SYSTEM IN WOOD FURNITURE INDUSTRY IN
MALAYSIA***

CHONG YEN YOON

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**QUALITY MANAGEMENT SYSTEM
IN WOOD FURNITURE INDUSTRY IN MALAYSIA**

By

CHONG YEN YOON

**Thesis Submitted to the School of Graduate Studies, Universiti Putra
Malaysia, in Fulfilment of the Requirements for the Degree of
Doctor of Philosophy**

December 2015

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in
fulfilment of the requirement for the Degree of Doctor of Philosophy

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December 2015

Chair : Prof. Jegatheswaran Ratnasingam, PhD
Faculty : Forestry

It is a general perceived that most globalized furniture manufacturing companies are often forced to seek ISO certification to improve quality. In this context, the fact that Quality Management Systems and Standards which were introduced in Malaysia since 1987, is often perceived to be a marketing tool within the export-led furniture manufacturing industry. However, many researchers reported that firms were not sure whether ISO certification managed to instill quality in their organizations. Although, there are more than 4,000 wood-based companies in Malaysia, with 125 of them being large furniture manufacturers and exporters, the portion of ISO registration within the industry is comparatively small compared to the total number of furniture companies. Therefore, this study was undertaken: (1) to determine the level of awareness of ISO 9001 certification among furniture buyers and level of certification among manufacturers in the Malaysia market; (2) to identify the major attributes and intentions of ISO 9001 certification among Malaysian furniture manufacturers; (3) to identify the drivers of ISO certification among furniture manufacturers; (4) to characterize the different furniture markets requirements and to compare the performance of ISO certified and non-certified suppliers of furniture in these markets; (5) to evaluate the reasons for adoption and non-adoption of ISO 9001 certification among furniture manufacturers; and finally (6) to identify the main benefits and challenges faced by ISO and non-ISO certified manufacturers from the furniture buyers' perspective. The established relationship between ISO certification and product satisfaction, quality and the prevalence of repeat customers were used as the research framework for this study. Paired-sets of structured questionnaires were used to survey 100 foreign furniture buyers during the Malaysian International Furniture Fair (MIFF). For the Manufacturers' perspective, 10 ISO and 20 non-ISO furniture manufacturers were surveyed. The result showed that manufacturers ranked quality improvement as the most important attribute. For respondents of ISO-certified manufacturers, the improvement on delivery time, quality and management were their major drivers to be ISO-certified. Nevertheless, the influence of the ISO system on product marketability is limited to specific markets, especially in Japan, Korea and East Asia, which are generally ISO-sensitive markets. On the other hand, the majority of the international furniture buyers were aware of ISO certification, and have

requested their suppliers to be ISO-certified. ISO certification generally improves the overall performance of the furniture companies and large-scale companies have a greater tendency for ISO certification. Undoubtedly, ISO-certified suppliers provided higher satisfaction levels to customers, compared to non ISO-certified suppliers. For the buyers' perspective, foreign furniture buyers prefer to purchase from ISO-certified companies, due to the higher degree of confidence in their business and product quality. This study shows that ISO certification had significantly influenced the management of furniture enterprises. The study also showed that the intention for ISO certification was not driven by external factors, neither the requirement of the governmental law and regulations nor the customer pressure, as most furniture manufacturers operated on the OEM strategy. Despite the benefits gained from higher market share, the low adoption level of the ISO system in the furniture sector could be explained by its high certification cost and lack of perceived benefits of certification among the furniture manufacturers. Finally, the study revealed that ISO certification is a useful tool to enhance the management competency within the furniture manufacturing sector. It appears that a concerted effort must be drawn up to boost the awareness of the intangible benefits to be gained, if ISO certification is to be expanded throughout the furniture industry in the future.

