MASTER OF BUSINESS ADMINISTRATION

Factors Influencing the Use of Quality Management Practices in Woodworking Industry in Klang Valley, Malaysia

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Abstract

Nowadays, in order for various type of industry to challenge competitively in the global market, quality management practices implementation becoming one of the significant aspect to be considered. Quality management practices are commonly found implemented in main stream industry such as petroleum, automotive, electronics, pharmaceuticals, etc but limited application is found in woodworking industry in Malaysia. Due to time constraint, this particular study only focus research on the woodworking or timber industry in Klang Valley, Malaysia. This research is anticipated to find out the implementation level and the attributes that affected the quality management system in the woodworking industries from various sectors including logs cutting, sawn milling, kiln drying plant, wood preservation plant, plywood production, fibreboard or chipboard production, veneer milling, wooden picture frame, wood briquettes plant, furniture production, etc. via a questionnaire. The survey covered 59 companies chosen from different sectors of a population of 114 organizations in Klang Valley, Malaysia. Statistical analysis software SPSS 24.0 was used to analyse the research findings. This research also trying to identify and determine the factors that affecting the quality management practices implementation in woodworking organisation. Moreover, the future trends of quality management practices in woodworking industry in Klang Valley, Malaysia also being explored and determined. In order to enable woodworking companies to challenge globally in the long run, suitable and appropriate quality management system shall be endorsed. Lastly, several discussions and conclusions has been addressed from the research outcome in this project.

Chapter 1: Introduction & Problem Statement

1.1. Introduction

In National Timber Industry Policy – NATIP 2009-2020 (First Edition 2009) that developed by Ministry of Plantation Industries and Commodities in year 2009, it was highlighted that timber or woodworking industry considered one of the principle input to the Malaysia economy for more than decades. Thus, to sustain the industry to continue perform as one of the pivotal role in the Malaysia's economy, adequate resources shall be provided and continual development of the industry is significant and crucial.

Malaysian Timber Council Annual Report (2014) reported that in the year 2014, 2.7% of the country total merchandise exports and 2% of the Gross Domestic Products (GDP) of Malaysian are contributed by woodworking or timber industry. Moreover, export of timber or timber based products from Malaysia achieving an increase of 5.1% or with RM20.5 billion of total exports. After electrical and electronic products; crude oil or petroleum; rubber-based products and rubbers; palm oil based products and palm oils; the timber sector is the 5th largest export gainer.

In Malaysian Timber Council Report (2017), in the year of 2017, Malaysian timber and timber based products has generated total revenue of RM23.2 billion, which considered a 5% growth compare to previous year. Meanwhile, within the timber and timber based products total exports, wooden furniture has registered the biggest portion which is about 34.7% of the total amount. Other than that, 19.9% from plywood products, 16.8% from sawntimber, 6.1% from logs, 5.1% from builders' carpentry and joinery products, 5.0% from fibreboard, 3.7%

from mouldings products, 1.8% from particleboard, 1.4% veneer products and 5.5% from other products.

Malaysian Timber Council Report (2017) also reported that former Primary Industry Minister Datuk Seri Mah endorsed the timber or woodworking industry registered an exciting and consistent performance record between RM20 billion to RM22 billion annually in the past ten years at an event. Thus, it has becoming a significant industry or gainer to the total exports of the country. He also highlighted in the first 5 months of the year 2018, timber and timber based products exports in Malaysia has recorded a revenue of RM9.75 billion, which is equivalent to an increase of 6.76% compared to the same period of previous year. This situation enough to justify timber or woodworking industry is one of the important and consistent provider to the country's earning. He also confident that the industry would achieve an exciting result in the end of year 2018, he is hope a total revenue of RM23 billion or an increase of 5%.

Datuk Seri Mah also stated that National Timber Industry Policy (NATIP) shall be reviewed by his department to readdress the strategic policies and program of this timber industry. Meanwhile, Dato' Gooi added that 25 years of Malaysian Timber Council (MTC) have been occupied with lots of difficulties and challenges.

National Timber Industry Policy (NATIP) also stated that Malaysia considered one of the biggest exporters of tropical wood and timber in the world. Besides that, Malaysia also demonstrated itself as one of the significant exporter and producer in other sectors of timber products, eg: sawn timber, flooring products, doors, joinery products like picture frame and panel products (particle board, medium density fibreboard and plywood).

In the Third Industrial Master Plan (2006 to 2020), National Timber Industry Policy – NATIP (First Edition 2009) stated in the year of 2020, the industry shall achieve significant goal to reach a revenue of RM 53 billion or a growth 6.4% annually.

EXPORT AND INVESTMENT TARGETS FOR THE TWELVE TARGETED INDUSTRIES

Sub-Sector	Exports			Investments	
	2006-2020		2020	2006-2020	2020
	(RM billion)	Average Annual Growth (%)	Share (%)	(RM billion)	Share (%)
Total	**11,403.2**	**7.1**	**100.0**	**362.5**	**100.0**
Non-resource based	**9,202.5**	**7.1**	**80.6**	**232.8**	**65.3**
Electrical and electronics products	7,533.9	6.3	65.9	82.4	23.1
Metal products	514.6	7.6	4.5	44.2	13.6
Machinery and equipment	494.4	6.4	4.3	30.8	7.7
Textiles and apparel	248.8	7.8	2.1	13.7	3.1
Transport equipment	232.5	6.3	2.0	42.3	11.6
Medical devices	178.3	7.6	1.6	19.4	6.2
Resource based	**2,200.7**	**7.1**	**19.4**	**129.7**	**34.7**
Palm oil	781.7	7.6	7.0	26.1	7.6
Wood-based products	545.2	6.4	4.7	25.4	6.2
Petrochemical products	377.4	6.3	3.3	34.0	9.4
Food	244.6	7.8	2.2	24.6	6.2
Rubber products	239.0	7.6	2.1	12.9	3.0
Pharmaceuticals	12.8	6.3	0.1	6.7	2.3

Source: Ministry of International Trade and Industry

Moreover, the expansion of the manufacturing sectors resulted in significant job creation in the nation. From the data shown in the Third Industrial Master Plan, the woodworking industry plays a very important role in the contribution to employment. Wood products including furniture sector contributed 11.9% of the total employment in Malaysia Manufacturing Sector. Table shows the employment in the Malaysia manufacturing sector from resource based and non-resource based:-

EMPLOYMENT IN THE MANUFACTURING SECTOR

Industry	1996		2000		2005		1996-2005
	('000 persons)	Share (%)	('000 persons)	Share (%)	('000 persons)	Share (%)	Average Annual Growth (%)
Total	**2,203.9**	**100.0**	**2,565.8**	**100.0**	**3,132.1**	**100.0**	**4.4**
Non-resource based	**1,227.6**	**55.7**	**1,317.6**	**51.4**	**1,628.3**	**52.0**	**3.7**
Electrical and electronics products	626.6	28.4	645.3	25.2	840.8	26.8	3.8
Basic metals and metal products	177.3	8.0	193.8	7.6	282.8	9.0	5.8
Textiles and textile products	208.7	9.5	215.8	8.4	214.8	6.9	0.8
Machinery and equipment	130.5	5.9	161.4	6.3	162.6	5.2	2.9
Transport equipment	84.5	3.8	101.3	3.9	127.4	4.1	5.2
Resource based	**922.8**	**41.9**	**1,186.6**	**46.2**	**1,423.7**	**45.4**	**5.4**
Wood products, including furniture	236.3	10.7	352.7	13.7	373.8	11.9	5.7
Chemicals, fertilisers, plastics and petroleum products	184.6	8.4	238.1	9.3	327.0	10.4	7.0
Food processing, beverages and tobacco	196.7	8.9	237.7	9.3	298.9	9.5	5.2
Rubber processing and products	124.0	5.6	132.0	5.1	171.5	5.5	4.1
Paper and paper products, printing and publishing	95.9	4.4	121.6	4.7	137.7	4.4	4.6
Non-metallic mineral products	85.3	3.9	104.5	4.1	114.9	3.7	3.8
Others	53.5	2.4	61.6	2.4	80.0	2.6	5.0

Sources: Economic Planning Unit and Department of Statistics

In the latest data reported by Department of Statistic Malaysia on 29 June 2016, woodworking industry still its important role of the employment contribution in Malaysia. A total of 350,616 persons are engaged in woodworking industry in Malaysia manufacturing sector, is the third highest employment contribution among the major manufacturing sectors. Table below shows the performance of manufacturing sub-sector, 2014:-

Table A : Performance of manufacturing sub-sector, 2014

Sub-sector	Gross output (RM billion)	Intermediate input (RM billion)	Value of fixed assets (RM billion)	Number of persons engaged	Salaries & wages (RM billion)
Vegetable and animal oils & fats and food processing	201.0	172.0	31.5	265,641	6.5
Beverages and tobacco products	9.7	6.8	2.9	16,266	0.6
Textiles, wearing apparel and leather products	14.0	10.0	4.8	114,418	2.0
Wood products, furniture, paper products and printing	60.6	44.1	24.0	350,616	7.9
Petroleum, chemical, rubber and plastic products	307.0	236.1	74.9	347,179	11.3
Non-metallic mineral products, basic metal and fabricated metal products	116.0	90.9	37.9	300,143	8.8
Electrical, electronic and optical products	232.2	171.9	48.2	508,542	17.4
Transport equipment, other manufacturing and repair	70.8	52.8	15.8	193,392	6.5
Total	**1,011.3**	**784.6**	**240.0**	**2,096,197**	**61.0**

Source: Report on Survey of Manufacturing Industries 2015, Department of Statistic Malaysia on 29 June 2016

Therefore, within the Malaysia manufacturing and export environment, the timber or woodworking industry is considered as significant provider to the country's revenue.

1.2. Background of the Study

How is the status of Malaysia woodworking industry in the eye of global market? The answer behind had triggered a big motivation and interest of this research.

