THE MODERATING EFFECT OF ENVIRONMENTAL REGULATION AND POLICY ON THE RELATIONSHIP BETWEEN TOTAL QUALITY MANAGEMENT (TQM) AND ORGANIZATIONAL PERFORMANCE IN THE MALAYSIAN FOOD AND BEVERAGE COMPANIES

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ABSTRACT

There have been inconsistent findings in the literature concerning the relationships between TQM and organizational performance. Hence this research has prompted further investigation on the effect of other variables that may better explain the nature of these links. In the related literatures, many theories have suggested that the compatibility between strategies, resources, and capabilities are the keys for organizational success. The main purpose of this study is to investigate the moderating effects of environmental regulation and policy (ERP) on the relationship between total quality management (TQM) and organizational performance (OP). Quality assurance (QA) and continuous process improvement (CPI) as TQM elements considered in this study were moderated with their respective relationships with organizational performance. Therefore, to achieve this purpose, this study has integrated different theories such as the contingency and the institutional theories in order to provide the effect of QA and CPI on successful strategy implementation. Questionnaires were distributed to 250 Malaysian food and beverages companies. 71 questionnaires were returned and used in the analysis using the PLS-SEM. Studies revealed that TQM can be divided into the management or soft aspects (management concepts and principles) of TQM and the technical or hard aspects (management tools and techniques) of TQM . This study is exclusively based on the soft elements of TQM. The results of this study revealed that QA and CPI have always been significant predictors of organizational performance by following the regulations and policy related to environment. More importantly, the results have also confirmed the moderating effect of environmental regulation and policy on the relationships between TQM and organizational performance. This study also supported the premises of the contingency theory and the institutional theory by reaffirming the importance of the supportive ERP for any successful strategy implementation in enhancing organizational performance through the implementation of innovative practices. However, this result cannot be generalized as data were collected through a cross-sectional approach. Future research can extend it to longitudinal research.

Keywords: total quality management, quality assurance, continuous process improvement, organizational performance, environmental regulation and policy.

ABSTRAK

Terdapat penemuan yang tidak konsisten dalam literatur mengenai hubungan antara TQM dan prestasi organisasi. Oleh itu kajian ini telah mendorong penyelidikan lanjut mengenai kesan pemboleh ubah lain yang boleh menjelaskan sifat pautan ini dengan lebih baik. Dalam literatur yang berkaitan, banyak teori mencadangkan bahawa keserasian antara strategi, sumber, dan keupayaan adalah kunci bagi kejayaan organisasi. Tujuan utama kajian ini adalah untuk mengkaji kesan pengantara peraturan alam sekitar dan dasar (ERP) mengenai hubungan antara pengurusan kualiti menyeluruh (TQM) dan prestasi organisasi (OP). Jaminan kualiti (QA) dan peningkatan proses yang berterusan (CPI) sebagai elemen TQM yang dipertimbangkan dalam kajian ini menjadi pengantara dalam hubungan masing-masing dengan prestasi organisasi. Oleh itu, untuk mencapai tujuan ini, kajian telah menyepadukan teori yang berbeza iaitu teori kontingensi dan teori institusi untuk mendapatkan kesan QA dan CPI dalam pelaksanaan strategi yang berjaya. Borang soal selidik telah diedarkan kepada 250 buah syarikat makanan dan minuman di Malaysia. 71 soal selidik telah dikembalikan dan digunakan dalam analisis menggunakan PLS-SEM. Kajian mendedahkan bahawa TQM boleh dibahagikan kepada aspek pengurusan atau insaniah (konsep pengurusan dan prinsip) TQM dan aspek teknikal atau tekal (alat pengurusan dan teknik) TQM. Kajian ini adalah berdasarkan unsur-unsur insaniah TQM semata-mata. Dapatan kajian ini menunjukkan bahawa QA dan CPI sentiasa menjadi peramal yang signifikan bagi prestasi organisasi dengan mematuhi peraturan-peraturan dan dasar yang berkaitan dengan alam sekitar. Lebih penting lagi, dapatan kajian juga telah mengesahkan kesan pengantara peraturan dan dasar alam sekitar ke atas hubungan antara TQM dan prestasi organisasi. Kajian ini juga menyokong premis teori kontingensi dan teori institusi dengan menegaskan kepentingan ERP sokongan terhadap mana-mana pelaksanaan strategi yang berjaya dalam meningkatkan prestasi organisasi melalui pelaksanaan amalan inovatif. Walau bagaimanapun, dapatan ini tidak dapat diitlak memandangkan data hanya dikumpulkan melalui pendekatan keratan rentas. Kajian masa hadapan boleh dilanjutkan kepada kajian longitud.

Kata kunci: pengurusan kualiti menyeluruh, jaminan kualiti, peningkatan proses yang berterusan, prestasi organisasi, peraturan dan dasar alam sekitar.

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LIST OF ABBREVIATION

AFP	Aggressive Financing Policy
AFTA	Asean Free Trade Agreement
ASEAN	Association of South East Asian Nations
CEO	Central Executive Officer
CEP	Corporate Environmental Performance
CFP	Corporate Financial Performance
CI	Continuous Improvement
CIIPM	Continuous Improvement of International Project Management
CLD	Causal Loop Diagram
CSR	Corporate Social Responsibility
DEA	Data Envelopment Analysis
EFQM	European Foundation Quality Management
ERP	Environmental Regulation and Policy
EUI	Energy Use Intensity

EVA	Economic Value Added
GLS	Generalized Least Squares
IFAC	International Federations of Accountants
ISO	International Standard Organization
KBS	Knowledge Based System
KM	Knowledge Management
LPS	Lean Production System
MCS	Management Control Systems
NAM	Norm Activation Model
OCP	Organizational Culture Profile
OEE	Overall Equipment Effectiveness
OP	Organizational Performance
PLS	Partial Lean Squares
PM	Performance Measurement
QMEA	Quality Management Excellence Award

ROA	Return on Asset
ROE	Return on Equity
ROI	Return on Investment
SAP	Structural Adjustment Plan
SCM	Supply Chain Management
SCS	Sustainability Control Systems
SEM	Structural Control Modelling
SME	Small and Medium Enterprises
SPI	Sustainability Performance Indicator
SSCM	Sustainable Supply Chain Management
TPM	Total Productivity Management
TQEM	Total Quality Environmental Management
TQM	Total Quality Management
TSR	Total Shareholder Return
WWF	World Wide Fund

CHAPTER ONE

INTRODUCTION

1.1 Research Background

Malaysia is known as one of the well informed countries on policies of agriculture due to inextricable connection between technological dash and critical research that are funded by the different sectors with enough budgetary allocation (Adebowale, 2013). According to research conducted by Ahmad (2009) on marketing practices in Malaysian Agro-based industry, it is posited that agro-based products have shorter life span due to the nature of the products and require good marketing practices to increase the sales.

Malaysia with its wealth of natural resources is one of the fastest growing economies in the ASEAN region and the country has 41% of world supplies of natural rubber, 39% of hardwoods, 37% of palm oil and 32% of tin. In 1971, the government developed a New Economic Policy (NEP) which, it was hoped, would bring about a sound and wide base for economic growth. According to Hempel (2009), on the global challenge on environmental governance, many international actors including the International Union for Conservation of Nature (IUCN), World Wide Fund (WWF) have been playing critical role in promoting environmental sustainability issues; even though the study finds some constraints and potentialities towards the sustainability context.

According to the report from Federation of Malaysian Manufacturers in joint collaboration with Malaysia External Trade Development Corporation directory (FMM-MATRADE Industry Directory, Food & Beverage, 2005/06, p. A13) on food and

beverage industry group profile, the food processing sector accounts for about 10% of Malaysia's manufacturing output; processed foods are exported to 80 countries, with an annual export value of more than RM5 billion (USD 1.3 billion) that amounts to two-thirds of the total food exports of over RM10 billion. It should be noted that Malaysia is a fast developing economy, where the contribution of the agro-based sector is very significant, both in Gross Domestic Product (GDP) and employment. According to Ahmed, Hassan, and Taha (2004), without having sustainable environment, Total Quality Management (TQM), lean production or just in time (JIT) environment cannot be attained. And sustainable environment cannot be obtained without environmental regulation and policy (ERP).

TQM provides an overall integrated, systematic approach in ensuring that customers and suppliers alike have an effective and sound quality system in for achieving sustainability. Implementation of TQM is complex and broad, involving organizational efforts like increasing the participation of employees and fulfilling the customer satisfaction to meet the ethics of continuous development (Catalin, Bogdan, & Dimitrie, 2014). According to Baird, Hu, and Reeve (2011), TQM is an integrated organizational-wide philosophy aimed towards continuously improving the quality of products/services and process in order to meet or exceed customer expectations. In another word, TQM is an approach for continuously improving the quality of goods and services delivered through participation of individuals at all levels and functions of an organization (Siddiqui, Haleem, & Wadhwa, 2009).

Hoque (2003) explained TQM as a set of management concepts and tools that aims to involve managers, employees and workers to yield continuous performance

improvement. Also, it is known by various names like continuous improvement, total quality and process improvement (Allen & Kilmann, 2001). During the past two decades, TQM programs have been implemented in many organizations. A strategy of high quality leads to a sustainable competitive advantage. The findings suggest that TQM and its adoptions have significant correlations with production performance and customer-related performance Agus & Hassan, (2011). Tarí, *et al*. (2010) stated that TQM and Corporate Social Responsibility (CSR) are relevant management philosophies in the hotel industry to be able to generate a sustainable competitive advantage. Duran, Çetindere, and Şahan (2014) discovered that, at statistical significance, the enterprises having the TQM and ISO 9000 certificates are better in the fields of degree of knowledge obtained from the customer, participation of employees in dissemination of knowledge, the quality process, the quality culture and the quality performance than those not having the mentioned certificates.

TQM implementation in terms of human resources management has a positive impact on the sustainability and competitiveness of the enterprise and the presented models that offer a holistic view on the positive impact of TQM in conjunction with human resources management and ISO on the sustainability and competitiveness of the enterprise (Izvercian, *et al*., 2014; Benavides-Chicón & Ortega, 2014). Bon and Mustafa (2013) hypothesized and conceptualized the relationship between TQM practices and innovation in a model to show that implementation of TQM system enhances the innovation process in organizations due to elements such as continual improvement or customer focus. This proves that the importance of TQM is unquantifiable in every aspect of management whether soft or hard.

Ahire and Dreyfus (2000) established a framework for two components of TQM efforts. Design and process managements are used in designing quality into products and managing production quality. Sharma, Lawrence, and Lowe (2010) theorized the changes of surrounding, the introduction of a management control innovation, TQM techniques, within Telecom Fiji Limited. According to Ahmad, *et al*. (2014), the concept of TQM has been developed as a result of intense global competition. Implementation of a TQM system enhances the innovation process in organizations due to TQM elements such as continual improvement or customer focus. Setyadi and Anggayana (2013) showed that the final goal of exploration is to discover an economic deposit in the certain area; generally by using the three main stages of exploration which are to find, to prove and then to evaluate the presence of minerals deposit which in return used in measuring the economic growth of an industry.