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Terdapat satu tanggapan umum bahawa kebanyakan syarikat perkilangan perabot antarabangsa terpaksa mendapatkan pensijilan ISO untuk meningkatkan kualiti pengurusan. Dalam kontek ini, sistem pengurusan kualiti dan piawai telah diperkenalkan di Malaysia sejak tahun 1987, dan sering dianggap sebagai alat pemasaran dalam pembuatan industry perabot berfokusikan ekspot, ramai penyelidik melaporkan bahawa firma masih kurang pasti sama ada pensijilan ISO dapat memupuk kualiti dalam organisasi mereka. Walaupun terdapat lebih daripada 4,000 syarikat yang berasaskan kayu di Malaysia, dengan 125 buah yang merupakan pengilang-pengilang perabot dan pengeksport yang besar, namun, bilangan pensijilan ISO adalah agak kecil berbanding dengan jumlah keseluruhan syarikat-syarikat perabot dalam industry tersebut. Oleh itu, kajian ini dijalankan dengan beberapa objektif: (1) untuk menentukan tahap kesedaran pensijilan ISO 9001 di antara pembeli-pembeli perabot dan tahap pensijilan antara pengilang-pengilang di dalam pasaran Malaysia; (2) untuk mengenal pasti ciri-ciri utama dan sebab-sebab pensijilan ISO 9001 di kalangan pengilang-pengilang perabot Malaysia; (3) untuk mengenal pasti pemandu-pemandu pensijilan ISO antara pengilang-pengilang perabot; (4) untuk mencirikan kehendak pasaran perabot yang berbeza dan untuk membandingkan prestasi pembekal perabot bertaraf ISO dan bukan ISO di pasaran; (5) untuk menilai sebab-sebab penggunaan dan penerimaan pensijilan ISO 9001 di kalangan pengilang-pengilang perabot; serta (6) mengenalpasti faedah-faedah utama; dan cabaran-cabaran yang dihadapi oleh pengilang-pengilang ISO dan bukan ISO dari perspektif pembeli perabot. Hubungan antara pensijilan ISO dan kepuasan barangan, kualiti dan kekerapan pelanggan-pelanggan telah digunakan dalam kajian ini sebagai rangka kerja penyelidikan. Pasangan-set soalan soal-selidik berstruktur telah digunakan terhadap 100 pembeli-pembeli perabot antarabangsa, semasa di Pameran Perabot Antarabangsa Malaysia (MIFF). Pada pandangan pengeluar-pengeluar perabot, survei terhadap 10 buah pengilang perabot ISO dan 20 buah pilang perabot yang bukan ISO telah dijalankan. Keputusan kajian menunjukkan bahawa pengeluar perabot menyatakan bahawa peningkatan kualiti sebagai sifat yang paling penting. Bagi pengeluar bersijil ISO, mereka paling mengambil berat tentang penambahbaikan masa penghantaran,

peningkatan kualiti dan penambahbaikan pengurusan. Pada masa yang sama, pengaruh permintaan pensijilan ISO hanyalah terhadap kepada pasaran tertentu, terutamanya di Jepun, Korea dan Asia Timur, yang merupakan pasaran peka ISO. Majoriti pembeli perabot antarabangsa sedar akan pensijilan ISO, dan telah meminta pembekal mereka mendapatkan sijil ISO. Pada umumnya, pensijilan ISO dapat meningkatkan prestasi keseluruhan syarikat perabot yang kebanyakannya berbentuk syarikat besar, yang mempunyai kecenderungan yang lebih besar ke arah pensijilan ISO. Sudah pasti, pembekal-pembekal bertaraf ISO mencapai tahap kepuasan pelanggan yang lebih tinggi, berbanding dengan pembekal-pembekal bukan ISO. Pada pandangan pembeli-pembelia antarabangsa pula, pembeli asing perabot lebih gemar membeli daripada syarikat bertaraf ISO, kerana keyakinan yang lebih tinggi terhadap perniagaan dan kualiti produk mereka. Kajian ini juga menunjukkan bahawa pengaruh pensijilan ISO terhadap pengurusan perusahaan perabot begitu ketara, dan sebab untuk pensijilan ISO tidak didorong oleh faktor-faktor luaran, seperti keperluan undang-undang kerajaan dan peraturan-peraturan mahupun permintaan pembeli, tetapi disebabkan oleh hakikat bahawa jenis industri beroperasi pada strategi OEM dan kini dikuasai oleh Industri-industri Kecil dan Sederhana. Meskipun banyak faedah-faedah boleh diperolehi, tahap amalan penggunaan sistem ISO yang rendah di kalangan sektor perabot berlaku disebabkan oleh kos pensijilan yang tinggi dan kekurangan penerimaan faedah-faedah pensijilan antara pengilang-pengilang perabot. Akhir sekali, kajian ini mendedahkan bahawa pensijilan ISO adalah alat yang berguna untuk meningkatkan kecekapan pengurusan dalam sektor pembuatan perabot. Ternyata, usaha bersepadu perlu disediakan untuk meningkatkan kesedaran tentang kepentingan faedah tidak ketara, sekiranya persijilan ISO diperluaskan ke seluruh industri perabot di masa hadapan.