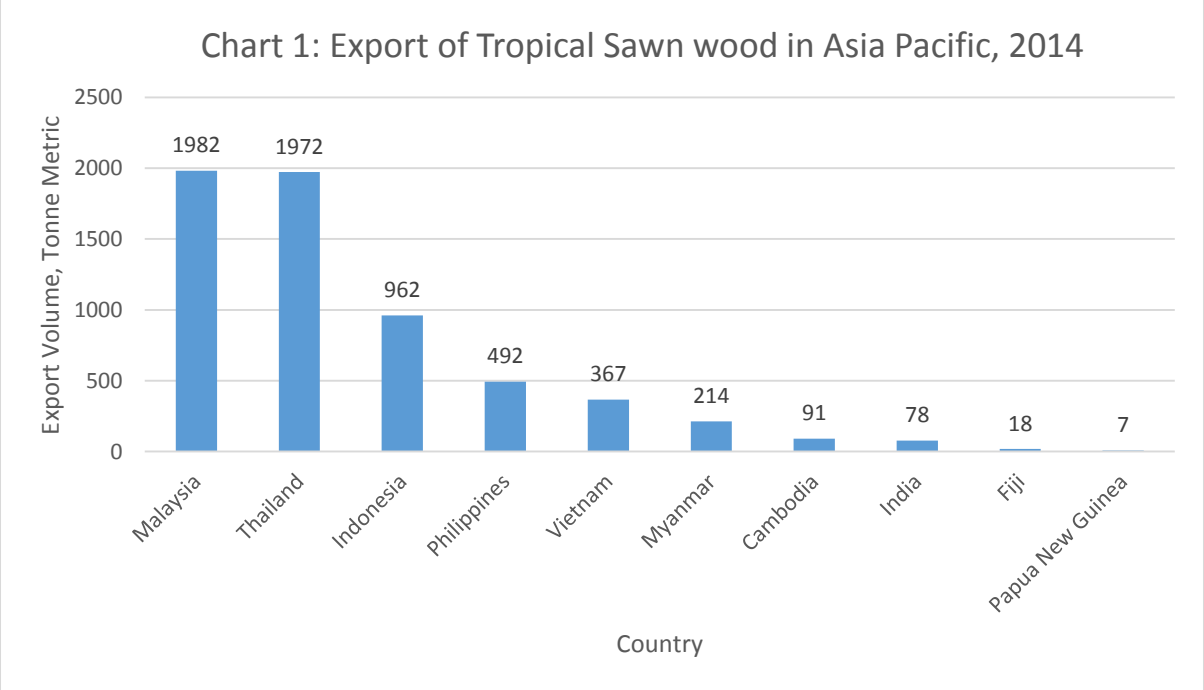
In the research paper of Global Wood and Wood Products Flow, Advisory Committee on Paper and Wood Products (6 June 2007) stated that Malaysia as a country had performed as one of the rising players in the global market and had earned a significant place. Table below illustrate the market share of different selected countries in the global market of timber and timber based products and their total exports. (Year 1990 to 2005)

Exports and Share in the International Trade of Wood Products of Selected Countries

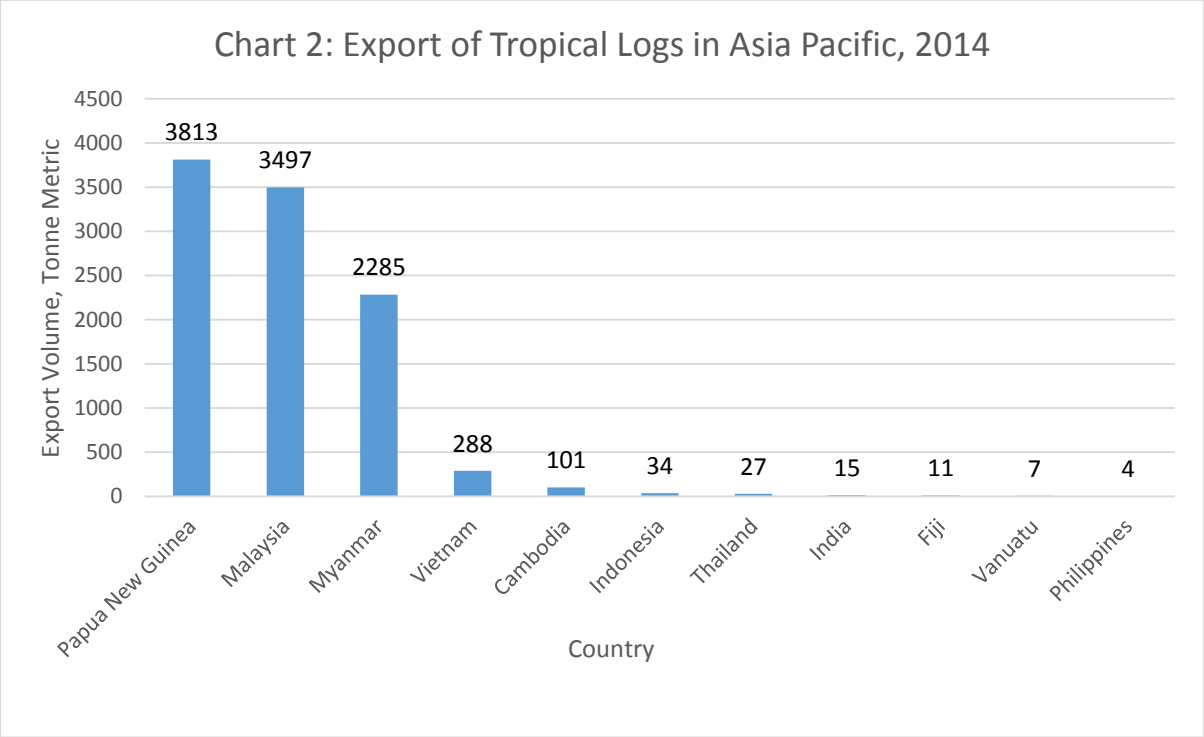
Country	1990 2005 Exports (USD Million)		1990 2005 Trade (%)	
Emerging Players				
Brazil	1,604	8,151	1.3	3.2
Chile	1,010	3,528	0.8	1.4
China	1,848	18,455	1.5	7.2
India	72	688	0.1	0.3
Indonesia	3,530	8,174	2.9	3.2
Malaysia	3,386	6,097	2.8	2.4
Russia	1,715	7,633	1.3	3.0
Vietnam	144	1,612	0.1	0.6
Traditional Players				
Canada	18,375	35,408	15.2	13.8
Finland	9,724	12,912	8.1	5.0

Source: FAO 2006, ITTO 2006 (Adapted by STCP)

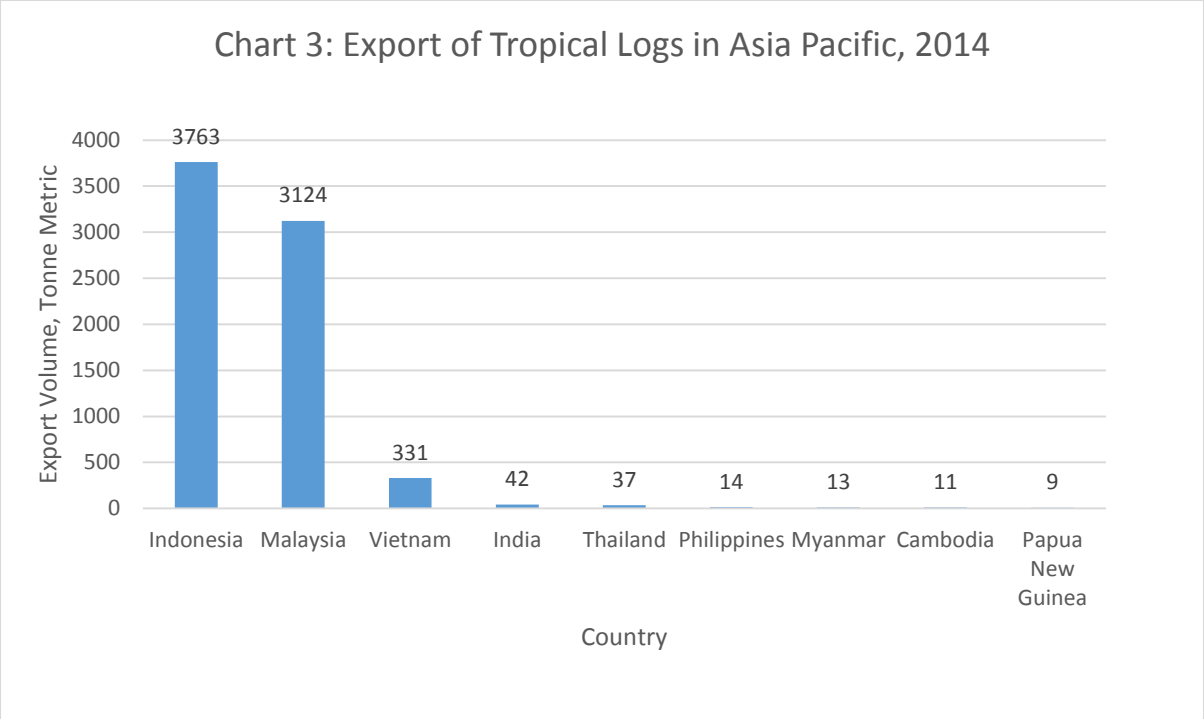
Nevertheless, after decades competing in the global market, Malaysia still remains its strong position in the international market of woodworking industry especially in the region of Asia-Pacific. According to the data recorded (Chart 1, 2 and 3 below) in International Tropical Timber Organization (ITTO), in the year 2014, Malaysia is still remain the leading county in the export of few major sectors which are tropical sawn wood, tropical logs and plywood in Asia Pacific region.



Source: International Tropical Timber Organization (ITTO)



Source: International Tropical Timber Organization (ITTO)



Source: International Tropical Timber Organization (ITTO)

From the discussion and data shown as above, we can easily conclude that Malaysia shows its important standing in the global market. Meanwhile, over the years, Malaysia has already establish its own reputation of being a reliable of the vendor who providing quality timber and timber based products. However, in today fast changing global business environment, the main challenges is to maintain the standing and to be more flexible and sensible to the market development. Hence, the implementation of quality management practice in this industry is considered as a strategy to achieve the goal.

In order to ensure the effectiveness and efficiency in implementing quality management practices within the organisations in woodworking industry, it is necessary to identify the crucial success attributes that affecting the quality management practices implementation.

1.3. Problem Statement

However, in the recent years, due to rising competing tension particular from Vietnam and China in producing cheaper timber products, it has impacted timber and woodworking industry in Malaysia. Thus, Ratnasingam et al. (2013) suggested that in order to compete in the global market place, it is important timber and woodworking industry in Malaysia to embrace and implement quality management practices, eg: ISO 9001 to engage on the policies or steps that can build up company's competitiveness, efficiency and productivity. Moreover, Hoyle (1998) also stated that by adhering to those quality management system standards shall enable complied company capable to make sure all the products produced and services provided meeting customers and buyers' need or requirements.

According to Asian Productivity Centre (APC, 2011), only 7% had applying one or both of the quality management system standards in total of 17890 registered manufacturing companies of wood furniture in South East Asia area.

Zooming in to the largest contributor of the export of timber products in Malaysia which is wooden furniture industry, registered a 33% (RM 7.3 billion) out of total timber products exports of RM 22.1 billion in year 2015 (Malaysian Timber Industry Board – MTIB, 2015). However, Ratnasingam et al. (2013) concluded that 85% of the total wood furniture exports are constructed by around total 160 large wood furniture producers in the Malaysia wood furniture industry export performance. Within these producers or manufacturers, only 22.5% or 36 companies were complied to ISO certification. This situation clearly shows the level of quality management system among the wood furniture industry is not satisfying. This is also justified research done by Ratnasingam et al. in year 2010 which the quantity of ISO certified timber furniture producers are still relatively low and small.

However, as per above discussion, there isn't much discussion nor literature on the quality management practice in various sectors of woodworking industry. Hence this study will explore the extend of quality practise in woodworking industry and propose a model for quality management specifically for the woodworking industry in Malaysia.

1.4. Signification of study

This study will be a significant endeavor in expanding the body of knowledge of quality management practices in woodworking industry in Malaysia. It will serve as a future reference for the researchers who want to look at the subject of quality management practices in woodworking industry as there is limited studies in this area in Malaysia.

Moreover, a number of significant managerial implications may arise from this study will also be beneficial to the woodworking industry in Malaysia. As this study shall examine the possible future trends of quality management practices in woodworking industry in Malaysia, hence it will be helpful to the industry practitioners on the use of quality management practice in their organization. As a result, the status of woodworking industry in Malaysia shall be enhanced in the global market.

1.5. Research Objective

The main objective of this research is to identify what is the level of quality management practices using in woodworking industry. Hence, it hopes to achieve below objectives:

1. To study the level of awareness of quality management practices application in woodworking industry in Klang Valley, Malaysia.
2. To understand the major attributes that influencing woodworking industry in Klang Valley, Malaysia to apply quality management practices.
3. To examine the possible future trends of quality management practices in woodworking industry in Klang Valley, Malaysia.