To ensure quality and standards in working and production conditions throughout the supply chains, conceptualization was done by mapping the current situation of sustainable supply chain management (SSCM) in the fast fashion industry to prevent production problems in developing countries, improve overall performance and set sustainability criteria for their suppliers (Turker & Altuntas, 2014). Agro-based companies are involved in mechanized cultivation in macro level with a capital intensive system. These companies include a wide range of agricultural products such as cereals, industrial crops, fruits, vegetables, meat and diaries (Khatir & Rezaei-Moghaddam, 2014). Small food processing companies contribute substantially to the production, manufacture and retail of food in the periphery of most countries (Kokkinakis, *et al.*, 2011).

Finally, as it is widely known that food and beverages constitute a major source of energy in most countries, to have a sustainable development through dynamic social and economic environment, every industry must implement a complex management which combines TQM to their philosophy principles (Johann, 2006). In Malaysia, the food manufacturing industry registered on output growth of 4.2% in 2004; the highest growth was recorded in cocoa, chocolate and sugar confectionery (15.2 %), biscuits (11.5%) and other products (11.4%) in response to increased domestic and external demand; while negative growth was recorded in rice milling (-23.8%) due to demand being increasingly met by imports (FMM-MATRADE Industry Directory, Food & Beverage, 2005/06, p. A14). The industry depends on agricultural produces as raw materials but this study exclusively focuses on food and beverage companies.

1.2 Problem Statement

Notably, many studies have found that, in general, TQM has a great effect on organizational performances (Baird, Hu & Reeve, 2011; Chong & Rundus, 2004; Laxmikumari, Kumar & Ramana, 2014; Agus & Hassan, 2011; Corredor & Goñi, 2011; Kannana & Tan, 2005). Yet reports of low sustainable performance are surprisingly common in the Malaysian food and beverage companies, with global comparison, Malaysia's sales of agricultural products are relatively low , which can be attributed to the low responsiveness of entrepreneurs in producing a quality and competitive agro-based products (Ahmad, 2009). Studies have examined the impact of TQM as incorporated into system management in order to create a bigger view of exploration data base design (Setyadi & Anggayana, 2013) and environmental management levels with quality performance (Tarí *et al*., 2010).

However, several considerations are required to improve the companies' performance with the rapid growth of population in Malaysia, and equally the demand of food especially agro-based products. Historically, Malaysia is one of the environmentally rich countries in the world with abundant mineral resources and high biodiversity but presently its tradition and heritage have been facing numerous environmental problems such as air pollution, water pollution, and exploitation of natural resources. In order to cope with the environmental problems, the Government of Malaysia has passed some important environmental law and policy such as the Environment Quality Act 1974 and its Regulations 1989, the Environmental Quality Order 1989, the Protection of Wildlife Act, the National Forestry Act 1984, the Fisheries Act 1985, the National Parks Act 1980 , the International Environmental Laws, the Civil Law Act 1972, the Principles of the English Laws, the Federal Law, Shariah Laws, the Malay Customary Laws with some international environmental obligations ; have also been implemented in order to attain sustainable environment and development in the country. But in contrast, these laws and policies have not been properly implemented due to some problems such as non – coordination, weak enforcement, customary attitudes (Mohammad, 2011).

According to Adebowale (2013) , underdevelopment is not limited to third world countries because developing countries like Malaysia also negotiated an enduring public development policy and solved fundamental problems of food production and agricultural declination. In other words, the innovation capacity is weak, and consequently, opportunities for growth and development are limited in critical sectors of the economy. Boosting indigenous technological capability thus remains a major development challenge in Malaysia. In addition, Sangodoyin and Ipadeola (2000) stated that,

continuing advancement in science and technology is contributing to the increase in volume and toxicity of waste generated due to the advent of industrialization and urbanization. Rose (2014) opined that though natural resources are in abundance but highly restrained in some circumstance. Thus, there is need to tackle food production and agricultural declination in food and beverage companies in order to boost technology capability and economy through abiding the Environmental Regulation and Policy.

It is noteworthy that the Agro-business sector is one of the major generators of employment and income worldwide. In recent years, food and beverage companies has grown significantly which affects agricultural development policies to change from a pure production-oriented approach to a wider systems that emphasizes agrifood chain coordination, value creation and institutional strategies under which chains operate (Konig, Silva & Mhlanga, 2013). Foods and beverages manufacturing firms are finding it difficult to survive because of global economic recession and unfriendly operating environmental in which they operate. In Malaysia, SMEs comprise more than 99% of business establishments and 80% of them are categorized as micro level; despite the great potentials of agro-based products, several issues need to be overcome in order to sustain the industry and enable the entrepreneurs to remain competitive (Ahmad, 2009).

More so, series of empirical studies attempted to link TQM to organizational performance i.e. business planning and firm size (Temtime, 2003; Haar & Spell, 2008); information capability (Zarraga-Rodriguez & Alvarez, 2014); financial policy (Ademola, 2010); market competition (Chong & Rundus, 2004); organizational culture(Rad, 2006; Baird, Hu & Reeve , 2011) and none of those researches has attempted to use environmental regulation and policy. So, the need for a comprehensive study that will

capture the relationship between TQM, organizational performance and environmental regulation and policy becomes necessary (Chervinski, 2014). The figure 1.1 below shows different studies linking TQM and organizational performance.

With the above past research studies on TQM, Organizational Performance and Environmental Regulation and Policy of food and beverage companies in Malaysia, the problems in agro-allied industries were found to be low in sustainable performance, weak in innovation capacity, limited in opportunities for growth and development; unfriendly operating environment; unavailability of product readily throughout the year; low level of disposable income; poor infrastructure; and increase in toxicity of waste generated.

In addition, several studies are conducted mostly on small and medium-sized enterprises (SME) level and hospital sector as in the studies of Allen and Kilmann (2001), Benavides-Chicón and Ortega (2014), Chen (2013), Abdullah (2010) and Abu-Hamatteh *et al*. (2003) with no study in the area of food and beverage companies to the best knowledge of the researcher.

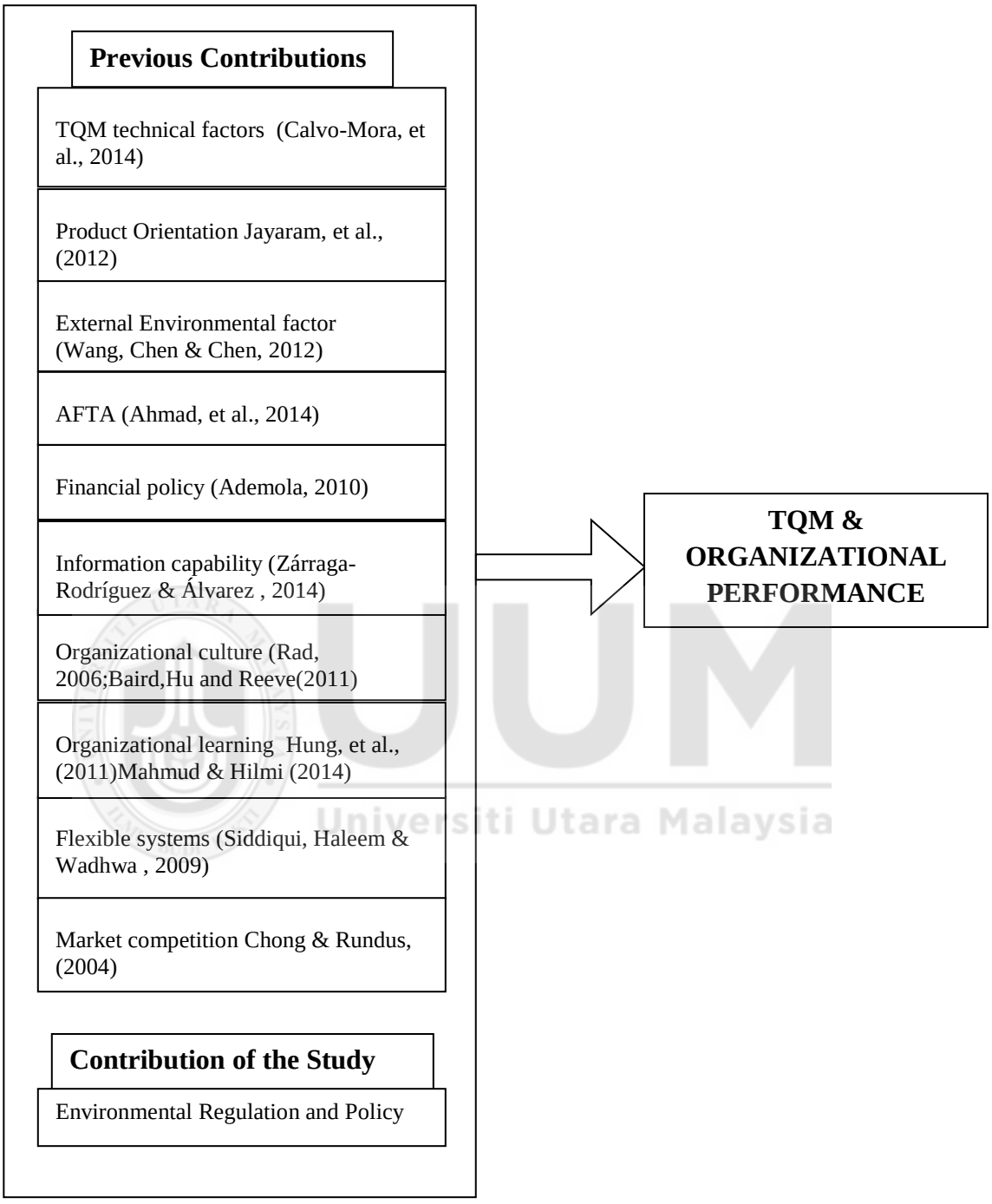


Figure 1.1**:** *Previous researches on effects of different moderating variables on relationship between TQM and organizational performance*

Inability to use all the dimensions of both TQM practices and organizational performance results to the inconclusiveness and ambiguity in those studies thus warrants further

researches. In addition, there is always issue of lack of sophistication of techniques used for analysis. Also, since most studies are concentrated on manufacturing sectors, this study attempts to fill the gaps in the literature by extending the existing research to food and beverages industry in Malaysia. This has prompted a need for deeper understanding of the elements that form a conducive and enabling environment for the development of agribusiness, agro-industries and agro-food value chains in general. The food and beverage companies have a pressing need to implement immediate and longer term sustainable practices. The quest for more studies on the relationship between TQM and organizational performance for provisions in an extensive review of the quality of a factory's existing system management, implementation of standards, procurements and current manufacturing procedures in conjunction with economic, social and environmental development in Malaysian food and beverage companies are issues that provoked the essence of this study

Based on the aforementioned practical flaws and theoretical gaps identified in the previous studies, this study will investigate the following three aspects: 1) the effect of TQM on the organizational performance of food and beverages companies; 2) the theoretical and empirical evidence that established the relationship between TQM, environmental regulation and policy and organizational performance; and 3) the moderating effect of environmental regulation and policy on practical relationship between TQM and organizational performance in the Malaysian food and beverage company context.