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I certify that a Thesis Examination Committee has met on 16 December 2015 to conduct the final examination of Chong Yen Yoon on his thesis entitled "Quality Management System in Wood Furniture Industry in Malaysia" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Doctor of Philosophy.

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LIST OF ABBREVIATIONS

ANOVA	One-Way Analysis Of Variance
CAD	Computer Aided Design
CEN	European Committee For Standardization
EU	European Union
IEC	International Electrotechnical Commission
ISO	International Organization For Standardization
MIFF	Malaysian International Furniture Fair
MS	Malaysian Standards
MTIB	Malaysian Timber Industry Board
NATIP	National Timber Industry Policy (2009 – 2020)
PDCA	Plan-Do- Check-Act
QC	Quality Control
QMS	Quality Management System
SMEs	Small And Medium Enterprises
SPC	Statistical Process Control
TQM	Total Quality Management
UK	United Kingdom Or Britain
US	United States (U.S.) Of America

CHAPTER 1

INTRODUCTION

1.1 Research Background

The overall value of furniture is mainly based on its basic functional quality, but due to external pressure from global buyers or customers, most globalized furniture manufacturing companies are forced to seek ISO 9000 certification to improve their total quality, which involved a transition from the product function to the higher quality process-oriented method (Lakhe and Mohanty, 1994). In other words, these companies are forced to conform to quality standards determined by “a set of inherent characteristics” that fulfils the market requirement (ISO, 2000; Brown and Wiele, 1995).

It was reported that most Asian countries have no quality awareness due to unlimited access to resources (Kuo *et al.*, 2009). Malaysia has been known for its wood-based furniture, where 80 per cent of the wood material used is Rubberwood, a light-coloured medium hardwood, which is also known as ‘Malaysian Oak’ (Ariff, 2005). There is also intensive effort in Malaysia and Thailand to brand it as ‘Hevea wood’ (MTC, 2011). The Malaysian furniture industry must move up from its commodity image, towards a higher value added furniture producer status (Au, 2012).

The Malaysian furniture industry is dominated by SMEs (Ng and Thiruchelvam, 2011). According to the SMIDP 2001-2005 report, SMEs in Malaysia are facing many challenges, domestically as well as globally. Most of the strategy used in the SMEs is based on cost control (Ndubisi, 2012) and branding as a move to enter the global furniture markets (Owen and Malkovich, 1995). But only a few manufacturers have established brands (The Star, May 25, 2013). Thus, many of the identified challenges faced by Malaysian furniture manufacturers can be possibly improved by using ISO certification, to ensure quality output, overcome low productivity and improve competitiveness.

Generally, a furniture company with ISO certification does not produce furniture of guaranteed quality, but the furniture product is produced according to a quality process standard, or management system, covering the processes through which it has been realized. Not only the product assurance, but also the quality management system must add value to the company operations, to produce value added products (Wiele *et al.*, 2001).

The ISO 9001 applies to the processes that influence product or service quality, by satisfying the customer's demand and the manufacturing process capability (Waters, 2006). Schuurman (1997) stated that ISO certification is a good basic practice for initiating a quality system and Ackoff (1999) added that ISO certification ensures a holistic interaction of the whole system. On top of that, the extent to which certified-organizations can effectively improve their performance based on the ISO certification is an important issue (Boiral and Roy, 2007).