1.6. Research Question

1. To what extend of the level of awareness of quality management practices application in woodworking industry in Klang Valley, Malaysia?
2. What are the major attributes that influencing woodworking industry in Klang Valley, Malaysia to apply quality management practices, eg: self-driven or customer driven?
3. What are the possible future trends of quality management practices in woodworking industry in Klang Valley, Malaysia?

1.7. Definition of Terms

1.7.1. Conceptual Definition

Quality Management: Oxford dictionaries defined it as a management style that focus on the quality principle, particularly in the implementation and development of working practices.

Quality Management System: Oxford dictionaries defined is as a systematic practices and standards implemented in an organisation or company or to guarantee a consistent services provided and products produced.

Quality Management System (QMS): American Society for Quality (ASQ) defined QMS as an ordered and systematic system that a company shall accomplish a set of goals and quality policies by documents procedures, responsibilities and processes. A successful QMS shall improve companies' productivity and efficiency in a consistent manner. An established QMS

also helps to direct a company direction and policies in order to comply customer needs, requirements and expectations.

Woodworking Industry: Oxford dictionaries defined it as a skill set, activities or industry by transforming and making things from timber/ wood.

Woodworking: Merriam-Webster's Learner's Dictionary defined it as a process, the act or occupation of transforming wood into a desired form or useful products.

1.7.2. Operational Definition

Quality Management Practices:-

In this study, quality management practices refer to quality tools or techniques, established industrial quality standards and certification related to woodworking industry in order to achieve quality objectives and policies; to meet customer and regulatory requirements, eg: Total Quality Management (TQM), ISO 9001 quality management system, Kaizen, Toyota Production System (Lean Manufacturing), etc.

Woodworking industry:-

In this study woodworking industry is defined as the entire chain of industries from upstream to downstream that work on processing, preserving or changing the wood into various form of products, eg: logs cutting, sawn milling, kiln drying plant, wood preservation plant, plywood production, fibreboard or chipboard production, veneer milling, wooden picture

frame, wood briquettes plant, furniture production, wood flooring, building component production, pulp and paper milling, bamboo and rattan production, etc.

1.8. Scope of Study

This study is designed to cover the woodworking industry particular in the region of Klang Valley, Malaysia. Besides that, this study shall limited to main contributed sectors of upstream or downstream woodworking industry such as wooden furniture, plywood, fibreboard, logs, sawn timber, veneer & wooden picture frame. Moreover, in this research, it is delimited to three main area of discussion which are type of quality management practices have been applied, attributes that influencing woodworking industry to apply quality management practices and the possible future trends of quality management practices in woodworking industry in Malaysia.

1.9. Delimitation

This study is delimited to exclude other minor contributed sectors or supporting woodworking industry eg: pulp and paper production, kiln drying, wood preservation plant, fuel wood industry or wooden packing cases production, etc shall not be covered as the contribution of these sectors to industries is relatively small.

Besides that, the impact of quality management practice on performance woodworking industry in Malaysia also shall not be included in this research as the time available does not allow to do so.

Moreover, this study only focus on established standard and regulations related to quality management, especially ISO 9001, others areas of standards and regulations such as ISO 14000 (environmental management), ISO 45001 (Occupational health and safety), OHSAS 18001 (health and safety standard), FSC, PEFC, etc are not included in this study.

1.10. Limitation

Although the study has reached its aim, there are some unavoidable limitations within the findings that need to be addressed carefully. Firstly, because of the time constraint, this research can only be conducted on a small size of population on each sector of the woodworking industry.

Secondly, some of the woodworking industry in Klang Valley, Malaysia located in rural area which has limited internet access and far from the city centre causing certain samplings are unable to reach.

Due to time and resource limitation, this particular study only target on ISO 9001 quality management system implementation in woodworking industry in Klang Valley, Malaysia.

Last but not least, results of this study may not be completely generalizable because some of the samples collected were unwilling to disclose their information due to confidentially policy practiced by the industry.

Chapter 2: Literature Review

2.1. Introduction

This particular literature review will be divided into four area of discussion which are quality management practices, status of quality management practices implementation in Malaysia, Attributes that influence implementation of quality management practices and research method related to this topic.

In the discussion of status of quality management practices implementation, it shall cover the type of quality management practices were implemented and what is extend of the quality management practices in the industry. This section is then followed by discussion on the attributes that influence the implementation of quality management practices in woodworking industry and some other related industry. Finally, it will be concluded by an overview of proposed or related research method to this area of research.

2.2. Quality Management Practices

2.2.1. What is Quality?

The definition of quality was influenced by different researcher, they simply define quality as fitness of use, the fitness of purpose or doing things correctly (Ishikawa, 1976),(Deming, 1986),(José Tarí, 2005). According to Tricker (2014), quality also can be defined as the degree to which a set of integral characteristics meeting and fulfilling a need, purpose or an expectation that is declared or which is definite or essential.

2.2.2. Quality Management Principles

Basically, quality management principles act as the fundamental for the forms and standards of quality. Moreover, quality management principles also help to expedite the quality objectives achievement. Based on Schmoker & Wilson (1993), the eight principles are given as below:-

The description of eight quality management principles as below (Carson, 2019):-

1	Customer focus	Companies can build this principle by attempting to figure out and fulfilling their customers' present and future needs and expectations.
2	Leadership	When leaders lead employees to engage totally in accomplishing companies goals, by building and sustaining internal environment, companies shall succeed in the long run.
3	Involvement of people	Employees are the asset of a company. Good and competent employees are important to be retained to ensure the successful of a company. Besides, to ensure the sustainability of a company, competency of employees shall be improved and enhanced to encourage their involvement and engagement with the company.
4	Process approach	Leaders in the companies shall manage the processes by linking the inputs and outputs in an effective manner, synergies them to perform at an optimum level.
5	System approach to management	Company shall be performing when processes are controlled as single and consistent Quality Management System.

6	Continuous improvement	To have on-going and continual improvement efforts, companies shall not stopping any possibilities and attempt in recognizing, creating and employing new opportunities to sustain or to improve the present companies performance level.
7	Factual approach to decision making	Logical based and evidence based decision making process is needed in achieving company goals. Strategic data collection from various sources, gathering data, establishing evidences and facts, analysing data objectively, investigating them and foresee any possible outcomes to ensure the right approach to evidence based decision making.
8	Mutually beneficial supplier relationships	Companies can benefit by managing a good relationships with vendors and partners. Established supply chain is to ensure a productive and efficient business processes.

Table 2.1: Eight Quality Management Principles.

2.2.3. What Is Quality Management System (QMS) ?

Quality Management System is a series of business processes, policies or procedures including the way to manage the business structure from input to output by implementing necessary steps and business principles in order to meet customer expectation and achieve organisation key performance index (KPI).

An established Quality Management System does not ensure profitability but it will help the organisation to optimise the processes to perform things in a better way, from production to sales.

Many researchers or experts provided definition of Quality Management System, but they do not explain and describe in details, rather than just a word of QMS. According to Standardization (1994), the definitions of a QMS is deriving into an explanation of appropriate and systematic management. It is not an extension or addition to the company, but it is more like an inherent part of its management and production.

2.2.4. International Standard Organization (ISO)

Durai Anand Kumar (2011) stated that International Standard Organization (ISO) is the world largest non-profit organization for serving as management system standards developer and publisher. Many management system standards had been published such as ISO 9001 (Standards for Quality Management), ISO 14001 (Standards for Environmental management), ISO 13485 (Quality Management Standards for Medical Device), etc.

Standards which developed by ISO consider as universal and generic, meaning it can be implemented in any company and industries regardless of their type of industry, size of the company and location.

2.2.5. ISO 9001:2008

ISO 9001 is a Quality Management System established by ISO (International Standard Organization). The numbers behind the colon of ISO 9001 shows the year of revision of the management system, it is year 2008 edition in this case. There are many service providers and product manufacturing companies implement or adopting this management system standard because it is required by their major buyers or customers. Shimada & Okamoto (2009) stated that the ISO 9001 Quality Management System can be used in any type or size of the companies.

Besides that, ISO 9001 not only benefit companies in producing quality products and services, but it also enable companies in gaining global respect and good reputation. Many researches show that the companies who implemented ISO 9001 management system had achieve better performance in both financially and operationally. Thus, they are in a better competitive position in approaching new customers and gaining more market share.

2.2.6. Why is ISO 9000 Important for Manufacture Sectors?

The main focus of ISO 9000 is product or service quality. In the business environment, those companies who provide the best services and products effectively will win their market share. By implementing ISO 9000, the companies shall determine the root cause of a problem and therefore look for appropriate actions to solve the problems. By doing all these, companies' profits and efficiency shall be optimised and maximized. Since ISO 9000 is a reliable and globally recognized system, company who implementing ISO 9000 not only improving their

efficiency but also creating a good reputation of their companies, it will enable their customer to feel confident in their products or services.

In the research done by Wunu, P. (2017), the idea of total quality is a general theory of management which including all the major elements or requirements that contribute to the customer satisfaction or customer-perceived quality. Since the establishment of International Organization for Standardization (ISO) in year 1947, with the important input from quality management experts like Deming, Fisher, Feigenbaum, Ishikawa, Crosby, Juran, Shewhart and Taguchi, the Total Quality Management became very common in 1950s. In spite of Total Quality Management is a validated access in order to improve business operation and development, some of the companies had failed in their implementation due to several reasons like neglecting customer requirements and lack of top management commitment.

Study of Iqbal Khan, K. (2017) concluded that organisations who rigorously complying the ISO 9001 requirements shall definitely improve their company performance. Companies are sustaining an appropriate assessment, guiding and process measurement shall also lead to process continual improvement. Customer's feedback, requirements and comments are treated as an important input to audits and management reviews. Most of the manufacturing companies are concerning about their process performance which is the reason they try hard to improve their product quality.

J. E. Guerrero (2017) stated that Lean Six Sigma (LSS) is the management system that combining from two common continuous improvement tools, which is Lean Manufacturing and Six Sigma. Similar to other quality management system, Lean Six Sigma is targeting on minimise defects and waste by enhancing the level of quality. The study shows that among

the keys challenges in implement Lean Six Sigma are poor quality management system, lack of and procedures, and quality data records.

2.3. Status of Quality Management Practices Implementation

In early years, Aziz, Chan and Metcalfe (1998) had stated the portion of the companies who had implemented contemporary quality management practices, it shows that the Malaysia manufacturing organisations making lesser quality management practices implementation compare to manufacturing companies of United Kingdom.

Besides that, Agus and Abdullah (2000) found that most popular quality management programmes implemented in Malaysia manufacturing companies were TQM, QCC and 5S.

Moreover, Ratnasingam et al. (2013) concluded that 85% of the total wood furniture exports are constructed by around total 160 large wood furniture producers in the Malaysia wood furniture industry export performance. Within these producers or manufacturers, only 22.5% or 36 companies were complied to ISO certification. This situation clearly shows the level of quality management system among the wood furniture industry is not satisfying. This is also justified research done by Ratnasingam et al. in year 2010 which the quantity of ISO certified timber furniture producers are still relatively low and small.

According to Asian Productivity Centre (APC, 2011), only 7% had applying one or both of the quality management system standards in total of 17890 registered manufacturing companies of wood furniture in South East Asia area.