1.3 Research Questions

For the problem statement of this study to be properly addressed, the following are the research questions to be answered:

1. What is the impact of quality assurance as a TQM element on organizational performance of Malaysian food and beverage companies?
2. What is the impact of continuous process improvement as a TQM element on organizational performance of Malaysian food and beverage companies?
3. What is the moderating effect of environmental regulation and policy on the relationship between quality assurance and organizational performance of Malaysian food and beverage companies?
4. What is the moderating effect of environmental regulation and policy on the relationship between continuous process improvement and organizational performance of Malaysian food and beverage companies?

1.4 Research Objectives

The purpose of the study is to examine empirically the effect of environmental regulation and policy on the relationship between TQM and Organizational performance. This major objective is divided into four objectives as follows:

1. To investigate the impact of quality assurance as a TQM element on organizational performance of Malaysian food and beverage companies.
2. To investigate the impact of continuous process improvement as a TQM element on organizational performance of Malaysian food and beverage companies.

3. To examine the moderating effect of environmental regulation and policy on the relationship between quality assurance and organizational performance of Malaysian food and beverage companies.
4. To examine the moderating effect of environmental regulation and policy on the relationship between continuous process improvement and organizational performance of Malaysian food and beverage companies.

1.5 Research Methodology

This sub section is divided into two parts: data collection and data analysis. It explains briefly, how the data was obtained and consequently analyzed. This research work employed the use of primary data which provide organizational performance records and accounts in a workable format. Questionnaires shall be provided to the top managers or to the companies' representatives in care of that. The instrument to be used for this research shall be primary in nature as quantifiable quality management data will be obtained from the top managers of various food and beverages companies located in Malaysia. The method used was based largely on deductive method and the use of primary data was done after the collection of the data from various aforementioned companies in Malaysia through questionnaires. The data was then analyzed through SEM PLS.

1.6 Significance of the Study

In recent years, green economy has emerged as the concept that will enable progress in a sustainable manner, ensuring that natural capital that gives goods and services like raw materials, clean water and air, carbon sequestration and waste decomposition is properly recognized, accounted for and safeguarded (MENGO, 2013). Due to economic, social

and environmental problems in developing countries, companies increasingly focus on sustainability and try to ensure the same quality and standards in working and production conditions throughout their supply chains. The tension in the exchange of resources between developing and developed countries lies at the heart of current sustainability activities, but what these companies are actually doing to manage their supply chain has not yet been explored in depth in the literature (Turker & Altuntas, 2014).

Besides that, TQM was incorporated into knowledge management when knowledge management became a current issue to which the organizations were required to pay attention in order to increase performance, productivity and competitiveness of the organization (Duran, Cetindere & Sahan, 2014). According to Izvercian *et al*. (2014), it is highly competitive for environment forces of enterprises to pay attention to quality and human resources needs in order to be sustainable without investigating the impact of the relationship existing between TQM, human resources management, competitiveness and ISO 9000 on sustainability of an enterprise. Admittedly, both TQM and sustainable development are crucial to the competitive and value creation processes, few empirical studies have explicitly analyzed the relationship between them (Benavides-Chicón, and Ortega, 2014).

Furthermore, Hung *et al*. (2011) reported that organizational learning expedites innovation performance and plays a big role between TQM and innovation performance. Also, Haar and Spell (2008) identified the moderating role and effect of organizational size in determining adoption rate in firms and on the adoption rates of TQM in firms. In the same view, Jayaram, *et al*. (2012) explained the moderating effect and influence of product orientation on coordination mechanisms in total quality management combined

to influence quality performance in industries. Mahmud and Hilmu (2014) explored the pertinent issues in the relationship between TQM and Small and medium enterprises performance with the mediating roles of organization learning with the anticipation that TQM shall support both organization learning and performance of SMEs.

In another end, Siddiqui, Haleem and Wadhwa, (2009) stated that in global market conditions, the growing field of point of attraction for many researchers and practitioners from the last few years in the integration of TQM and Supply Chain Management (SCM) with Flexible System(FS). In the same way, Wang, Chen, and Chen (2012) identified the moderating effects of external environment factors on TQM, market orientation and performance; the marketing orientation is being used as mediating effect between TQM and organizational performance. Likewise, Temtime (2003) investigated the moderating impacts of business planning and firm size on TQM practices in developing countries of small- and medium-sized enterprises.

Therefore, more researches are needed on mechanism by which TQM operates and its influences across multiple level of organizational development and competitiveness advantages measured by customer satisfaction, financial and operational performance in conjunction with the impacts assessment of social, economic and environmental development in food and beverage companies as a sub-set of Agro-allied industry.

Table 1.1:
Limitations of the Past Works on TQM and Organizational Performance.

Reference	Future Research Recommended
Bolívar-Ramos, García-Morales, & García-Sánchez, (2012)	An explicit integration of the influences of external factors.

Camisón & Villar-López, (2014)	Analysis of how the radical character of organization innovation and innovation capability influences their interrelationship and firm performance
Valmohammadi, (2011)	Data should be from both manufacturing and service industries.
Fotopoulos & Psomas, (2010)	Focus on the specification of a quality management model that will be based on subjective business evidence and opinions held not only by top managers but also by employees.
Draghici, Popescu, & Gogan, (2014)	The proposed model for the organizational performance will prove to be useful tool for empirical researchers and will help them in documenting and defining the performance management systems for both profit and non-profit organizations.
García-Morales, Jiménez-Barrionuevo, & Gutiérrez-Gutiérrez, (2012)	Examination of other consequences of introducing learning and innovation processes in organizations (e.g. quality improvement, staff satisfaction, and improvements in relational capacity).
Abor & Biekpe, (2007)	Further development on some of the insights delivered by this study and to be confident that there is any simple and systematic structure that provides best service guide .
Perdomo-Ortiz, González-Benito, & Galende, (2006)	Comparison of TQM and Business innovation capability measurements with the firms results in particular with

	quality and innovation results and business results.
Velasco, Quintana-Garcia & Marchante-Lara (2014)	Incorporation of interviews to stakeholders (employees, customers and society) is needed to fully understand the relationships.

Table 1.1 above presents the limitation of the past researches on the relationship TQM and organizational performance. The study shall expose the full utilization of corporate resources and improvement in the whole production system which will also eventually identify preventable and corrective measures to establish defined and detailed traceability systems, from raw material procurements to marketing of the products in enhancing organizational performance.

1.7 Scope of the study

This research was conducted in the Malaysian food and beverage companies, as a subset of Agro-based industry working in full symbiosis operation with the Agricultural industry by providing or deriving goods or a service from agricultural produces. This study covered 250 food and beverage companies in Malaysia in which most of them are situated at Kuala Lumpur, the capital city of the country. Also, a review of the literatures suggested a combination of soft and hard quality element of TQM. Studies (Vouzas & Psychogios, 2007 ; Chen, 2013) revealed that TQM can be divided into: the management or soft aspects of TQM; and the technical or hard aspects of TQM . The hard refers to management tools and techniques, while the soft or philosophical is connected with

management concepts and principles. This study is exclusively based on the soft elements of TQM being the core elements.

1.8 Summary

The fundamentals of this study are explained in this chapter, and it serves as the introductory chapter. It outlines the reasons and highlights the events that necessitated this study through the significance of the study. This is further extended and specifically addressed as the study's problem statement. The research questions and objectives are also elicited in relationship with each other and the outlined problem statement. While the conceptual framework gives the overview of the connection between the variables and sub-variables with their respective roles of dependent, independent and moderating.

In essence, the chapter serves as gateway to this study by briefly introducing each of the components of the chapter. The research methodology to be employed is clearly discussed by stating how the data shall be collected and analyzed. Also, the scopes to be covered by this study and its contributions to the knowledge practically and theoretically are discussed. Lastly, operational definition of terms is introduced to this chapter to give a clear view of the connections existing between the variables and the domain of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the foundation for this study. It reviews previous related studies and literatures so as to justify the developed research questions and hypotheses. To achieve this, literatures of past related studies on TQM and its core elements, organizational performance and environmental regulation and policy are discussed. The chapter presents the concepts of TQM, environmental regulation and policy and organizational performance. Other sections that follow in this chapter discussed the empirical studies and established linkages between the variables of TQM and organizational performance as well as the moderating role of environmental regulation and policy. Regarding the underpinning theories, Contingency theory, Institutional theory and all other related theories were discussed and the chapter explains the reason for the choice of the theories.

2.2 The State of Food and Beverage Companies in Malaysia

The concern for the environment and sustainability was aggressively rooted way back in the Third Malaysia Plan (1976-1980) as Malaysia built its economic foundation. It is revealed by WWF-Malaysia in 2007 on Environmental Stewardship also that 57% of the populace can be said to have good environmental behavior. Food and agro-processing industries are becoming prominent in recent times with the prohibition of importation of some grades of food stuff enacted by government policy.

According to Department of Statistics, Malaysia (2004), the production index for food and beverage industry increased by 4.4% due to strong domestic demand. Among the

sub-sectors which recorded significant increase in production were cocoa, chocolate and sugar confectionery (15.5 percent), biscuits (12.2%), other processed food (8.8%), flour milling (3.4%) and sugar refineries (1.4 %). Although, the export performance of this sector has doubled over the last ten years, Malaysia continues to be a net importer of food products with annual imports of more than RM 12 billion/USD 3.2 billion (FMM-MATRADE Industry Directory, Food & Beverage, 2005/06, p. A13).

Abd.Aziz and Yassin (2010) examined the market practices and the marketing orientation-business performance of relationship among SMEs in agro-food sector in Malaysia by investigating the role of external environment in the market orientation-performance linkage. The study seeks to contribute to the knowledge concerning quality management and organizational performance by applying the environmental regulation and policy control effort to food and beverage organizations in Malaysia.

Buniamin (2010) revealed that generally, business organizations are facing the challenges of disseminating environmental information as public concerns regarding these issues have significantly increased. Environmental reporting is exclusively a voluntary initiative in Malaysia and has emerged in the last decade. Even though the Association of Chattered Certified Accountants (ACCA) with the conjunction of the Malaysian Department of Environment (DOE) published the paper named "Environmental Reporting Guidelines for Malaysian Companies" in March 2003. The study concludes the environmental reporting in Malaysia is still at infancy stage.