1.2 Statement of Problem

Although, there were more than 3,500 wood-based companies in Malaysia in 2012, with 125 of them (3.6 percent) being large furniture manufacturers and exporters, the number of ISO-certified was less than 20, which is relatively small compared to the total number of furniture manufacturers in Malaysia (Matrade, 2012; Ratnasingam *et al.*, 2010; SIRIM, 2012;).

In recent years, the Malaysian furniture industry has come under increasing competitive pressure from other cheaper furniture manufacturing countries, particularly in Vietnam and China. Therefore, for a developing nation such as Malaysia, it can increase its trade activities and business development by improving the quality of its manufactured or exported products or services. The Small and Medium-Sized Enterprises (SMEs) accounted for 90 percent of all furniture manufacturing establishments in the country. Therefore, the small furniture manufacturers are typically constrained by company size, lack of technical proficiency, managerial skills, and limited by financial and human resources (Lee and Oakes, 1995).

However, relatively limited researches related to quality management in the furniture manufacturing industry have been carried out previously. This could be due to the fact that the industry contributes little to Malaysia's GDP and only a few of them have adopted the quality management system, compared to other SMEs (Mustapha *et al.*, 2011). In fact, Ratnasingam (2010) stated the adoption of ISO certification in furniture industry as a "lukewarm", as its growth shown is at a low rate.

Thus, this study's main research question is to evaluate the effects of the ISO quality management system (QMS) on the management capabilities and exported performance of furniture companies, and also the evaluation of quality expectation among foreign furniture buyers in the country, which is crucial for the Malaysian furniture manufacturing industry to penetrate the global market. The questionnaire used is aimed at answering the research objectives as shown in Appendix 1.

1.3 Objectives of Study

Against this background, the objectives of this study are:

- (1) To determine the level of awareness of ISO 9001 certification among furniture buyers and level of certification among manufacturers, in the Malaysia market;
- (2) To identify the major attributes and intentions of ISO 9001 certification among Malaysian furniture manufacturers;
- (3) To identify the drivers of ISO certification among furniture manufacturers;
- (4) To characterize the different furniture markets requirements and to compare the performance of ISO certified and non-certified suppliers of furniture in these markets;
- (5) To evaluate the reasons for adoption and non-adoption of ISO 9001 certification among furniture manufacturers and to identify the main benefits and challenges faced by ISO and non-ISO certified manufacturers from the furniture buyers' perspective.

1.4 Research Framework

In developing the research framework for this study, the established relationship between ISO certification and product satisfaction, quality and the prevalence of repeat customers were used (Figure 1.1). The adoption of ISO 9001 is generally perceived to lead towards better business (competitive) advantage.