J.Ratnasingam and F.Ioras (2014) found that wooden furniture companies in South East Asia area, ISO 9001 quality management system is being favour to be used as an effective management tool to improve the performance of the company. However, among those wooden furniture manufacturers, the outcome shows that the ISO 9001 quality management system implementation was still relatively low.

J.Ratnasingam and F.Ioras (2014) also found especially in Japan and South Korea (the countries of East Asia), the quality management practices implementation and adoption level within timber and wooden furniture is in an increasing trend, the situation is very much different compared to South East Asia area.

In the study of Polewska and Śmietańska (2015), 75 % of the furniture factories participate in the questionnaire was not certified to ISO 9001, 30% was not implementing lean management was and only 10% of them implementing six sigma. Hence, the level of quality management system implementation is considered low.

In the furniture and joinery manufacturing industry in Ghana, Ametsistsi et al. (n.d) concluded that cost of implement timber and wood products standards are generally considered affordable. The average cost to implement the standards is approximately equal to 2 days wages of a worker, the cost of standards are sold in affordable price to enable and encourage organisations to implement them. However, it is noticed that companies are not ready to purchase and implement then despite they are interested to apply the standards.

The research done by Rauzana (2017) is regarding the implementation of Quality Management System in construction sector in Banda Aceh. As a result, 87% of the Hananan

construction companies in Banda Aceh who implemented ISO 9001:2008 quality management system is the category of "Very Good" implementation.

Idris, Aziz and Zailee (2014) involved in the study of the adoption of standard based management systems (SBMS) in different type of industry. Generally, it was concluded that most of the companies adopted ISO 9001, ISO 14001 and OHSAS 18001 management system in their organisations. However, ISO 9001 is most popular management system being implemented (85%). Among the construction based and building companies, OHSAS 18001 is the common management system adopted by them. However, for food and beverage companies, popular standards adopted are HALAL, GMP and HACCP. Most of the organisations enforced ISO 14001 in their processes as their efforts concerning environment friendly policies. Besides that, researcher also noticed the declining trend on ISO 9001 and TS 169149 implementation. This phenomena implies that ISO 9001 is reaching some point of maturity. In addition, most of the automotive related companies is certified to TS 16949 standard,

In the study done by Asim (2001) within the Malaysian Public Service sector, it shows that a well implemented quality management system within their organisations.

2.4. Attributes that influence implementation of Quality Management Practices

Almeida, Muniz and Costa (2014) stated that the crucial attributes are the definite components to ensure successful of quality management system implementation. Therefore, the successful ISO 9001:2008 quality system implementation is depending on the strategies and approach of the organizations on the identification of the curial success attributes. Based on various literature reviews, the table below presents a summary of the major factors identified:-

N0	References	Commitment from Top Management	Team Commitment	Implementation Schedule	Team Involved in Training	Defined Responsibilities and Authorities Between the Team Involved	Quality Culture in the Organization	Management System Without Bureaucracy	Allocation of resource	Integration Between the Areas Involved	Awareness of ISO's important
1	Aggelogiannopoulos et al. (2007)		/		/				/		
2	Augustyn e Pheby (2000)	/	/		/		/	/			
3	Bhuiyan e Alan (2005)	/			/		/		/		/
4	Chow-Chua et. al. (2003)				/	/	/				
5	Khoo e Tan (2002)	/			/		/	/	/		
6	Kim et. al. (2011)	/	/	/	/		/		/	/	
7	Magd (2008)	/			/	/			/		
8	Mezher et. al. (2005)	/	/		/		/				
9	Pan, Lin e Tai (2009)		/	/							
10	Psomas et. al. (2010)	/	/		/	/	/		/		/
11	Tang e Kam (1999)	/	/		/		/	/		/	/
12	Wahid e Corner (2009)	/	/				/	/		/	
13	Wardhani (2009)	/	/		/	/	/		/		
14	Zeng e Tian (2007)			/		/					

Table 2.2: Critical factors influencing implementation of Quality Management System 1.

Hj Ahmad, Iteng and Abdul Rahim (2017) focused in automotive manufacturing and also summarised critical success factors of quality management practices.

No	References	Human Resource Management	Strategy Planning	Approach of Process	Customer Focus	Leadership	Management of Supplier	Analysis of Information	Product Design	Continous Improvement
1	Ahire et al. (1996)	/				/	/			/
2	Arawati (2005)								/	
3	Brah and Lim (2006)	/								
4	Flynn et al. (1994)	/	/		/					
5	Imai (1986)									/
6	Kaynak (2003)								/	
7	Kalra & Pant (2013)					/	/		/	
8	Marin-Garcia et al. (2008)									/
9	Mohd Akhir & Rushami (2014)									/
10	Punnakitikashem et al. (2010)							/		
11	Prajogo et al. (2006)		/							
12	Ramesh (2012)	/		/	/	/				
13	Rao et al. (1996)				/					
14	Saraph et al. (1989)							/		
15	Sila (2007)	/					/	/		
16	Terviovski & Samson (1999)			/						
17	Venkatraman (2007)				/					
18	Yusof & Aspinwall (2000)					/				
19	Zakuan et al. (2007)					/				

Table 2.3: Critical success factors of quality management practices in the automotive manufacturing.

Youssef, Youssef and Saleh (2014) also summarised 30 studies on the factors influencing quality management system implementation.

		Relationship of Customer	Support from Top management	Strategic quality planning role	Relationship of Supplier	Process management/ control	Management of Workforce	Procedures of Product/ service design	Quality information reporting and analysis	Quality performance metrics (SPC usage)	Metrics of business performance	Role of corporate culture and organisation infrastructure
1	Saraph et al. (1989)		/		/	/	/	/	/			
2	Flynn et al. (1994)	/	/		/	/	/	/	/			
3	Flynn et al. (1995)		/		/	/	/	/		/		
4	Powell (1995)	/	/		/	/	/			/		/
5	Sjoblom (1995)		/						/	/		
6	Ahire et al. (1996)	/	/		/		/	/	/	/		
7	Black and Porter (1996)	/		/	/	/	/			/		
8	Grandzol and Greshon (1998)									/	/	
9	Choi and Eboeh (1998)					/	/		/	/	/	
10	Saraph et al. (1989)	/	/							/	/	
11	Choi and Rungtusantatham (2000)		/			/	/		/			
12	Samson and Terziouski, (1999)	/	/	/		/	/		/			
13	Dow et al. (1999)	/			/		/			/		/
14	Abdul Aziz et al. (2000)					/	/	/				
15	Agus and Mokhtar (2000)					/				/		
16	Ahire and Dreyfus (2000)					/	/	/	/	/		
17	Hongmeng et al. (2000)	/	/	/	/	/	/			/		
18	Douglas and Judge (2001)	/	/			/	/			/		
19	Motwani (2001)	/	/		/	/	/	/		/		
20	Park et. al. (2001)			/	/	/	/		/			
21	Yun and Chua (2002)		/			/	/	/				/
22	Sandholm and Soravist 23(2002)	/	/	/			/		/			/
23	Coronado and Antony (2002)	/	/		/	/	/				/	
24	Antony and Banuelas (2002)	/	/		/	/	/				/	
25	Lau et. al. (2004)	/	/			/	/		/		/	
26	Raisinghani et. al (2005)	/	/			/	/		/			/
27	Zu et. al (2008)	/	/		/	/	/	/	/	/	/	/
28	Draghici and Petcu (2010)	/	/			/	/				/	/
29	Yang (2010)	/	/		/	/	/		/		/	/
30	Ng (2012)	/	/	/	/	/	/		/		/	

Table 2.4: Critical factors influencing implementation of Quality Management System 2.

In the research of Zakuan et al. (2012), a model of critical success factors of Total Quality Management implementation in higher education institution is suggested. Below are few factors or indicators that impact on the performance of companies:-

1. Continuous improvement
2. Communication
3. Employee involvement
4. Management commitment and leadership
5. Training
6. Teamwork
7. Total customer satisfaction

Badri, Davis and Davis (1995) identified eight crucial attributes that affecting the quality management system implementation:-

1. Employee relations.
2. Design of products and services
3. Procedures of process management and operation
4. Reporting and Quality
5. Quality policy and functional role of top management
6. Quality department responsibility
7. Supplier quality management
8. Training

In the study of Polewska and Śmietańska (2015) regarding the quality management in polish industry of solid wood furniture tools, systems, approach, they highlighted the approaching in quality management system implementation is because of increasing global market competition. The environment encourage organisations to improve their process efficiency as well as producing high quality products and providing better services. As a result, ISO 9001 becoming one of the choices for company in providing a guideline in process improvement. Quality Management System was once a marketing strategy but now seems like a method in building a productive and capable management system within the organisation and supply chain. Since many years, Quality Management System was a requirement in the wood based panels industry, however the situation is adverse in the sawmilling sector. Almost none of the organisations are certified to ISO 9001. From such condition, we can deduced that the industry are more concerning to environmental issues which they are looking for wood related certification such as FSC certification. Besides that, the researcher also concluded that there is a strong relationship between the interest in ISO 9001 implementation and the size of the companies. Implementation and maintenance cost of quality management system could be the reason why small companies are not keen to implement Quality Management System.

Aziz, Chan and Metcalfe (1998) found that companies which foreign owned or invested and large scale of companies tends to implement or adopt quality management practices. Besides that, most of these companies implement quality management standards is on their own effort and decision although their buyers and customers do not request them to do so.

In the research of Arumugam, Ooi and Fong (2008) revealed that in Malaysia manufacturing companies, continual improvement and customer focus are both recognized as major and significant total quality management practices components.

However, Agus and Abdullah (2000) concluded that nearly all of the manufacturing organisations in Malaysia claimed that the quality programmes were introduced by their top management.

Besides that, in the paper of Ozden Bayazit (2003) stated that a successful quality management practices implementation process are affected by below several significant factors:-

1. Customer focus
2. Commitment and involvement from employees
3. Quality training and education
4. Support from top management
5. Statistical techniques application.
6. Teamwork

In addition, Ratnasinga et al. (2013) emphasized that the high cost implementation is the major reason behind why small and medium sized furniture manufacturers in Malaysia reluctant in implementing and adopting ISO quality management system.

Moreover, Ratnasinga et al. (2013) also stated the reason of low implementation level in quality management system of Small and Medium Enterprises (SMEs) in wooden furniture sector in Malaysia are lack of awareness. Thus, only customer or market demand is not adequate to encourage wooden furniture companies to implement and adopt ISO quality management system.

J.Ratnasingam and F.Ioras (2014) concluded that lack of market demand and high cost of implementation are among the significant reasons why Vietnam and Malaysia woden furniture companies are reluctant to adopt ISO 9001 quality management system. However, nearly every research concluded that ISO certified wooden furniture companies are performing better and more effective than those who are non-certfied.

Based on the study done by Kurniawati and Noordin (2006) in small enterprises, common difficulties encountered by them in the process of implement Quality Management System are as below:-

1. Quality management practice is low
2. Quality awareness is low
3. Quality culture is low
4. Knowledge related to quality is limited
5. Limitation of resources (financial and technical)
6. Limitation in external assistance
7. Maturity level of quality is low
8. Top management commitment toward quality is low

In the construction sector, Jha and Iyer (2006) also summarized a few critical success factors that influence the Quality Management System, such as:-

1. Owners' Competence.
2. Interaction Among Project Participants
3. Feedback By Project Participants and Monitoring
4. Competency of Project Manager
5. Support from Top Management

Among those factors, project manager's competence and top management support are considered the most significant factors in controlling the project performance. Not only in construction projects, researchers also found that the top management is the significant success factor in establishing quality management system for manufacturing industry.