Farinda *et al*. (2009) stated that in Malaysia, SMEs are divided into two categories which is: manufacturing, manufacturing-related services and agro-based industries; and

secondly, services, primary agriculture and information and communication technology. Irrespective of the categories and sector, all the SMEs contribute to the Malaysian economy tremendously which includes; contribution of output in terms of products and services; creation of job opportunities; developing a pool of skilled and semi-skilled workers; provide opportunities for technological development; and offer an attractive ground for entrepreneurial and managerial talent. Hear and Hasan (2006) examined the evolution of environmental policy in Malaysia. The study analyses the interaction between domestic and international drivers in relation to the broader goal of sustainable development, which is defined here as 'non-declining utility' of the natural endowment while Malaysia's impressive economic achievement has advanced human development and reduced poverty, the impact of rapid environmental change raises doubts as to its sustainability and inter-generational equity. The study shows that the trajectory of Malaysia's policy on natural resources and environmental issues bears the characteristics of path-dependent evolution.

Undoubtedly, the agro-allied sector in Malaysia plays a significant role in the Malaysia economy and therefore it is worthwhile to expand the body of knowledge on this sector as a target population for this study. Lee (2004) revealed in his study on econometric analysis at the firm level in Malaysia that large firms are more likely to innovate compared to small firms. This means, a research study in large firms would be more significant compared to small firms. Rasyikah and Suhaimi (2010) discussed the sustainable development and the role of the Malaysian law and policy issues. It is reported from the study that Malaysia has the bigger role in conserving its natural resources to mitigate the global warming effects as well as to ensure sustainable

development. This study aims to identify any enabling or hampering structures for effective policies on sustainable water resources management in Malaysia. The study concludes that the fragmented laws and division of powers over water resources management will impede the implementation of sustainability policies in the country.

In addition, the Community-based Natural Resource Management Facility (2008) in Malaysia stated Danida Funded Programme has been working and aiming at enhancing the capacity of Malaysian Non-Government Organization and community based organization in influencing sustainable development policies and practices related to natural resource management and biodiversity conservation including the recognition of the importance of indigenous peoples and gender equity. Jamaluddin *et al*. (2009) argued that there are some relationships in development, environmental degradation, environmental management systems in the world without which the sustainable development cannot be possible in the world as the environment and development issues go along with the natural resource management and administration. The study opined that the role of legislations and policy are essential in this regard. The total budget for 2010 is RM6 billion that was exclusively earmarked on agriculture alone. A major portion of it is for the Ministry of Agriculture and Agribusiness industries. The allocation relates to the advancement and improvement of agriculture is that it is spread out across the development of farm infrastructure, irrigation facilities and drainage requirements, particularly in rice-growing areas.

As presented above, there are serious and imminent problems related to the performance state of Malaysia agro-based industry. Therefore, it is necessary to redefine solid

performance improvement strategies with environmental regulation and policy of the Malaysia food and beverage companies.

2.3 Organizational Performance (OP)

The increase in challenges of numerous organizations in achieving and sustaining competitive advantage through finance, operations and customer satisfaction have made organizational performance to gain utmost attention to survive in a highly competitive environment. As a result organizational performance is simply considered to be an outcome of a firm's activities over a given period of time (Osundina & osundina, 2012).

Organizational performance has been explained in different ways, methods, and manners and from different perspectives. Gomez and Manzanares (2007) studied the relationship between firm performance, knowledge management strategies, and innovation. Firm performance being conceptualized as a dimension in the study was measures based on financial results with variables such as return on asset (ROA), return on equity (ROE), sales growth and market share. The study revealed significant relationships that exist between the performance of some firms and their efficiency in the transmission and application of existing knowledge. In addition, tacit knowledge and knowledge management practice are used as measurable quantity for firms to maximize performance (Harlow, 2008; Nawaz, Hassan, & Shaukat, 2014).

Sheikh, Wang, and Khan (2013) studied the impact of internal attributes of corporate governance on firm performance. The purpose of the study is to investigate whether internal attributes of corporate governance such as board size, outside directors, CEO duality, managerial ownership, and ownership concentration affect the performance of

Pakistani firms. A pooled ordinary least square was used to estimate the relationship between internal governance mechanisms and performance measures, which are ROA, ROE earnings per share and market-to-book ratio using the data obtained from non-financial firms listed on the Karachi stock exchange Pakistan during 2004-2008. The findings showed that internal governance mechanisms have material effects on firm performance.

Similarly, Adeoye and Elegunde (2012) explained organizational performance to be a corollary combination of productive assets made up of human, physical and capital resources, purposely to fulfill a dream, vision or accomplishing a shared aim and objective. In this study, OP is viewed as a term that is made up of three areas: firstly, the financial performance that is made up of profits, return on assets (ROA), return on investment (ROI); second one which is product market performance such as sales, market share; and lastly the shareholders return such as total shareholder return (TSR), economic value added (EVA). The study revealed that the external business environment have impact on organizational performance.

According to Ehikioya (2009) in examining the link between corporate governance structure and firm performance, the ownership concentration has a great positive influence on performance. Even though there are no evidence to support the impact of board composition on performance, the results of the study showed that, there is significant evidence to support the fact that CEO duality adversely impact firm performance. However, it is recently found out by research that organizational performance can also be seen from four perspectives: financial, customer, internal process and innovation and learning (Rasula, Vuksic, & Indihar, 2012).

2.3.1 Measurement of Organizational Performance

Measurement of organizational performance varies across industries and companies. According to John and Ngoasong, (2008) Customer satisfaction, employee and/or shareholders satisfaction, sales growth, market share, return on capital invested are the measurement of performance. In addition , firm performance in comparison to competitors have more return on investment, market share, sales, profitability, earnings, gross margin and market value (Akgün, Keskin, & Byrne, 2009; Kim, Lee, & Yu, 2004).

Kilic, *et al*. (2014) , explained further that the best corporate performance is obtained when leading innovators simultaneously compete effectively on multiple operations priorities. Also, Wu and Chiu (2014) said from recourse-based view perspective, IT innovation capabilities are considered to be valuable resources for competitive performance. The study opined that competitive performance is the ability to earn above the average return on investment for the industry. In order word , Tvorik, Tvorik, and Mcgivern (2006) defined performance in terms of synergistic contributions by using inter-firm variables as economic rates of return for both economic and organizational factors. Using contingency and configuration theory, a connection was asserted between organizational alignment and performance.

Pavlov and Bourne (2011) explained the effects of performance measurement on performance in an organizational routines perspective. The purpose of the study is to address the conflicting results of the effect of performance measurement (PM) on performance by proposing a theoretical model of the effects of PM on performance. This conceptual paper is based on review of PM and management control system literature by extracting the factors that help to explain the effect of PM on performance. The

theoretical model proposed by the study revealed that PM has three distinct effects on the organizational processes that deliver performance – the trigger, guidance, and intensification effects.

Meanwhile, an organizational performance is considered to be a multidimensional umbrella concept that includes all aspects related to that organization's success and activities such as efficiency, quality, productivity, quality of work life, innovations and profitability (Sillanpää, 2011). In another vein, the performance of an organization is measured by top management commitment, process management, employee training and empowerment, quality measurement, product design, customer involvement and satisfaction and vendor quality management (Sohail & Hoong, 2003). This study is going to exclusively conceptualize organizational performance into three dimensions namely customer satisfaction, operational performance and financial performance. Table 2.1 below presents some of the past studies on OP measures.

Table 2.1:
Sample of previous Studies on OP Measures

Organizational Performance Measures	Author/s
Customer Satisfaction	John & Ngoasong, 2008, ; Sillanpää, 2011; Agus & Hassan, 2011; Akgün, et al., 2014; Alomaim, Tunca, & Zairi, 2003; Fatima & Razzaque, 2013; Assaf, et al., 2015; Chang, Wong, & Fang, 2014; Chen, Martin, & Merchant, 2014; Eren, et al., 2013
Financial Performance	Akgün et al., 2009; Kim et al., 2004; Tvorik et al., 1997; Goh, Elliott, & Quon, 2012 **;** Sillanpää, 2011**;** John &

	Ngoasong, 2008; Argilés-Bosch, et al., 2014; Ujunwa, 2012; Endrikat, Guenther, & Hoppe, 2014; Epstein, Buhovac, & Yuthas, 2012.
Operational Performance	Sillanpää, 2011; Baird et al., 2011; Capkun, Messner, & Rissbacher, 2013; Yu, et al., 2014; Chung, Tsai, & Hsu, 2005; Crilley & Sharp, 2006; Fawcett, Smith, & Cooper, 1997; Feng, et al., 2013; Forza, Salvador, & Trentin, 2008; Mansour, et al., 2013.

In literature of measurement of performance, many studies suggested a connection between the implementation of TQM and organizational performance. For example Baird et al., (2011) in their attempt to examine TQM implementation on financial performance, their study supported the idea of the existed relationship between financial performance and TQM practices. Additionally, John and Ngoasong, (2008) examined the impact of TQM implementation on organizational performance, and their findings supported the effectiveness implementing TQM which leads to optimum performance. In this case, improvement of any process can be measured without measuring the results that represents the outcomes (Demings, 1986). Therefore, measurement tools needed to be known in order to know to what extent the organization achieve its objectives in terms of performance.

2.3.1.1 Customer Satisfaction

Filip (2013) examined customer satisfaction learning process in relation to complaint management. According to by study, it is posited that complaint should be considered as

indicator of organizational performance assessment, pointing to some problems or challenges in internal processes that need immediate recovery in order to avoid migration of profitable customers. The purpose of the study is to present the key features of an effective complaint management process, as a relatively cheap system of diagnosing and learning a company's shortcomings. The study conclusively reveal that with the design of an integrated complaint management system, organizations have the chance to learn from customer feedback and to exploit this information in order to alleviate weakness, rejuvenate business performance, avoid future unbecoming experiences, and finally establish customer satisfaction, loyalty and relationship commitment.

In addition, Jeon and Choi, (2012) opined that employee satisfaction leads to customer satisfaction in the context of the relationship between employee satisfaction and customer satisfaction . The authors of this study conducted an empirical test on this relation in educational organization context by using structural equation modeling to test the hypothesis. The study concludes that the relationship between employee satisfaction and customer satisfaction is unilateral rather than bilateral. Jung and Yoon (2013) stated in their study that customer satisfaction is clearly a mediating variable between employees' satisfaction and customer loyalty. The aim of the study is to understand the interrelationships among employees' satisfaction and customer's satisfaction and loyalty in a foodservice organization. Data was obtained from 69 employees and 258 customers. The findings show that employee satisfaction has no significant or direct impact on customer loyalty, but showed an indirect influence through customer satisfaction.