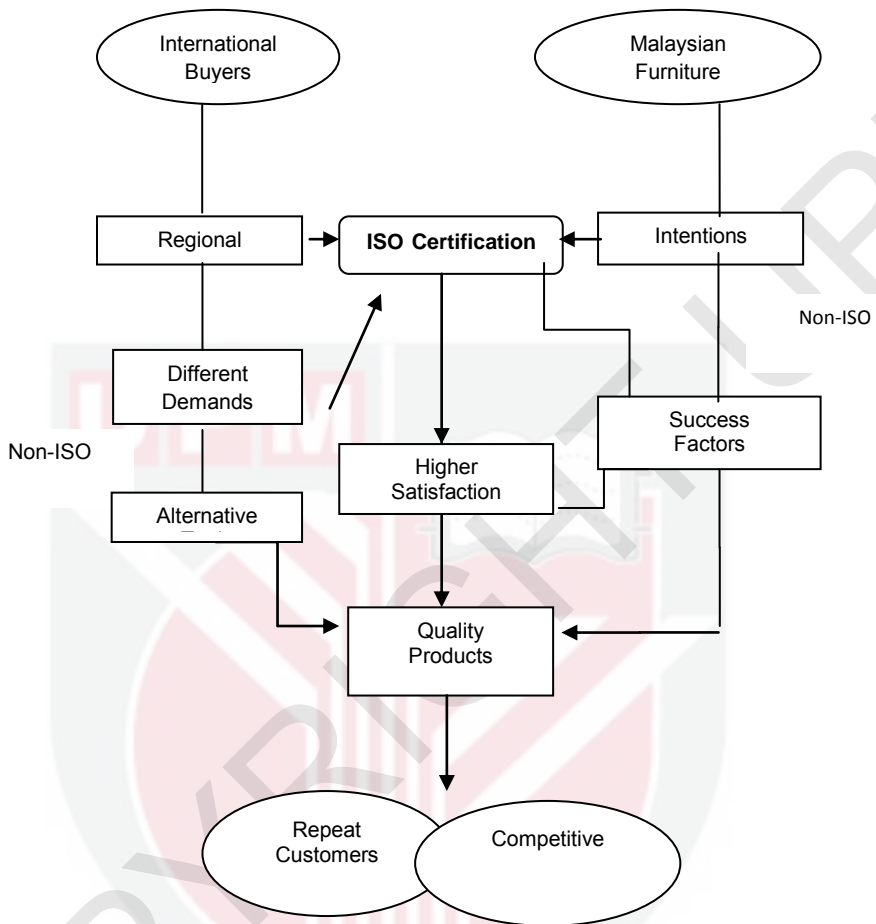


Figure 1.1 Relationships between ISO Certification and the Satisfaction, Quality and Repeat Customers

The premise of this study is based on the established fact that, as ISO is a form of Quality Management System (QMS), the impact of product quality on furniture manufacturers' competitive performance is important (PIMS, 1986). Product quality is so important to business profitability, and businesses that are early entrants into the markets by using premium-quality products or services, usually have much higher potential to dominate the market. A better quality management is usually leads to larger market share, but at the cost of reduced short-run profitability (Evans and Lindsay, 2011). Figure 1.2 shows the benefits of ISO certification, where both the quality of conformance, as required by the ISO and quality of design, as faced by the furniture manufacturers, are improved.

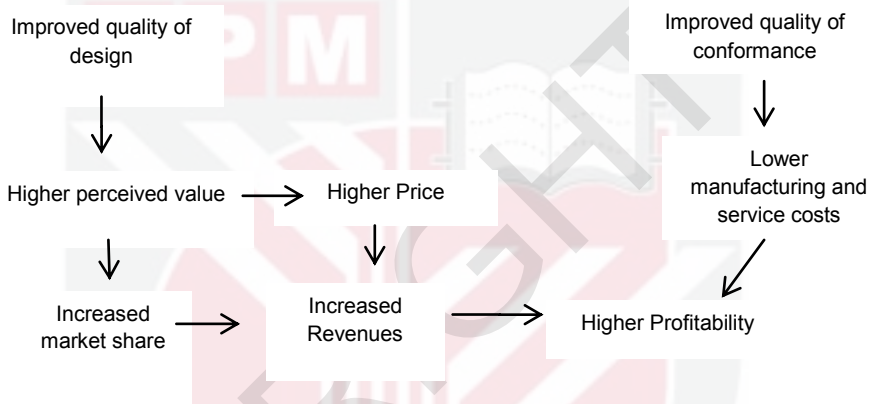


Figure 1.2 Quality and Profitability
(Source: PIMS, 1986; Evans and Lindsay, 2011)

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In January 2008, the Universiti Putra Malaysia granted him a Graduate Research Fellowship (GRF scholarship) to pursue his study in Doctoral of Philosophy in Wood Industry Management. He has been actively participating in various researched-based invention and innovation competitions, seminar presentations and exhibitor in international wood-based fairs. His projects were awarded Gold Medals (the 23rd International Invention, Innovation and Technology Exhibition 2012; UPM Research and Innovation Exhibition 2011), Silver Medals (Malaysia Innovation Expo 2013; UPM Research and Innovation Exhibition 2011), and Bronze Medals (UPM Research and Innovation Exhibition 2014; Malaysia Technology Expo 2013).

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