2.5. Research Method

Aziz, Chan and Metcalfe (1998) using the method of self-completion postal questionnaire, with a majority of the questions being of the close-ended type. The questionnaire was basically categorized into four main sections.

1. Characteristic and background of the company.
2. Present quality practices application.
3. Expected future quality practices that wanted to be adopted.
4. Reasons for implementing quality management practices.

The questionnaire was done based on 650 companies which were randomly selected from a sampling frame based on two lists of manufacturing companies maintained by the Ministry of International Trade and Industry (MITI), Malaysia.

Besides that, in the research of J.Ratnasingam and F.Ioras (2014), they were using the method of direct interview of one hundred medium-sized (average 100 pax of employees) wooden furniture companies in Vietnam and Malaysia. These samples selected from each country containing 25 ISO 9001 certified companies. Structured questionnaire was used to conduct the interview session.

Moreover, Ng Kim Soon and Mohammad Jantan (2000) also using the method of questionnaire. They selected nearly 570 manufacturing companies listed in the Penang Development Corporation Directory (PDC). Operations Manager or Quality Manger as their target respondent and they had chosen mailing method to send to get their attention. The company which their selected definitely have be an industry manufacturer.

2.6. Summary Table of Literature

Quality Management Practices

No	Citation	Industry	Conclusions
1	Ishikawa (1976)	General	Quality definition.
2	Deming (1986)	General	Quality definition.
3.	José Tarí (2005)	General	Quality definition.
4.	Tricker (2014)	General	Quality definition.
5.	Schmoker & Wilson (1993)	General	Quality Management Principles
6.	Carson (2019)	General	Quality Management Principles
7.	Standardization (1994)	General	Quality Management System
8.	Durai Anand Kumar (2011)	General	International Standard Organization (ISO)
9.	Shimada & Okamoto (2009)	General	ISO 9001:2008
10.	Phanuel Wunu (2017)	Waste Management Industry	Significant contributions from Shewhart, Fisher, Deming, Juran, Feigenbaum, Ishikawa, Crosby and Taguchi to TQM.

			TQM is a proven approach to achieving success in business development,
11.	Iqbal Khan, K. (2017).	Manufacturing Industry	Companies who strictly following the guidelines of ISO 9001-2008 will improve their organisation performance
12.	J. E. Guerrero (2017)	Wood Furniture Industry	Lean Six Sigma (LSS)

Status of Quality Management Practices Implementation

No	Citation	Industry	Conclusions
1	Aziz, Chan and Metcalfe (1998)	Malaysia Manufacturing Companies	Manufacturing companies in Malaysia make less use of quality practices than manufacturing companies in UK.
2	Agus and Abdullah (2000)	Malaysia Manufacturing Companies	Most popular quality management programmes implemented in Malaysia manufacturing companies were TQM, QCC and 5S.

3	Ratnasingam et al. (2013)	Furniture manufacturers in Malaysia	Only 22.5% are ISO certified companies among 160 large furniture manufacturers in Malaysia.
4	Ratnasingam *et al*. (2010)	Furniture manufacturers in Malaysia	Quantity of ISO certified timber furniture producers are still relatively low and small.
5	Asian Productivity Centre (APC), 2011	Furniture manufacturers in South East Asia	Only 7% had applying one or both of the quality management system standards in total of 17890 registered manufacturing companies of wood furniture in South East Asia area.
6	J.Ratnasingam and F.Ioras (2014)	Furniture manufacturers in South East Asia	ISO 9001 quality management system is being favour to be used as an effective management tool to improve the performance of the company. However, among those wooden furniture manufacturers, the outcome shows that the ISO 9001 quality management system implementation was still relatively low.

7	Polewska and Śmietańska (2015)	Solid wood furniture industry	75 % of furniture factories were not certified according to ISO 9001, lean management was not used at 30 %, and six sigma was implemented only by 10 %, respectively.
8	Ametsistsi et al. (n.d.)	Timber Industry	Artisans are not ready to spend on them although they desire to apply them.
9	Rauzana (2017)	Construction industry	The level of implementation of ISO 9001: 2008 in Hananan contracting company in the city of Banda Aceh amounted to 87.00% included in the category “Very Good” (81% to 100%),
10	Idris, Aziz and Zailee (2014)	Various	ISO 9001 has reached some sort of maturity.
11	Asim (2001)	Malaysian Public Service Sector	Findings show that a well-established quality management framework exist in the Malaysian Public Service.

Attributes that influence implementation of Quality Management Practices

No	Citation	Industry	Conclusions
1	Almeida, Muniz and Costa (2014)	Various	Ten factors were identified affect Quality Management Implementation.
2	Hj Ahmad, Iteng and Abdul Rahim (2017)	Automotive Industry	Significant success reasons affecting quality management practices in automotive industry.
3	Youssef, Youssef and Saleh (2014)	Various	Eleven factors were identified affect Quality Management Implementation.
4	Zakuan et al. (2012)	Higher Education	Significant success reasons affecting Total Quality Management Implementation In Higher Education Institution
5	Badri, Davis and Davis (1995)	Various	Eight critical factors identified.
6	Polewska and Śmietańska (2015)	Solid wood furniture industry	Cost of implementation, maintenance and certification of quality management system becoming one of the significant reasons why ISO certificates are lack of interest within smaller companies.

7	Aziz, Chan and Metcalfe (1998)	Malaysia Manufacturing Companies	Foreign owned large companies tends to implement quality management system standards, usually is by their own effort and not requested by their customers.
8	Arumugam, Ooi and Fong (2008)	Manufacturing Organizations in Malaysia.	In Malaysia manufacturing companies, Continual improvement and Customer focus are both recognized as major total quality management practices components.
9	Agus and Abdullah (2000)	Manufacturing Companies in Malaysia.	Quality programmes were introduced by their top management.in most of the manufacturing companies in Malaysia.
10	Ozden Bayazit (2003)	Turkish manufacturing organizations	Significant factors affecting quality management practices implementation are identified, eg: commitment and involvement of employees, support from top management, customer focus, teamwork, quality training, and statistical techniques application.

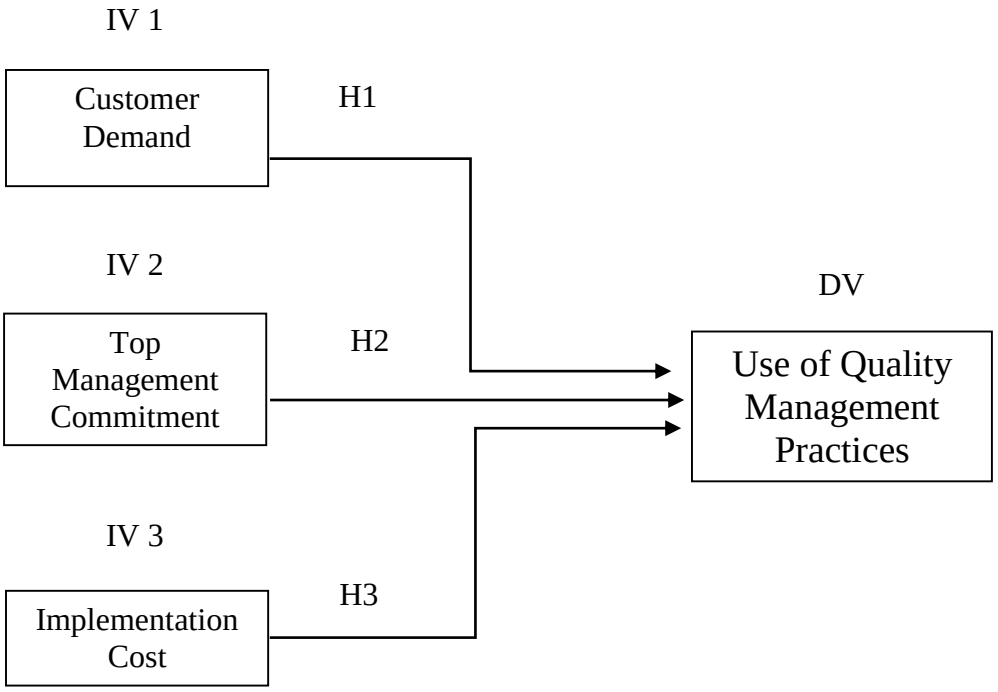
11	Ratnasinga et al., 2013	Small and Medium Enterprises (SMEs) in the furniture sector in Malaysia	Reason of reluctance to adopt ISO management system among small and medium sized furniture manufacturers in Malaysia is due to high cost implementation.
12	Ratnasinga et al., 2013	Small and Medium Enterprises (SMEs) in the furniture sector in Malaysia	Small and Medium Enterprises (SMEs) in wooden furniture sector in Malaysia are lack of awareness in implementing quality management practices.
13	J.Ratnasingam and F.Ioras (2014)	Furniture manufacturers in Malaysia and Vietnam	Lack of market demand and high implementation cost are the reasons behind low ISO 9001 quality management system implementation among furniture manufacturers in Vietnam and Malaysia.
14	Kurniawati and Noordin, 2006	Small and Medium Enterprises (SMEs)	Obstacles (barriers) they faced in implementing QMS are as follows: Quality culture is low, Quality awareness is low, Quality management practice is low, Top management commitment toward quality is low, Knowledge related to quality is limited, Maturity level of quality is low, Limitation

			of resources (financial and technical) and Limitation in external assistance
15	(Jha and Iyer, 2006)	Constructions Industry	The critical success attributes identified were: top management's support, interasction among project participants, project manager's competence, owners' competence and monitoring and feedback by project participants.

Research Method

No	Citation	Industry	Conclusions
1	Aziz, Chan and Metcalfe (1998)	Malaysia Manufacturing Companies	Sample: 650 companies Method: Self-completion postal questionnaire
2	J.Ratnasingam and F.Ioras (2014)	Furniture manufacturers in South East Asia	Sample: 100 medium-sized wooden furniture manufacturers in Malaysia and Vietnam. Method: Direct Interview
3	Ng Kim Soon and Mohammad Jantan (2000)	Companies in Malaysia	Sample: 570 manufacturing firms listed in the Penang Development Corporation Method: Questionnaire

2.7. Theoretical Framework



2.8. Hypothesis

H1: Customer demand will be positively related to the use of quality management practices.

Source: Ratnasingam and Ioras (2014)

H2: Top Management Commitment will be positively related to the use of quality management practices.

Source: Chong Yen Yoon (2015)

H3: Implementation cost will be positively related to the use of quality management practices.