Ooi, *et al*. (2011) investigated the relationship between TQM practices and customer satisfaction within the context of Malaysia's small service organizations. Collection of

data was done from the perceptions of sales and marketing managers in 108 small service organizations in Malaysia. Analysis of data was consequently done by employing correlation and multiple regression analysis to test the relationship between TQM practices, customer satisfaction and service quality. The result showed that TQM practices are significantly and positively linked to customer satisfaction and service quality of the small service business firms.

Lewin, Biemans, and Ulaga (2010) investigated what the influence cultural differences may have on business customers' evaluations of satisfaction with and loyalty toward downsized suppliers. The aim of the study is to examine the impact in which downsizing of suppliers' sales and support personnel has on business customers' satisfaction. Through survey, data was obtained from 435 purchasing professionals in the United States, France and the Netherlands to provide answer to the research questions. The study concludes that customer satisfaction is an important source of competitive advantages that leads to customer loyalty and repeat purchase. Other studies like (Pan, 2015; Prud'homme & Raymond, 2013; Saeidi, Sofian, Saeidi, Saeidi, & Saaeidi, 2014; Mehra & Ranganathan, 2008; Sun & Kim, 2013) also shed more light on the customer satisfaction being a significant indicator for organizational performance.

To this end, customer satisfaction is considered one of the most successful tools that measures the performance and widely used by many organizations. Therefore, this study will apply customer satisfaction to evaluate F&B Companies' performance.

2.3.1.2 Operational Performance

Baird *et al*. (2011) conducted an empirical analysis on the relationships between organizational culture, TQM practices and operational performance. The purpose of the study is to examine the direct and indirect relationship of Kaynak's four core TQM practices namely (quality data and reporting, supplier quality management, product/service design and process management) with operational performance. In this study, operational performance was measured in terms of the level of inventory management performance and the level of quality performance. Data was obtained from a survey of 364 business units, comprising both the manufacturing and service industries in Australia. The findings showed that quality data and reporting was positively associated with supplier quality management and product/service design.

Also , Capkun *et al*. (2012) stated their study that operational focus is expected mainly to bring developments in operational performance ; a developmental improvement that account only for part of the potential performance effects on the organizational level. In addition , Yu *et al*. (2014) examined the effect of internal lean practices on multiple operational performance dimensions and equally investigate the contingency perspective of these relationships with respect to industry clock speed. The study was based on empirical data collection from 228 manufacturing companies in the republic of Ireland and the constructs were consequently analyzed using regression analysis. The findings revealed that the connection between internal lean practices and quality, delivery, flexibility and cost were found to be positive and significant while internal lean practices can improve operational performance. Cost and flexibility are the two dimensions used in measuring operational performance in the study.

Chung *et al*. (2005) opined in their study using descriptive statistics, T-test, and single factor analysis of variance to analyze the effects of the location, history, industry, number of employees, amount of capital, and revenue of a total of 35 indices on performance that performance effectiveness is measured considering five dimensions namely marketing management, production management, human resources management, financial management and overall company. The study examined the operational performance of ISO 14000-certified Taiwan's Manufacturers with the conclusion that the indications are that ISO 14001 favors all manufacturers but the level of benefits differs from company to company.

Moreover, Crilley and Sharp (2006) proposed a model for managerial and operational performance with the purpose of examining the need for consensus on a model that comprises the relationship between the manager and the effective operational performance of leisure facilities. Data were obtained through the distribution of questionnaires to 140 managers, 71 peers, and 277 staff of Australian sports and leisure center managers and the performance of their operations. The data obtained were consequently analyzed to develop an empirical model of the relationship. The proposed models give a new basis for reviews and changes to current practice in the development of managers, and of professional practice.

In another vein, Feng *et al*. (2013) stated in their study of relationship between external involvement and operational performance with the mediating role of internal integration that customer and supplier involvement are both important for improving organizational performance, which provides guidelines and procedures for top managers to innovate business model in the product development process. A survey data were obtained from

176 Chinese manufacturing companies and structural equation modeling was used to examine the hypothesis. The result shows that internal integration partially mediates the relationship between customer and supplier involvement and operational performance thereby proves that customer and supplier involvement are important, having significant effects on operational performance.

Operational performance is studied in different form in an organization from existing past literatures like : postponement effects on operational performance , Forza *et al*. (2008); evaluation of operational performance based on measurement of overall equipment effectiveness(OEE) , Mansour *et al*. (2013), maintenance practices impact on operational performance, Mitchell, Robson, and Prabhu, (2002); gauging strategies for operational performance through benchmarking Padavano, (2005); measuring the operational performance of a public transit company , Parkan, (2002) and operational performance gaps in business relationship, Staughton and Johnston, (2005) which are in line with the conceptualized context of this research study.

Therefore, this current study will focus also on operational performance in F&B companies as it has been proved and suggested by the previous research to be an effective measurement for organizational performance.

2.3.1.3 Financial Performance

Many previous studies have considered financial performance to be a great indicator in organizational performances (Argilés-Bosch, et al., 2014**;** Ujunwa, 2012**;** Endrikat, Guenther, & Hoppe, 2014**;** Epstein, Buhovac, & Yuthas, 2012**;** Argilés-Bosch et al., 2014**;** Yusoff, Mohamad, & Darus, 2013**;** Yesil & Kaya, 2013**;** Su & Sun, 2011**;**

Shaverdi, Heshmati, & Ramezani, 2014**;** Saeidi et al., 2014**;** Nikzad & Maryam, 2012**;** Nawaz, Hassan, & Shaukat, 2014**;** Nasrallah & Qawasmeh, 2009)**.** Performnace is simply defined as the measure of attainment achieved whether by an individual, team, or organization (Eriksson & Hansson, 2003)

Länsiluoto, *et al*. (2004) explained financial benchmarking as a popularly used tool for comparison in financial performance of competing companies. Using sel-organizing maps, the study examined industry-specific cycles and companies' financial performance comparison. The study provides an effective dimensional reduction and visualization capabilities, making it a reliable tool for the visual analysis of large amounts of high-dimensional financial data. Also , Kanghwa (2010) stated that the risk side of financial performance is more importatnt than the return in terms of perpurual growth of a company. The purpose of the study is to assess the conceptual realtionship between operational, competitive market and financial performance of a company. To achieve that , a model presented is designed on hand data envelopment analysis (DEA) and causal loop diagram(CLD). The result reveals that : an organization which is found closer to the operational frontier will also be located closer to the market frontier; an organization that is located closer to the market frontier will also be located closer to the financial frontier; the relationship of operational performance on financial performance is no weaker compared to that of market performance; and lastly the firm-specific financial risk is more influenced by variables such as quality, speed and flexibility than by just cost-related variables.

In other word, Argilés-Bosch *et al*. (2014) examined an emperical analysis on the incidence of labor accidents on firm financial performance. The study used a collection of

data obtained from 299 spanish firms for 6 different years . A panel data estimation was cariied out and the outcome result revealed that there is a negative influence of accident rate on rate on assets, as well as on abnormal return on assets. In addition, Ujunwa (2012) investigated the impact of corporate board characteristics on financial performance on quoted firms. The study employed random effects and fixed-effects generalised least squares(GLS) regression to test the hypotheses formulated for the study. After obtaining panel data from 122 quoted firms in Nigeria between 1991 and 2008, it was discovered that board size, CEO duality and gender diversity are negatively linked with firm performance. The study adopted accounting based measure, viz., return on assets (ROA).

On the other hand, Endrikat *et al*. (2014) employed meta analytic review of 149 studies to draw a hybrid theoretical framework by combining the theoretical reasoning of the natural-resource based view (NRBV) with instrumental stakeholder and slack resources arguments to investigate the relationship between corporate environmental performance(CEP) and corporate financial performance(CFP). The purpose of the study is to find out the inconsisent empirical findings between CEP and CFP that makes overall picture of the previous research to remain vague. By focusing on the casuality and the multidimensionality of the focal constructs, the meta-analytic results shows that the relationship is stronger when the startegic approach underlying CEP is proactive rather than reactive.

Also, Epstein *et al.* (2012) developed a multiple embedded case study design to carry out research on how social, environmental and financial performance are managed simultaneously. The purpose of the study is to enhance managers in understanding how to cope with trades-offs and simultaneous management of social, environmental and

financial performance. Four corporations with high reputation in mangement of sustainability were targetted and a new perspective on the implementation of corporate sustainability was proposed. The research found out that while the companies' informal systems strongly promote sustainability, their formal systems seemingly have a traditional focus on financial performance.

Pursuing this further, Eriksson and Hansson (2003) opined that there is disagreement concerning the effective adoption of TQM on financial performance . In their study , percentage change in sales, return on assets, return on sales, percentage change in total assets and percentage change in total number of employees are used as financial performance indicators. The research conclude that financial performance, measured by the stated indicators, develop more advantages for companies that have successfully implemented TQM, than other branches' indices and competitors.

Other studies are the internal strategic factors that influence company financial performance, as discussed by Gursoy and Swanger (2007); managing competence acquisition and financial performance, Malmström *et al*. (2013); innovation capability for SME success from the financial and operational performance perspective (Minna, 2014; Nasrallah & Qawasmeh, 2009 ; Nawaz et al., 2014; Yusoff et al., 2013; Nikzad & Maryam, 2012). This affirms the fact that financial performance is essential to measure or evaluate the organizational performance in any context.

2.4 Total Quality Management (TQM)

Notably, many studies have been conducted to measure TQM and organizational performance (Abu-Hamatteh, Al-Azab, & El-Amyan, 2003; Agus & Hassan, 2011; Allen

& Kilmann, 2001; Abdullah, 2010; Baird, Jia Hu, & Reeve, 2011; Basu, 2014; Benavides-Chicón & Ortega, 2014; Bon & Mustafa, 2013; Brun, 2011;Catalin, Bogdan, & Dimitrie, 2014; Christofi, et al., 2008; Williams, Babatunde, & Jeleel, 2012; Wei, Zhao, & Zhang, 2014; Vural, Vardarlier, & Aykir, 2012; Vatalis, Manoliadis, & Mavridis, 2012; Tarí, et al., 2010; Mishra & Mohanty, 2014; Stanciu, Constandache, & Condrea, 2014; Sahai & Srivastava, 2012; Rodrigue, Magnan, & Boulianne, 2013; Adeoye & Elegunde, 2012; Malmström, Wincent, & Johansson, 2013) generally.

The Gurus of quality management such as Deming (1986); Juran (1988); and Crosby (1979) contributed the fundamental frameworks of the major studies of TQM practices. The development of TQM from 1950 onwards is credited to these American experts; they contributed immensely to the continuous improvement of the subject. In addition, Brun (2011) posited that historically, TQM has evolved in four stages from the contribution of Dr. Edward Deming, Dr. Joseph Juran and Philip Crosby, categorizing them into: Quality inspection, Quality control, Quality assurance and TQM. Table 2.2 shows the various stages towards development of TQM.

Table 2.2
Different stages of TQM and their characteristics

Stage	**Characteristics**
Quality Inspector (1910)	Salvage
	Sorting
	Identify Sources of non-conformance
	Corrective action
Quality control (1924)	Quality manual

Stage	Characteristics
	Self-inspection
	Product testing
	Quality planning
	Use of statistics
Quality Assurance (1950)	Third party approval
	Quality planning
	Quality manuals
	Process control
	Non production operation
	Failure mode and effect analysis
TQM (1980)	Focused vision
	Continuous improvements
	Performance measure
	Management leadership
	Interdepartmental barriers

Abu-Hamatteh et al. (2003) explained that for TQM to be achieved at enhancing the competitiveness and performance excellence in SMEs , businesses and manufacturing companies, five areas of TQM which are leadership, strategic planning, process management, resources management and results must be focused. The concept of TQM has been adopted since 1980 together with a strategic approach to quality with the aim of focusing on all the resources in achieving excellence (Benavides-Chicón & Ortega,

2014). Therefore, it is recognized as one of the major innovations of the last decades in the field of management (Izvercian, et al., 2014)

Ahire and Dreyfus (2000) stated that design management and process management are two important elements of TQM that are drastically different in their targets of improvement and visible techniques. Allen and Kilmann (2001), reported that the evolution and rise of TQM made on of the biggest changes in the past two decades in the way companies are managed but was known by various names like TQM, continuous improvement, total quality and process improvement. Meanwhile , Catalin *et al*. (2014) stated that the first step in the implementation of TQM is for the organization to identify the level of her quality provided through its products and services. The study listed training, planning, evaluation and implementation as the stages in TQM evaluation.

Christofi *et al.* (2008) explained that theory and practice of TQM have evolved over the last three decades from the technical aspects of quality control and employee training to a supply-chain-wide delivery of excellent products and services. The concept of TQM reinforces the companies to perceive the quality from the customer perspective and the focal point of TQM is the definition given to quality by the customers. The reinforcement categories of the employees being the basis of the concept of TQM are: sharing knowledge regarding the organizational performance with the employees; awarding related to the organizational performance; providing the required knowledge to the employees for them to comprehend the organizational performance and participate in it; and reinforcing the employees in order for them to take decisions in the organizational management effectively (Duran et al., 2014).

Researches on the critical factors related to TQM implementations are highly needed as the search for the genuine keys to success in TQM implementation has become a matter of deep concern to management of companies in the world. Insufficient organizational data and information on the critical factors is a hindrances to implementation of TQM in an effective way (Psomas & Fotopoulos, 2010). Töremen, Karakuş, and Yasan (2009) give a breakdown and comprehensive explanation of TQM by explaining its concepts of such as Total, Quality and Management. The study explains that TQM engages all divisions, departments and levels of the organization with its strategies and operations around the customer needs and develops culture with high employee participation.

In contrast, stated that TQM has been widely adopted as an integrative management philosophy (Fok, Fok, & Hartman, 2001; Kahreh, Shirmohammadi, & Kahreh, 2014); that focusses on continuously improving the quality of products and processes to meet customer expectation; it is an alternative approach to improve competitiveness as many companies have come to realize that improved quality is an essential ingredient for successful global competition. However not all organizations that employed TQM in their undertaking were successful due to primary reasons like lack of top management commitment, unrealistic expectations within the time frame, lack of employee cooperation, failure to develop and sustain a quality-oriented culture , lack of motivation and cost of TQM implementation. In general, TQM requires cross-functional thinking planning and doing (Svensson & Wood, 2005); it has become worldwide management topic and its most emphasized concepts include continuous improvement, customer focus, human resources management and process management (Isaksson, 2006).

Furthermore, Izvercian *et al*. (2014) examined the special relationship between TQM and human resources management when it comes to systems for continuous improvement. The study stated that human resources management is practiced as part of quality planning at enterprise level and directed to the needs of the closest customers. The purpose of the relationship is to improve performance – both the quality of the system and people's performance. Tarí (2005) explained the successful components of TQM to be: customer-based approach; quality planning; management commitment and leadership; management based on facts; and continuous improvement. The study states that those components must be implemented by managers in order to develop TQM to its full extent, as a management system developing quality and competitiveness. Kahreh et al. (2014) explained further that TQM evolved as an increasingly fashionable management innovation in response to the lack of competitiveness in US manufacturing companies during the 1980s and the emergence of superiority of Japanese firms in delivering high quality products and services in consonant with customer demands and gaining operational efficiency. The TQM movement advocates for developing and implementing a corporate wide culture emphasizing customer satisfaction, continuous improvement, employee empowerment, and data driven policy decision (Kannan & Tan, 2005).

The adoption of TQM and corporate social responsibility approaches improve the capacity of hotels to create benefits for their stakeholders, and these results have a positive effect on their organizational performance (Velasco, Quintana-Garcia & Marchante-Lara, 2014). To support companies in facing both the ever-growing environmental and social pressure and the fulfillment of customers' needs, the use of Design Management for Sustainability is an effective design management tool that allow

us to perform design activities incompliance with the goal of sustainability (Fargnoli, De Minicis, & Tronci, 2014).

Sharma, Lawrence, and Lowe (2010) stated that the introduction of TQM routines within the organization has been identified as being part of a broader process to enact and add legitimacy to management control systems (MCS) changes within organizations. TQM is developed as a result of global competition (Ahmad *et al*., 2014). The study shall investigate the impacts of TQM on sustainable development to ensure that it meets the needs of the present without compromising the ability of the future to meet their own needs. Moreover, the quest for more study to fill the void on sustainable development study, its specific need in food and beverage companies, the proposed theoretical extension of involving TQM in the assessment framework, the conceptualization and generalizability of key elements of TQM to meet the peculiarities of social, economic and environmental growth are the issues that provoked the essence of this study.

This study is extensively motivated by limitations derived from the previous studies on TQM and organizational performance. Siddiqui, Haleem and Wadhwa (2009) opined that many empirical studies have been carried out on TQM and flexibility in organizational systems has been studies to a great depth in the past. Also, Ahmed, *et al*. (2014) conducted an explorative study of moderating effect of ASEAN "Association of South East Asian Nations" Free Trade Agreement (AFTA) on TQM practices and business performance due to today's highly competitive market which demands for quality for companies to survive in global workplace. In the same way, the impact of organizational culture on the successful implementation of TQM was determined through cross-cultural context on organizational structure (Rad, 2006).

In addition, Calvo-Mora, *et al*. (2014) examined the relationship between TQM social and technical factors and their effect on organizational results making European Foundation Quality Management (EFQM) model as a reference. Zárraga-Rodríguez and Álvarez (2014) also opined that TQM models and practices help organizations to achieve significantly in their results, performance and increase competitiveness when EFQM model is employed with introduction of information capability. Chong and Rundus, (2004) stated that the higher the degree of market competition, the more positive the relationship that exists between TQM practices and organizational performance. Al-khalifa and Aspinwall (2000) explained the transformation of TQM from evolution of Quality from inspection, through quality control and quality assurance, finally to TQM. The study explained that the continuous revolution has transformed organizations from an inefficient environment with dependence on inspection, an autocratic leadership and hierarchical control by paying attention to customer needs and satisfaction, receiving quality right first time and continuously developing processes.

Historically, the roots of TQM can be traced back from 1920s when statistical theory was first applied to product quality management. Later developed by Americans such as Deming, Juran and Feigenbaum in Japan by widening the focus from quality of products to quality of all issues within an organization (Laxmikumari, Kumar, & Ramana, 2014). Rungtusanatham, Ogden, and Wu (2003) , examined the advancing theory development of TQM from 'Deming management method' perspective. The study explained the scientific research related to the Deming management method and the contributions of such research to theory development in TQM by highlighting two streams of research

related to the Deming management method, namely the concept of profound knowledge and the Deming-based theory of TQM.

In all these views of scholars about TQM approaches, it was evidently established that TQM practices required team work, quality planning, quality training, continuous process improvement, management commitment, focus on customers, benchmarking, quality assurance , focus on processes and prevention. Some of all these elements are equally regarded as the core of TQM elements in this study.

2.4.1 Total Quality Management (TQM) Definitions

TQM is defined in different ways and manners; no single definition can capture the whole picture of TQM as different authors have numerous perceptions about TQM which influence the way they define it (Eriksson & Hansson, 2003). TQM definitions vary according to the approach. According to Agus and Hassan (2011) , TQM provides set of practices that encompasses continuous improvement, meeting customer's requirement, work reduction, long-range thinking, increased employee involvement and teamwork, constant measurement of results , good intimacy with suppliers, process design , competitive benchmarking and team-based problem-solving.

Baird *et al*. (2011) defined TQM as an integrative organizational-wide philosophy which is aimed at continuous improving the quality of products/services and processes in order to meet customer satisfaction. The authors conducted an analysis of the association between the dimensions of organizational culture profile (OCP) measure with the intent of use of TQM practices, measured Kaynak's four core TQM practices which are: quality data and reporting, supplier quality management, product/service design and process

management. TQM emphasized the importance of people related issues as a dimension of quality (Basu, 2014). TQM can also be defined as a continual method, techniques used in sustaining the continuous improvement and satisfying customers' demands (Bon & Mustafa, 2013). Brun (2011) explained that TQM involves the understanding and implementation of quality management principles and concepts in every parts of business activities. He opined that TQM requires that the principles of quality management must be applied at every level, every stage, unit and every department of the organization.

According to Brun (2011), TQM is a vision which a firm can only achieve through long-term planning, by scheduling and implementing the annual quality plans that lead the firm towards the achievement of the vision. Also Christofi *et al*. (2008) defined TQM as a supply-chain-wide quality commitment from the supplier, to the producer and finally to the consumers of an organization in order to achieve excellence in production and service management. On the other hand the study defined TQM as a process a management philosophy or a culture that promotes and values the customers' needs, expectations and satisfaction. Also, Corredor and Goñi (2011) added that TQM advocates for a universal application to organizations and organizational activities which makes it almost prescriptive in orientation. In other word, TQM is a managerial process and a set of disciplines that are coordinated to ensure that the organization consistently meets and exceeds customer requirements (Töremen *et al*., 2009).

In other word, TQM is a continuous endeavor to fulfill and preferably exceed, the customer needs and expectations at the lowest cost, by continuous improvement work and labour, to all those which involved are diligently committed, focusing on the processes in the organization (Izvercian *et al.*, 2014; Isaksson, 2006). TQM is a holistic

management philosophy, which struggles for continuous organizational improvement (Kahreh *et al*., 2014). In addition, TQM is seen as a management philosophy that covers both the needs to satisfy external and internal customers' needs and expectations and the significance of doing right things first in the right time (Al-khalifa & Aspinwall, 2000).