Source: Polewska and Śmietańska (2015)

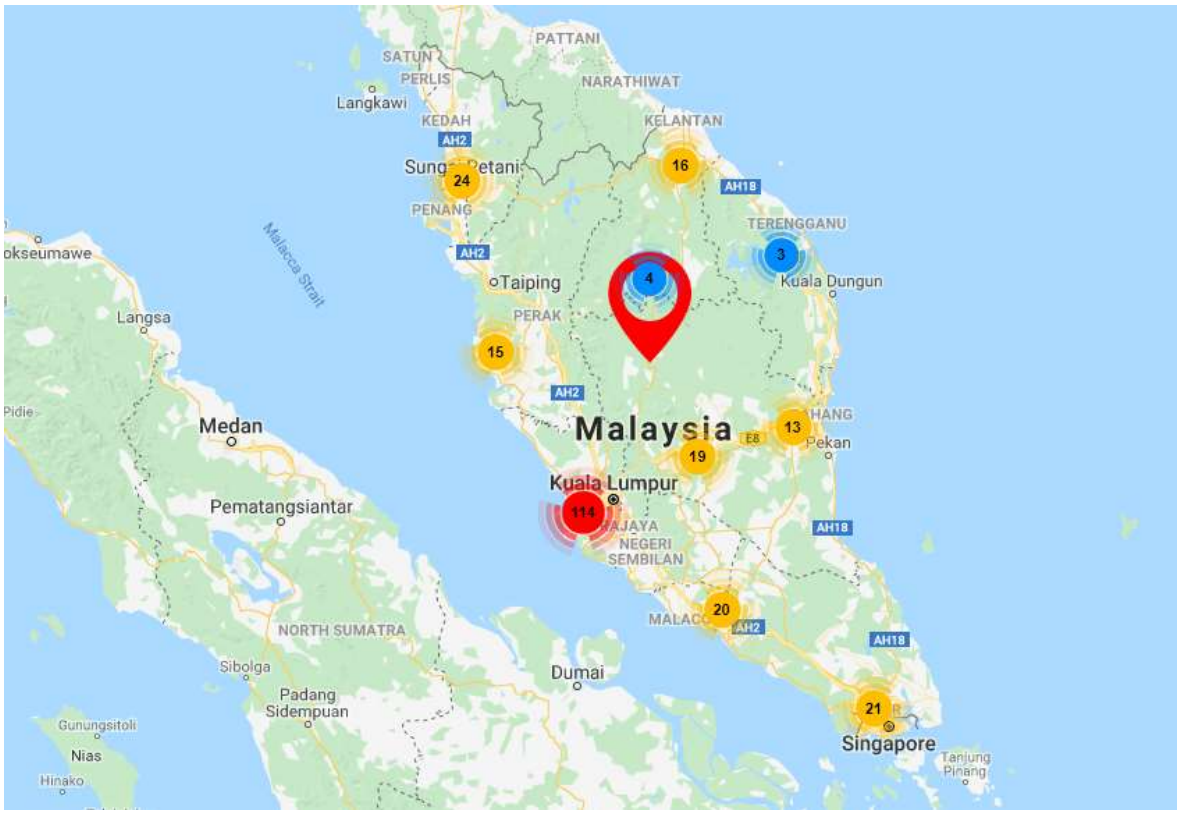
Chapter 3: Methodology

3.1. Introduction

This chapter discuss the research methodology of this study and the detailed implementation of the research design. In order to achieve and answer all research question, quantitative method using a questionnaire was chosen in this study. Besides that, this study is considered as descriptive research with quantitative method as it only describe the characteristics of a population or phenomenon being studied and it does not answer questions about how/when/why the characteristics occurred.

The population and sample technique has been described and followed by the respondent to be targeted, measurement procedure including data collection and data analysis method. And lastly the discussion of the questionnaire being used in this study.

3.2. Population



Source: The Timber Exporters' Association of Malaysia

According to The Timber Exporters' Association of Malaysia (TEAM), there is about 114 establishments of wood based industry in Klang Valley, Malaysia. However, the population in this research is defined as the main contributed sectors of upstream or downstream woodworking industry in Malaysia which are wooden furniture, plywood, fibreboard, logs, sawn timber, veneer and wooden picture frame.

Table: Distribution of woodworking establishments in Malaysia based on the members of The Timber Exporters' Association of Malaysia (TEAM)

Area	No. of Establishments	Percentage
Klang Valley	114	44.0
Pulau Penang	24	9.3
Perak	18	6.9
Pahang	32	12.4
Malacca	20	7.7
Johor	21	8.1
Kelantan	20	7.7
Terengganu	3	1.2
Sabah	5	1.9
Sarawak	2	0.8
Total	259	100%

Source: The Timber Exporters' Association of Malaysia

From the table above, woodworking companies in Klang Valley constructed 44% of the total establishment in Malaysia, hence we can deduce that this study to focus on companies in Klang Valley is adequate to represent the population of woodworking companies in Malaysia.

3.3. Sample

Maximum Number of Arrows Pointing at a Construct	Significance Level											
	1%				5%				10%			
	Minimum R^2				Minimum R^2				Minimum R^2			
	0.10	0.25	0.50	0.75	0.10	0.25	0.50	0.75	0.10	0.25	0.50	0.75
2	158	75	47	38	110	52	33	26	88	41	26	21
3	176	84	53	42	124	59	38	30	100	48	30	25
4	191	91	58	46	137	65	42	33	111	53	34	27
5	205	98	62	50	147	70	45	36	120	58	37	30
6	217	103	66	53	157	75	48	39	128	62	40	32
7	228	109	69	56	166	80	51	41	136	66	42	35
8	238	114	73	59	174	84	54	44	143	69	45	37
9	247	119	76	62	181	88	57	46	150	73	47	39
10	256	123	79	64	189	91	59	48	156	76	49	41

Source: Cohen, J. A power primer. *Psychological Bulletin*, 112, 155–519.

Determination of sample size is based on the table developed by Cohen J (1992) as shown above. Since there is a population of around 114 establishment woodworking industry in Klang Valley, Malaysia, hence a sample size of at least 59 shall be taken according to the table above.

Moreover, sampling technique that applied in this study is systematic sampling. Companies from wooden furniture, plywood, fibreboard, logs, sawn timber, veneer and wooden picture frame industry shall be equally selected from Klang Valley, Malaysia. This information is essential in developing a comprehensive understanding of this woodworking industry in Malaysia as a whole and making appropriate judgment in the result or discussion in another chapter later on.

3.4. Respondent

In order to make the result of this study to be more reliable, the respondent of this study shall focus on the top management or middle management from the organizations who has the authorities on the implementation of quality management practices. Nevertheless, organization instead of individual shall be used as the unit of analysis in the data analysis later.

3.5. Data Collection

This research is using a self-administered questionnaires that require respondents to read and answer the questions themselves which has advantages of being quicker to administer, not having an interviewer effect and being more convenient for respondent.

The questionnaire can be handed directly to the reception at their organisation or companies. The collection of questionnaire can be arranged directly or later through telephone contact. Some respondent will using post to return the questionnaire. Besides that, questionnaire also can be communicated via email.

This research is using single cross sectional design where one sample is drawn from the population of interest only once. Hence the research will be conducted in a particular period.

3.6. Data Analysis

The analysis of the survey data is processed using software Statistical Package for the Social Sciences (SPSS) (Mohd Hanafi Azman Ong, 2017). Prior to the analysis each questionnaire

was carefully edited and coded. In section three of the questionnaire, the values of the likert scale were coded with 1 being “strongly disagree”; 2 “disagree”, 3 “Neither agree or disagree”; 4 “agree” and 5 being “strongly agree”.

Table 2: Common Statistical Analysis Used in the Social Science Research Field

Research Objective	Type of Statistical Theory	Possible Method	Suggested Statistical Software
To examine the significant differences between two interested groups towards one continuous targeted variable	Univariate Comparison analysis	Independent t-test analysis	SPSS
		Mann-Whitney test analysis	SPSS
To measure the significant differences among more than two comparison groups towards one continuous targeted variable	Univariate Comparison analysis	One-way Analysis of Variance test (i.e. ANOVA) analysis	SPSS
		Kruskal-Wallis test analysis	SPSS
To measure the significant differences among more than two comparison groups towards more than one continuous targeted variable	Multivariate Comparison analysis	Multivariate Analysis of Variance test (i.e. MANOVA) analysis	SPSS
To determine the significant bivariate relationship between two continuous interested variables	Univariate Correlation analysis	Pearson' Correlation analysis	SPSS
		Spearman's Rank Correlation analysis	SPSS
To examine causal and effect relationship between a set of independent variables paired with one continuous dependent variable	Multivariate Correlation analysis	Multiple Linear Regression (i.e. MLR) analysis	SPSS
To examine causal and effect relationship between a set of independent variables, where these set of independent variables involve a categorical variable paired with one categorical dependent variable	Multivariate Correlation analysis	Logistic Regression analysis[a] or Multinomial Regression analysis[b]	SPSS
To examine causal and effect relationship between a set of independent variables, where these set of independent variables do not involve a categorical variable paired with one categorical dependent variable	Multivariate Correlation analysis	Discriminant analysis	SPSS
To examine causal and effect relationship between a number of independent and dependent variables with priority to confirming or rejecting the theories	Multivariate Correlation analysis	Covariance based Structural Equation Modelling (i.e. CB-SEM) analysis	AMOS
To examine causal and effect relationship between a number of independent and dependent variables with priority to exploring the theories	Multivariate Correlation analysis	Variance based Structural Equation Modelling (i.e. VB-SEM) analysis	SmartPLS
To refinement or reconstruct or confirm the variables' structure that share a common variance	Multivariate Correlation analysis	Exploratory Factor Analysis (i.e. EFA)	SPSS

Note: [a]*This analysis can be used if the dependent variable constitutes two categories.*
[b]*This analysis can be used if the dependent variable constitutes more than two categories.*

Statistical analysis method shall be used for data presentation. Consequently, mean, minimum, maximum, mode and median value will be calculated where applicable. Table below shows the methods used in the statistical analysis. Analysis that will be done categorised into descriptive analysis and inferential analysis.

Descriptive Analysis: This study will consist 5 simple items on demographic information from the respondents, such as nature of business, ownership of business, years in operation, size of the company and position of the respondent.

Inferential Analysis: Independent T-test, ANOVA and Regression Analysis will be used in testing research hypotheses. Mohd Hanafi Azman Ong (2017)

3.7. Questionnaire Design

Questionnaire in this study is divided into four sections which are company and respondent profile, status of quality management practices implementation, attributes that influence implementation of quality management practices and possible future trends of quality management practices in woodworking industry in Klang Valley, Malaysia. The questionnaire is designed to answer research question and to achieve the objective of this study. Element in each section was obtained from the literature review which discussed earlier.

Five point likert categorical scale will be used in measurement in section three in the questionnaire. , the values of the likert scale were coded with 1 being “strongly disagree”; 2 “disagree”, 3 “Neither agree or disagree”; 4 “agree” and 5 being “strongly agree”.

Section	Variable	Item	Instruments
1	Company and Respondent Profile	1. Nature of Business 2. Ownership of Business 3. Years in operation 4. Size of the Company 5. Position in the company	Questionnaire Closed-ended questions
2	Status of Quality Management Practices Implementation	1. Availability of quality management practice implementation 2. Type of quality management practices 3. Usefulness of the quality management practices	Questionnaire Closed-ended questions
3	Attributes that Influence Implementation of Quality Management Practices	1. Customer demand 2. Top Management Commitment 3. Implementation Cost	Rating scale questions - Likert-type scales
4	Possible Future Trends	1. Existing practitioner of quality management practices. 2. Non-practitioner of quality management practices.	Questionnaire Open - ended questions

Chapter 4: Data Analysis and Interpretation

4.1. Introduction

This chapter presents the empirical findings based on the collected data. The empirical analyses were conducted using the descriptive analysis, reliability analysis, one sample t-test, ANOVA test and regression analysis. Accordingly, Section 4.2 discusses the descriptive analysis of the respondents' profile, followed by the discussion of the reliability analysis in Section 4.3. Sections 4.4, 4.5 and 4.6 present the discussions of the one sample t-test, ANOVA test and regression analysis.