Laxmikumari *et al.* (2014) stated that TQM is a comprehensive, participative, and structured approach to planning and implementing a constant organizational improvement process in order to improve the quality of products and services through ongoing refinements in response to continuous feedback. Within the education context, literatures like Sallis, (2002); Militaru, Ungureanu, and Creţu (2013) explained that TQM is a holistic approach out of which seven elements which are philosophy, vision, strategy, aptitude, resources, rewards and organization should not be left out; each element should be seen as an indispensable tool in order to avoid jeopardy. Mohammed, Tibek, and Endot (2013) defined TQM as the evaluation of the needs, requirements and expectations of individuals and organizational coherence through continuous development work as the organizational level in entirety.

Whereas Naghshbandi, *et al*. (2012) defined in from different perspective as a key strategy to hold a competitive superiority and a management method to improve productivity and efficiency finally leading to utmost quality. The study emphasizes on the assessment of military force staff's willingness for TQM approval in Tehran Province. Perdomo-Ortiz, González-Benito, and Galende (2006) regarded TQM as multi-dimensional concept that acts beyond quality standards, procedures, techniques and tools for controlling quality and quality itself understood as a business outcome. TQM can be concluded to be an effective resource that can be adopted to pursue other types of

competitive performance that quality and innovation (Prajogo & Sohal, 2006) . Sharma, Lawrence, and Lowe (2010) mentioned TQM to be set of practices that follow management concepts and techniques that seek to involve managers and employees in achieving continuous performance improvement.

From the several definitions given by scholar in the field of TQM, one most important thing mentioned in all the definitions is continuous process improvement. Unarguably, if the continuous improvement can be attained by any organization, such organization can maintain the competitive advantage in performance, which eventually lead to high organizational performance. In summary, the researcher then comes up with the following operational definition of TQM in food and beverage companies' context which captures all the above stated definitions.

TQM in this study is defined as a management philosophy with systematic approach of managing quality purposely established in achieving high performance in terms of financial, customer satisfaction and production achievement which requires commitment from the company leadership by adopting effective core quality elements (quality assurance and continuous process improvement) to develop a productive and sustainable environment, which expedites the continuous improvement for all agro-allied processes and activities.

2.4.2 The Benefits of Total Quality Management (TQM)

Generally, TQM is considered to be beneficial as regarded its results got from successful implementation. The successful results can be measured using a number of approaches; and the commonest approach is estimating benefits of TQM through the cost of poor

quality (Huang & Lin, 2002; Ahire & Dreyfus, 2000; Basu, 2014; Svensson & Wood, 2005). In other word, many researchers revealed that the most paramount goal of TQM is improving organizational performance (Tannock, Krasachol, & Ruangpermpool, 2002; Benavides-Velasco, Quintana-García, & Marchante-Lara, 2014; Kumar, et al., 2009; Abdullah, 2010 ; Corredor & Goñi, 2011; Duran et al., 2014; Kannan & Tan, 2005; Laxmikumari et al., 2014).

Similarly , it is revealed that adopting TQM has benefit of improving sustainable development (Todorut, 2012; Christofi , et al., 2008; Isaksson, 2006; Izvercian et al., 2014); enhancing production performance and customer performance (Agus & Hassan, 2011); direct association of TQM on operational performance (Baird et al., 2011); positive impact on labour productivity (Benavides-Chicón & Ortega, 2014; Mohammed et al., 2013); impact on innovation in services organizations (Bon & Mustafa, 2013; Perdomo-Ortiz et al., 2006; Prajogo & Sohal, 2006) ; and impacts on educational system (Töremen et al., 2009; Militaru et al., 2013).

2.4.3 The Elements of Total Quality Management (TQM)

Many studies have been carried out to identify those core elements used in constituting TQM paradigm (Gonzalez-Padron, Akdeniz, & Calantone, 2014; Hua & Lee, 2014; Adina-Petruța & Roxana, 2014; Walsh, Hughes, & Maddox, 2002; Karapetrovic & Willborn, 2000). In Huang & Lin, (2002) the successful implementation of TQM are influenced by three key reasons which are: top management commitment; all level and employee involvement; and continuous improvement. According to the study, the concept of TQM was developed to convey the total, organizational wide efforts, which comprises the whole workforce concentrating on continuous improvements for customer

satisfaction. The elements are observed from three different point of views as follows: empirical studies, contributions from quality gurus and quality award models (Tarí, 2005). In consonance with this approach, in this current study, the study researcher will identify the core elements of TQM.

In other words, the commonest core values of TQM are customer focus, continuous improvement, focus on facts, focus on processes, participation of everybody and leadership commitment (Isaksson, 2006). It is noteworthy that Quality management has evolved through five stages namely Quality Inspection, Quality Control, Quality Assurance, TQM, Excellence models including Six Sigma and Lean manufacturing (Tran, Cahoon, & Chen, 2011).

In addition, ISO standards in identifying the core elements of TQM generally focusses on ensuring that the organization can continuously deliver products and services, which can meet the customer's requirements. The eight quality management principles according to ISO 9000 include customer focus, leadership, and involvement of people, process approach, system approach to management, beneficial supplier relationship, and factual approach to decision-making and continual improvement (ISO 9000: 2008). These principles can always be employed as a guide to control an organization towards improved performance. Also, Ho (2010) mentioned that over the last century, the Japanese formalized a technique called 5S practice which is the first step towards TQM. The 5-S stands for structurise, systematize, sanitize, standardize and self-discipline. Through the formalization of this technique, a framework which allowed a successfully convey of message, achieve total participation and systematic implementation of the practice was established.

According to Abdullah (2010) a research was conducted concerning TQM practices and organizational performance with the performance criteria of employee training and development, process management, quality measurement and benchmarking, top management commitment, customer involvement and satisfaction and planning and strategy with positive impact as a result on organizational performance. Meanwhile, Fok, Fok and Hartman (2001) used the word TQM maturity in a qualitative sense as a construct developed from TQM implementations. The study stated that TQM implementation can be measured by examining three dimensions: the perceived use of TQM programs; employees' perceived influence on quality issues and employees' understanding of specific TQM techniques.

Based on comprehensive review from TQM literatures, empirical studies and models of quality award (Tran, Cahoon & Chen,2011; Toremen , Karakus and Yasan, ,2009; Sun & Cheng, 2002; Chen, 2013; Militaru et al., 2013; Rungtusanatham et al., 2003; Kahreh et al., 2014; Izvercian, et al ,2014 and others), the researcher has identified two initial core elements of TQM . Table 2.3 summarizes the elements as dimensions of TQM. A discussion of the two core elements follows.

Table 2.3:
Summary of TQM Core Elements Development Studies

Core elements	Author/s (Year)
Continuous Process Improvement.	Adina-petruta and Roxana, 2014; Walsh, Hughes and Maddox, 2002; Atkinson, 1994; Barber, Munive-hernandez, & Keane, 2006; Cachay & Abele, 2012; Choi, 1995; Christofi *et al*., 2008; Ellis & Castle, 2010; Intra & Zahn, 2014; Irani, Beskese, & Love,

	2004; Jonsdottir, Ingason and Jonasson, 2014; Frances, Boer, & Gertsen, 2003; Jung & Wang, 2006; Krittanathip, *et al*., 2013; Krittanathip, et al., 2013.
Quality Assurance	Abdous, 2009; Alkafaji, 2007; Cheng, 2003; Lim, 2008; Cukier, *et al.*, 2012; Jabnoun, 2002; Karapetrovic and Willborn, 2000; Lau & Tang, 2009; Law, 2010; Timothy, 2008; Mergenthaler, Weinberger, & Qaim, 2009; Moldovan, 2012; Moore, *et al.*, 2007; George, 2008.

2.4.3.1 Continuous Process Improvement

One of the commonly discussed TQM elements in literatures is continuous improvement or continuous process improvement (Intra & Zahn, 2014; Irani, Beskese & Love, 2004; Jonsdottir, Ingason & Jonasson, 2014; Frances, Boer, & Gertsen, 2003). Continuous improvement has proven to be a very powerful tool in organization (Krittanathip, *et al*., 2013). And also, from the elements of TQM, all are highly structured towards one philosophy that is continuous improvement, in order to enhance the better performance of an organization (Suárez-Barraza, Ramis-Pujol, & Llabrés, 2009).

According to Adina-Petruta and Roxana (2014), competitiveness, innovation and performance are the goals of the present business environment under the given circumstances concepts such as quality and continuous improvement become important catalysts in achieving this goals. Their study focuses on integrating six-sigma with quality management for the development and continuous improvement of higher education institutions. The finding shows that continuous improvement is achieved by

measuring the quality of processes and outcomes of research and educational products and services. In addition, it is argued that for continuous improvement to be efficiently manifested, teamwork has to be maintained (Atkinson, 1994)

Christofi, Sisaye and Bodnar (2008) stated that, continuous process improvement is regarded as one of the TQM principles' three main dimensions after customer focus and total involvement or universal responsibility by proponents of quality movement. Ellis and Castle (2010), conceptualized a parallel relationship between continuous process improvement and teacher research by outlining the underlying characteristics, processes and sub-process employed by teacher researchers. The study revealed that a defensible analytical case has been built where teacher research is conducted; the teacher's practice and the education of the students is undergoing continuous process improvement.

In other words, Intra and Zahn (2014) opined that a holistic continuous process improvement must be given in today's business environment for enterprises to successfully implement Lean Production System (LPS). In this research paper, the state of the art for continuous process improvement concepts is described. It is therefore concluded that continuous process improvement is a very helpful brick for a sustainable vitalization and evolution of the LPS. Jung and Wang (2006) explicitly studied the relationship between TQM and continuous improvement of international project management. A cross sectional survey was obtained from 100 middle levels to senior level international managers is used to validate the hypotheses formulated in this study. The study finally suggests that the mutual relationship between soft TQM elements and continuous improvement of international project management (CIIPM) is more significant than the relationship between hard TQM elements and CIIPM.

From the perspectives of the three renowned quality Gurus, Crosby (1979), Deming (1986) and Juran (1988), continuous improvement has been a point of encouragement that necessitated worldwide competitiveness, distinguished by rapidly changing technology advancement and customer demand for higher ground of value. In the same way, Jonsdottir, Ingason and Jonasson (2014) examined continuous improvement projects in certified organizations in Iceland. The study stated that benchmarking organizations place importance on continuous improvement and systematic approach to projects. The literature therefore analyzed how certified organizations support continuous improvement by studying what kind of process is in place to support continuous improvement; whether continuous improvement is handled formally; who is responsible of carrying out continuous improvement projects; and which tools are explored for these project management.