4.2. Company and Respondent Profile

4.2.1. Nature of Business

Table 4.1 Nature of Business

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Upstream	24	40.7	40.7	40.7
	Downstream	35	59.3	59.3	100.0
	Total	59	100.0	100.0	

The results in Table 4.1 present the nature of business that the respondents are doing. The majority (N= 35, 59.3%) indicate working in downstream business such as plywood production, chipboard production, veneer milling, wooden picture frame, wood briquettes

plant, furniture production, wood flooring, building component production, bamboo and rattan production. The second group for this question (N= 24, 40.7%) reported that they are working in upstream business organizations such as logs cutting, Sawn milling, etc.

4.2.2. The Ownership of Business

Tale 4.2 Ownership of Business

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Local	57	96.6	96.6	96.6
	Foreign	2	3.4	3.4	100.0
	Total	59	100.0	100.0	

As it is portrayed in Table 4.2, the participants were enquired on the ownership structure of the business. A total of 57 (96.6%) respondents indicate working in Malaysian owned business while only 2 (3.4%) indicate working in foreigners owned business. This implies that the data were gathered from both local and foreign organizations.

4.2.3. Operating Years

Table 4.3 Years in Operation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 5 Years	8	13.6	13.6	13.6
	6 to 10 years	15	25.4	25.4	39.0
	11 to 15 years	14	23.7	23.7	62.7
	> 16 years	22	37.3	37.3	100.0
	Total	59	100.0	100.0	

The participants were suggested to indicate their operating year's experiences. The outputs in Table 4.3 reveal that the majority of the respondents have been operating above 16 years (N= 22, 37.3%), followed by those working from 6 to 10 years (N=15, 25.4%). Also, the other groups of respondents (N=14, 23.7% and N= 8, 13.6%) indicate that they have been working from 11 to 15 years and less than 5 years respectively. This proves that the data collected are from experienced employees which is reliable and suitable for a study of this scale.

4.2.4. Size of the Company (Number of Full Time Employees)

Table 4.4 Size of the Company

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 - 50	17	28.8	28.8	28.8
	51 - 100	22	37.3	37.3	66.1
	101 - 500	19	32.2	32.2	98.3
	501 - 1000	1	1.7	1.7	100.0
	Total	59	100.0	100.0	

Findings form Table 4.4 reveal that the majority (N= 22, 37.3%) of companies have 501 to 1000 of full time employees. This is followed by (N=19; 32.2%); (N= 17, 28.8%) and (N=1; 1.7%) of organizations that have101 to 500; 0 to 50 and 502 to 1000of full time employees respectively. Therefore, the results show that all the companies involved in this study employed a full time employees.

4.2.5. Position in the Company

Position in the Company

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Top Management	21	35.6	35.6	35.6
	Middle Management	38	64.4	64.4	100.0
	Total	59	100.0	100.0	

Finally, the last question enquired respondents to indicate their current position in the company that they are working for. The results in Table 4.5 show that the majority (N= 38; 64.4%) of participants are from the middle management (Manager, assistant manager, senior executive, etc.) while the second group (N= 21; 35.6%) indicate working at top management level such as Owner, chairman, directors, senior manager, etc. therefore, this implies that the data in hand were collected from key potential respondents.

4.3. Status of Quality Management Practices Implementation

Table 4.6 Status of Quality Management Practices

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	19	32.2	32.2	32.2
	NO	40	67.8	67.8	100.0
	Total	59	100.0	100.0	

The respondents were invited to answer if there is any practices of quality management in their respective company. The outputs in Table 4.6 above show that the majority (N= 40; 67.8%) said NO to this question while the second group (N= 19; 32.2%) said YES for this statement.

Table 4.7 Status of Quality Management Practices

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ISO 9001	17	89.5	89.5	89.5
	Other	2	10.5	10.5	100.0
	Total	19	100.0	100.0	

Furthermore, the participants were suggested to specify the quality management practices that have been implemented in their organizations. The results in Table 4.7 indicate that the majority of respondents (N= 17; 89.5%) have implemented ISO 9001 as their quality management tools while (N= 2; 20.5%) have practiced other quality management techniques such as Kemo standard, 5S or PEFC. This results prove that most of the organizations implement and practice at least one of quality management tools. In other words, the greater use and understanding of quality management techniques lead to fewer issues of poor quality or dissatisfied customers. This would give those who adopt these techniques a potentially powerful competitive advantage and is readily acknowledged and demonstrated within a number of the so-called “excellent” companies.

Table 4.8 Status of Quality Management Practices

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very well	8	42.1	42.1	42.1
	To some extent	11	57.9	57.9	100.0
	Total	19	100.0	100.0	

The study sought the extent to which the quality management practices was successful in participants' organizations. The outputs from Table 4.8 reveal that the use of quality management practices contributes in some extent to the success of the organization by (N= 11; 57.9%), followed by (N= 8; 42.1%) of respondents who indicate that the implementation of quality management techniques contributes very well to their organizations performance. This implies that applying the quality management practices and techniques contributes to enhancing the performance of the organization. Also, those quality tools and techniques play a critical role in improving processes, employees formal training, solving technical issues, appropriate selection of tools and the application of simple process models at all levels in the organisation in order to establish a strong communication and learning line.

4.4. Possible Future Trends

Table 4.9Trends for Existing Practitioners

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	14	73.7	73.7	73.7
	2	5	26.3	26.3	100.0
	Total	19	100.0	100.0	

Table 4.9 above shows the outputs of others quality management practices trends for respondents who said YES to the question 2.1. The results reveal that only 5 (26.3%) of the existing practitioners have specified FSP, PEFC, KAIZEN, ERP and ISO as their possible other quality management trends implementing within their organizations.

Table 4.10 Trends for Non-Practitioners

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	15.0	15.0	15.0
	2	34	85.0	85.0	100.0
	Total	40	100.0	100.0	

Table 4.10 presents the results of quality management tools for respondents who said NO to the question 2.1. The outputs indicate that only 6 (15.0%) of non-practitioners have indicated PEFC, FSC, ISO 9001, LEAN and Own Standard as their possible future trends that will implement in their organizations.

4.5. Reliability and Descriptive Statistics

Reliability test is the extent of how reliable is the particular measurement model in measuring the respective construct (Awang, 2012). The internal reliability is achieved when the Cronbach' Alpha is 0.7 or higher. Table 4.6 presents the reliability and validity tests.

Table 4.11 Summary of the Reliability tests

	Cronbach's alpha	*N*	*Mean*	*Std. Deviation*
Independent Variables				
Customer Demand	0.758	19	20.89	2.20
Top Management Commitment	0.910	19	17.94	3.48
Implementation Cost	0.886	19	18.31	3.43

The reliability test was done on all items involved in this study. The reliability statistics show that the Cronbach Alpha value for all 15 items achieved the minimum recommended value of 0.7. Therefore, the model indicates good internal consistency reliability for the scale with this sample.

4.6. Regression Analysis

The study sought to determine whether there any significant variation between the use of quality management practices and customer demand, top management commitment and implementation cost in woodworking industry in Klang Valley, Malaysia.

Table 4.12 Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.522[a]	.761	.675	.589

a. Predictors: (Constant), Implementation Cost, Top Management Commitment, Customer Demand

Table 4.7 presents the model summary based on the research variables namely customer demand, top management commitment, implementation cost and the use of quality management practices. As a result, the outputs reveal that the value of R^2 is 0.761 and the Adjusted R^2 value is 0.675.

Furthermore, a variation in dependent variables can be attributed to change in independent variables as a 76.1% change in the use of quality management practices will be attributed to the change in customer demand, top management and implementation cost. Additionally, the coefficient of determination (R^2) determines in which extent the proportion of variation of the dependent variable can be explained statistically by the independent variables. Moreover, it also shows the degree of model goodness of fit for the multiple regression equation estimated by the researcher. Therefore, the values of R Square and the Adjusted R Square respectively indicate that there is a moderate degree of goodness of fit in the regression model of the researcher.

4.7. One Sample t-test

After the reliability assessment has been completed, the next stage consists to examining the importance of the use of quality management practices through the one sample t-test. The one sample t-test determines the importance of the factors based on the t-statistic values and the significance value (p-value). Table 4.13 presents the one sample t-test outputs.

Moreover, the t-test statistics results in the below Table indicate the mean value and the standard deviation for all items. Accordingly, the mean value for Customer Demand (CD) is 20.89 while its Standard Deviation (SD) equal to 2.20. The mean values for Top Management Commitment (TMC) and Implementation Cost (IC) are 17.94 with (SD= 3.48) and 18.31 with

(SD= 3.43). These results reveal that the answers provided by majority of the respondents are skewed toward agreeing answer for all the items.

Furthermore, the one sample statistics displayed in Table 4.14 show the mean differences between all the categories of the items involved in the study (i.e. CD, TMC and IC) are statistically significant at two tailed $p < 0.05$ significance levels. This implies that the order of importance among the three constructs is statistically valid. Therefore, the order of importance of the factors is further confirmed through the t-statistics. As a result, Customer Demand (CD) shows the highest t-statistics value of 41.241 ($p < 0.05$), then followed by Implementation Cost (IC) ($t= 23.257$, $p < 0.05$) and Top Management Commitment (TMC) ($t= 20.894$, $p < 0.05$). In summary, the ranking of importance of the factors are as follow:

1. Customer Demand
2. Implementation Cost
3. Top Management Support

Table 4.13 One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Customer Demand	19	20.8947	2.20844	.50665
Top Management Commitment	19	17.9474	3.48766	.80012
Implementation Cost	19	18.3158	3.43273	.78752

Table 4.14 One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Customer Demand	41,241	18	,000	20,89474	19,8303	21,9592
Top Management Commitment	22,431	18	,000	17,94737	16,2664	19,6284
Implementation Cost	23,257	18	,000	18,31579	16,6613	19,9703

4.8. ANOVA tests Outputs

Results in Table 4.15 show that the Total variance (74.387) was the difference into the variance which can be explained by the independent variables (Model) and the variance which was not explained by the independent variables (Error).

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.951	3	.650	3.874	.017[b]
	Residual	5.207	15	.347		
	Total	7.158	18			

a. Dependent Variable: Quality Management Practices

b. Predictors: (Constant), Implementation Cost, Top Management Cost, Customer Demand

Table 4.9 presents the ANOVA test (F-test) for all constructs. The F-Test determines the probability of the relationship between dependent variable and the independent variables occurring by chance (Lewis, Thornhill, A, & Saunders, 2003). The outputs reveal that F is equal to 3.874 with significance (Sig.) of 0.017. This implies that the probability of these results occurring by chance is less than 5%. Hence, all the three independent variables namely customer demand, top management commitment and implementation cost have positive and significant impact on the dependent variable namely quality management practices in woodworking industry in Klang Valley, Malaysia.

Moreover, the results also indicate that there are no difference in the responses provided by the participants as the p-value and ANOVA test are greater than the statistical confidence level of 95% ($p < 0.05$). This indicates that the model is good fitted enough for this study. Also, the results reveal that although the 19 respondents have different profile and characteristics, the information they have provided are homogeneous and there is no statistical difference among them.

Chapter 5: Discussions, Conclusion and Recommendation

5.1. Introduction

This chapter presents the discussion of key research findings, conclusion drawn from the findings as well as the recommendation for the future direction was made there-to. The conclusions and recommendations drawn are in quest of addressing the purpose of this study which was to study and to understand the level of awareness of quality management practices application in woodworking industry in Klang Valley, Malaysia.

5.2. Discussions

The outputs generated from the test on the three independent variables and the dependent variable show that all the tested three independent constructs namely customer demand, top management commitment and implementation cost have a significant and positive effect on the use of quality management practices in wooding industry in Malaysia. Accordingly, the analysis has provided answers to achieve the following research objectives.

1. To study the level of awareness of quality management practices application in woodworking industry in Klang Valley, Malaysia.
2. To understand the major attributes that influencing woodworking industry in Klang Valley, Malaysia to apply quality management practices.
3. To examine the possible future trends of quality management practices in woodworking industry in Klang Valley, Malaysia.

As previously discussed, the reliability test indicated that all the items employed in this study are reliable to make statistical inferences. This also suggests that the measurement approach used to design survey questionnaire was suitable and adequate. Therefore, the items used in the survey are reliable to achieve the present research objectives.

Moreover, 59 questionnaires were distributed using probability random sampling method. Frequency distributions and standard deviation were established through descriptive statistics, multiple linear regression, t-test and ANOVA test were computed using SPSS 24.0.

The findings of the study revealed that customer demand is positively related to the use of quality management practices. This indeed shown the importance placed by the respondents to customer demand for successful use of quality management techniques as it is clearly seen via the one sample t-test statistics and the level of significance ($t = 41.241$, $p = 0.000 < 0.005$.).

Further, top management commitment is positively associated to the use of quality management practices in woodworking industry in Klang Valley, Malaysia. The results of inferential statistics revealed that top management commitment has positive influence on the use of quality management practices as indicated by ($t = 22.431$, $p = 0.000 < 0.005$).

Finally, the results of the third factor involved in this study indicated that implementation cost is positively related to the use of quality management practices ($t = 23.257$, $p = 0.000 < 0.005$). This implies that implementation cost factor has significant and positive influence on the use of quality management practices as shown by the results mentioned above.

Furthermore, the Analysis of Variance (ANOVA) test was done to examine if the difference in characteristics of each category of participants differ statistically. As reported earlier, the demographic profile used in this study are: Nature of business, ownership of the Business, operating years, size of the company, and position in the company. The results indicate that there no statistical difference in answers provided by the respondents on the use of quality

management practices. There might be several possibilities to the homogeneity in the respondents' answers to the influence of the three critical factors of successful quality management implementation. The first reason could be the geographical horizon in which the questionnaires were spread, whereby most of the respondents are from the Klang Valley. Secondly, the non-significance also indicates that the organisational structure in terms of nature, ownership, size, or the personal characteristics such as the position in the company does not influence the respondents' perceptions towards the factors affecting the successful implementation of the use of quality management.

5.3. Recommendation

5.3.1 Customer Demand

The findings of this study established that there is significant and positive effect of customer demand on the use of quality management practices in Klang Valley, Malaysia. It has to be acknowledge that customers differs from different angles. However, customer demand is considered as the agreement of competitive strategy, profit sharing and risk sharing between buyers and sellers. Customer demand should build a strong relationship between customer and the organization which is based on the trust towards each other, the total risk, achieving competitive advantage and sharing profit awareness in order to achieve great performance in quality management.

In summary, customer demand positively impacts the use of quality management practices. When the degree of customer demand is more and more dependent on quality management techniques, then the organization should implement significant changes by transforming its functions. Because, when customer demand relationship with the organization depends on the

functional level, different functional objectives of the organization system must be adjusted anew, which in order to face the new market challenges and opportunities. Ultimately, the ability to meet customer demand and expectations efficiently will match resource to achieve the strategic goal of the organization. So establishing strong relationship between customer demand and organization functional system will improve the likelihood of successful quality management implementation.

5.3.2 Top Management Commitment

The present study found a strong influence of top management commitment on the use quality management. Moreover, as top management commitment increases, it is highly recommended that all of the quality implementation tools to be implemented rigorously. Thus, at higher top management commitment levels, although this argument is supported by the actual findings, ideally a longitudinal study could confirm the dynamic and extensive impact of various levels of top management commitment on an organization's quality management efforts.

The findings provide an empirical evidence of the top management commitment influence on critical aspects of quality management practices such as customer satisfaction, employee empowerment, supplier quality management, and internal quality information usage. Further, practicing managers should identify the potential impact of higher top management commitment on the organization environment factors and implementing good product quality. Also, the observation of various quality management implementation techniques mentioned here should aid managers to focus on other competitive priorities in order to follow up the competition and the findings encourage top management commitment to provide adequate resources for the implementation of quality management efforts.

5.3.3 Implementation Cost

As mentioned earlier, cost implementation refers to the process of budget planning and controlling of a business. It includes activities such as, estimating, budgeting, financing, funding, managing, and controlling costs so that the project can be completed within the approved budget. Accordingly, cost implementation should cover the full life cycle of a project from the initial planning phase towards measuring the actual cost performance in order to achieve the company strategic goal.

5.3.4 Future Trends

Future trends suggested by both existing and non-practitioners of Quality Management System have a similarity in recommending possible future trends of quality management practices implementation, such as PEFC and FSC certification. In the study of Polewska and Śmietańska (2015), the researchers also highlighted that woodworking industries now are more concerning to environmental issues as the present global issues. Therefore, companies in woodworking industry shall gradually look into these both management system that related to woodworking industries. Training shall be arranged for management and employees to expose to these particular management system so that company able to encounter global challenges when the time comes.

5.4. Conclusion

The study was undertaken with the aim of identifying the major attributes and the level of quality management practise in Klang Valley Malaysia. For instance, it is well documented in the literature that the customer demand, top management support and implementation cost are

among the key of successful quality management techniques. This study, used data from 19 respondents on the three constructs namely customer demand, top management commitment and implementation cost. It was found that all factors are supported as they contribute significantly to effective quality management practices in Klang Valley, Malaysia.

The findings illustrated in this study clearly show that quality management tools may be applied to a wide range of non-industrial process as the basic "quality" tools and techniques highlighted here and it can be applied to everyday activities and tasks of the organization. The major benefit of such application is a greater awareness and understanding of the process to which such tools have been applied. The results demonstrates a significant influence of each factor on the use of the quality management and the all tools and techniques should be encouraged, not just in relation to quality issues, but in all aspects of company day-to-day operating lives. Managers by encouraging the effective use of such techniques and tools within their company working environment, will lead to fewer issues of poor quality or dissatisfied customers.

As the comparison to previous study that has been reviewed in Chapter 2 Literature Review, the critical factors that influence the implementation of Quality Management System which identified in this study is generally justified and aligned with the previous researches in various sectors and industries. Thus, once again it is concluded that the factors affected quality management system implementation in woodworking industry has not much differences with other industries, eg: automotive industries. Woodworking industry practitioners shall taking account all these factors in the process of implementation to ensure and increase the success rate of management system implementation. Besides that, one of major distinction of this study comparing previous study related to timber study is the outcome of this study is to suggest woodworking industry to look into other wood related management system other than quality

management system. Therefore, it is recommended that future research shall look into how these wood related management system (PEFC, FSC certification) impact on the performance of woodworking business.

However, the purpose of this study was achieved but it was impossible to conclude it without some limitations. First of all, the sample size is quite small for obtaining homogeneous answers in the context of the second research objective. Second, the small data size could not lead this study to an advanced generalization since it could not be done to extensive geographic location in Malaysia due to time and resource limitations. An extensive geographic coverage could have revealed reliable and dynamic results and future research studies should address the stated limitations.

Finally, besides the above mentioned limitations, the researcher also would like to highlight that Quality Management Practices is not considered as the success factors in the questionnaires. The researcher acknowledges that the questions in this research questionnaire lacks focus on quality management practices and therefore could be further improved as such that the questions could focus more into details of the quality factors.

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Appendix

Dear Participant:

My name, See Siou Bin and I am currently a MBA student at INTI International University. You are invited to participate in this survey, entitled "Factors Influencing the Use of Quality Management Practices in Woodworking Industry in Klang Valley, Malaysia". The particular survey and study is conducted for my final project management.

The purpose of the study is expected to study the level and the factors of quality management practices implementation in the industrial from different sector including logs cutting, sawn milling, plywood production, fibreboard or chipboard production, veneer milling, wooden picture frame, wood briquettes plant, furniture production, etc.

The following questionnaire will require approximately 10 minutes to complete. Risks to participants are considered minimal. There will be no costs for participating, nor will you benefit from participating. In order to ensure that all information will remain confidential, please do not include your name. Copies of the project will be provided to my INTI International University instructor. If you choose to participate in this project, please answer all questions as honestly as possible and return the completed questionnaires. Participation is strictly voluntary and you may refuse to participate at any time.

Thank you for taking the time to assist me in my educational endeavors. If you have any questions or concerns about completing the questionnaire or about participating in this study, you may contact me at 016-3389148or at sioubin@gmail.com.

Sincerely,

See Siou Bin
Student ID: i18015633

Section 1: Company and Respondent Profile

1.1. Nature of Business:

□ Upstream	Logs cutting, Sawn milling
□ Downstream	plywood production, fibreboard or chipboard production, veneer milling, wooden picture frame, wood briquettes plant, furniture production, wood flooring, building component production, pulp and paper milling, bamboo and rattan production

1.2. Ownership of Business:

□ Local □ Foreign

1.3. Years in operation:

□ < 5 years □ 6 to 10 years □ 11 to 15 years □ > 16 years

1.4. Size of the Company (Number of Full Time Employees):

□ 0 - 50 □ 51 – 100 □ 101 - 500 □ 501 – 1000 □ > 1001

1.5. What is your position in the company?

□ Top management (Owner, chairman, directors, senior manager, etc)

□ Middle management (Manager, assistant manager, senior executive, etc)

Section 2: Status of Quality Management Practices Implementation

2.1. Is your company apply/ implement any quality management practices?

□ YES □ NO (please continue to Question 4.2)

2.2.If yes, what are the quality management practices have been implemented?

□ ISO 9001 □ Others, please specify: _____

2.3.Do you think this quality management practices considered successful in your organization ?

□ Very well □ To some extent □ It's not working

Section 3: Attributes that Influence Implementation of Quality Management Practices

Likert Scale: 1 - "strongly disagree", 2 - "disagree", 3 - "Neither agree or disagree", 4 - "agree" and 5 - "strongly agree".

3.1. Customer demand		1	2	3	4	5
a	Customer satisfaction has shown improvement					
b	Trust of customer on the company has been well established.					
c	Numbers of products/service defects, errors, or failures found by the customer have decreased and number of customer complaints has decreased.					
d	Relationship with customer are well established.					
e	Customer request on the implementation of quality management practices.					

3.2. Top Management Commitment		1	2	3	4	5
a	Top management developed a culture that emphasize on quality management.					
b	Top management always update their knowledge in quality management practices.					
c	Top management strongly promotes staff involvement in quality management and improvement activities.					
d	Top management always take the lead to promote the awareness of quality management.					
e	Top management involve directly in the development of quality management system.					

3.3. Implementation Cost		1	2	3	4	5
a	Management willing to invest quality management training for employee.					
b	Sufficient financial resources provided by management to adopt quality management practice.					
c	Implementation cost is affordable and consider relatively small.					
d	Saving in total quality cost is good compare to quality management system implementation cost.					
e	Cost of maintenance of quality management system is minimal and affordable.					

Section 4: Possible Future Trends

4.1. If you are existing practitioner, please specify what OTHERS quality management practices that you will consider to implement:-

_____

4.2. If you are non-practitioner, please specify what are the quality management practices that you will consider to implement:-

_____