Summarily, continuous process improvement is conceptualized in terms of systematic improvement approach for organizational process, continuous look for ways to improve the manufacturing process, effective feedback system, standardized documentation of quality assurance, continuous review of organizational performance related issues, continuous evaluation of quality-related strategies, and complete integration of the quality assurance system (Barber, Eduardo & Keane, 2006; Krittanathip, *et al*., 2013; Suarez-Barraza, Ramis-Pujol & Llabres , 2009; Walsh , Hughes & Maddox, 2002 ; Mandal, 2012).

2.4.3.2 Quality Assurance

This second element of TQM involves the concept of systematic management and assessment procedures used to ensure achievement of quality outputs or improved

quality. Quality assurance, based on clarification and comprehensive review is structured around three sequential non-linear phases namely: planning and analysis; design, prototype; and production; and post production and delivery (Abdous, 2009).

To start with, Alkafaji (2007) examined quality assurance review programs of auditing firms from international perspective. The purpose of the study is to compare and contrast quality assurance review programs in different parts of the world in order to identify similarities and distinctions in these programs. A survey for information request was sent to the accounting regulatory bodies who are members of the international federations of accountants (IFAC). The result was consequently analyzed to identify similarities and differences in the design and implementation of such programs. The result showed that countries with significant stock markets tend to require quality assurance programs of their accounting firms while countries of less significant stock markets tend not to require such programs.

Toremen, Karaku, and Yasan (2009) posited that in TQM , the responsibility for quality is located in both the individuals and team through some developmental processes which represents an approach to quality assurance to be more accordant with the structures and fundamental ethics of educational organizations than many of the more mechanistic and hierarchical processes. Procedures for quality assurance on goods and services have evolved perpetually in accordance with the socio-cultural and technological changes that have marked the rapid evolution of society (Catalin, Bogdan, & Dimitrie 2014). Tran, Cahoon and Chen (2011) explained that ISO was developed from Quality Assurance; Quality Assurance enabled the occurrence of quality management during the new-product

development process and focused on continuous improvement as a key quality management practice.

Cheng (2003) explained quality assurance in relation to internal, interface and future education. The study opined that quality assurance is divided into three different paradigms in education. The first wave paradigm is the internal quality assurance that improves the internal environment and process such that the effectiveness of learning and teaching can be ensured to achieve the planned goals; while the second wave paradigm which is interface quality assurance ensures that education services satisfy the needs of stakeholders and are reckonable to the public accessibility. And lastly, the third wave paradigm, future quality assurance which emphasizes on ensuring the relevance of aims, content, practices and outcomes of education to the future of new generations in a new era of globalization , information technology and the knowledge-driven economy.

In understanding quality assurance, Lim (2008), conducted a cross country case study research on understanding quality assurance. The purpose of the study is to highlight the dynamics of quality assurance policy implementation within and across institutions for an offshore degree. Interviews were conducted and data were obtained from a business school of a private university college in Malaysia that is a major exporter of higher education degrees and its offshore business partner. The study revealed that there is heavy reliance on the university for quality assurance might not be healthy, especially when the university's own policy implementation is suffering from internal problems.

In a few words, quality assurance is conceptualized in terms of systematic approach , a type of quality management practice and primarily involves establishing organizational

procedures and standards for quality (Cukier, *et al*., 2012); an activity providing to all concerned, the evidence needed to establish confidence that the quality function is being performed properly (Karapetrovic & Willborn, 2000 ; Lau & Tang, 2009; Law, 2010; Timothy, 2008; Mergenthaler, Weinberger & Qaim, 2009; Moldovan, 2012; Moore, *et al*., 2007; Rady , 2005; Seip, Frich, & Hoff, 2012; Manorama & Jeevan, 2009).

2.5 Environmental Regulation and Policy (ERP)

Environmental quality is measured by the level in which ERP is being properly followed. It is an attribute of the regulatory socio-natural relationship, the functional significance of which depends in the ability to reflect the maximum processes of environmental safety (Chervinski, 2014). The high demand for compelling environmental regulation on product end-of-life and production processes is enhanced by customer concerns for environmental protection (Santos-Reyes & Lawlor-Wright, 2001). Daniel and Arthur (2005) discussed the environmental issues based on environmental sustainability index. The study showed that no environmental conservation and laws issues have been discussed extensively in terms of environmental pollution issues. The study proved that the environmental information, transparency and accountability, adequate capacity for credible enforcement and other policies would promote the better environmental performance of the activities done by the concerned institutions at home and abroad.

Leshinsky (2012) stated that the use of planning agreements to support sustainability and environmental preservation through a contextual framework that will draw collaborative planning theory and practice for planning agreements together can be used as a tool to preserve environmental values and principles generally. The study explored a case study of municipality of Casey located in the state of Victoria and measures are introduced

through planning agreements between the municipality and estate developers in order to preserve green values and the flora and fauna located in the surrounds of the Royal Botanical Gardens in Cranbourne. The finding revealed that planning may have established excellent procedure and practice to preserve the environment of the botanic gardens but the effectiveness of the planning agreements as an environmental preservation tool has limitations like lack of resources for more effective information distribution and enforcement.

In other words, Madu, Kuei and Winokur (1995) opined that many corporations have not yet realized the potential of natural environmental quality planning and its impact on a company's product quality, competitive advantage and growth in market share. The study posited that after embarking on the policy of TQM, the next step for corporations is the implementation of a natural environmental quality planning programme. The study concludes that Japanese companies that have embraced this marketing theory are quietly gaining a competitive advantage over the US firms. Environmental Quality Act 1974 in Malaysia defines environment to be the visible factors of the environs of human beings which comprise land, water, atmosphere, climate, sound, the biological and the social factors of aesthetics. Environment is regarded as all things that surround a matter and having a direct impact on it. The environment in which man is encapsulated is affected by factors which may be natural, artificial, social, and biological or psychological (Birnie, Patricia & Boyle, 1994). A natural environment is one in which human impact is kept under a certain limited level, also can know as Human survival and economic activity dependent of this specific type of climate, weather and natural resources. In addition, the natural environment is referred to as everything present at the surface of the earth like the

land, water, plants and animals, and are considered as what can affect the human activity. Such example is the industrial development that is causing widespread pollution to our immediate environment (Marquita, 2010).

2.5.1 Environmental Legislations in Malaysia

Historically, one of the richest countries in terms of environmental resources in the world is Malaysia with abundant mineral resources and high biodiversity but presently her tradition faces a lot of environmental problems like pollution by air and water, and natural resources exploitation. The Malaysian government passed some laws in order to tackle the environmental problems such as the National Parks Act Law, Civil Law Act 1972, and Environmental Quality Act 1974 with some obligations form international bodies.

Environmental quality is a general term which can refer to varied characteristics that relate to the natural environment as well as the built environment, such as air and water purity or noise pollution, and the potential effects which such characteristics may have on physical and mental health (Meinrat, 1991). Environmental Quality Act provides for the prevention, abatement, and control of pollution through licensing, and mandates the conducting of an Environmental Assessment Report for proposed public and private sector projects to determine and prevent or prepare for the environmental consequences of the project (Rafia, Hassan & Ibrahim, 2003). It was brought into effect in 1974 with the implementation of a subsequent set of specific regulations and laws. The emission standards for air pollutants are laid down in Environmental Quality by Ministry of Natural Resources and Environment, Malaysia. The Regulations came into force on 1st October, 1978. The Regulations set maximum permissible emission values for various air pollutants from particular trade, industry or process. And also, emissions of Sulphuric

oxides and nitrogen oxides from combustion process which are not properly regulated (Awang *et al*. 2000).

Environmental quality can be described under several views while air pollution index is being used in Malaysia. For air pollution indices in general, where Air Pollution Index (API) is a simple and generalized way to describe the air quality, which is used in Malaysia. It is calculated from several sets of air pollution data (Rani, 1995). It was formerly used in mainland China and Hong Kong. In mainland China the API was replaced by an updated Air Quality Index in early 2012, and on 30 December 2013 Hong Kong moved to a health based index. API is used by the Malaysian government to describe the air quality and its value is calculated based on average concentrations of air pollutants, namely sulphur dioxide, nitrogen dioxide, carbon monoxide and ozone. The API is reported on a scale starting from 0, a score of 0 to 50 is considered good, 51 to 100 is moderate, 101 to 200 is unhealthy, 201 to 300 is very unhealthy and anything higher than 300 is hazardous. A state of emergency is declared in the reporting area if the API exceeds 500 (Awang *et al*. 2000).

In conclusion, this section affirms the fact as referred by the literatures that Environmental Regulation and policy are set in place by Malaysian government to preserve the natural environment from any form of pollution.

2.5.2 Environmental Quality Act (EQA) of 1974 in Malaysia

One of the laws that serves as the legal tool is the Environmental Quality Act 1974 implemented by the Federal Department of Environment (DOE) in Malaysia to protect the natural resources. The act serves as regulatory body for pollution caused by industries

and alleviates the effect of environmental degradation through bodies that form the model of the act which is exclusively a pollution law with a focus on coordinating the industrial pollution through official licensing with the addition of an EIA order for the management of the activity development. EIA Act is being regulated through federal legislation and guidelines of the environmental quality order 1987. Environmental problems in Malaysia were handled well when they arose before the introduction of the Environmental Quality Act 1974. It formed a part of the administrative responsibility of governmental agencies from the federal, state to local authority levels. Subsequently, in an attempt to formulate an integrated approach in managing the environment, the EQA was enacted in 1974. This was intended to regulate, prevent, abate and control pollution (Mustafa, 2009).

The EQA is primarily a pollution control law and forms foundation of legislation for attaining national environmental objectives and policies. EQA applies to the whole of Malaysia. It also establishes powers to be exercised exclusively by the federal government, and it does not depend on parallel state enactments for its effectiveness within state boundaries. It is to be noted that the Environmental Quality Act 1974 is a framework law which means that for its provisions to take effect there is a need for the making of rules and regulations on that provision. DOE was formulated in Malaysia in 1976 under the supervision of the Ministry of Natural Resources and Environment. The department aims is to administer environmental management functions including the EIA processes. Section 51 of the Act further delegates the power upon Minister to make regulations aimed at environmental protection and pollution control (Mustafa, 2009).

The local legislation amended the existing Environmental Quality Act (EQA) 1974 with the insertion of Section 34A which introduced an intensive power of the environment to the director general in charge to safeguard, promote and protect the accessibility of the environment through licensing, coordination and dissemination of reliable information for public consumption (Briffett, Obbard & Mackee, 2004). Thus, for the first time, a preventive approach was introduced within the EQA as a new environmental measure to support the existing one. The implementation of EIA is meant to promote Malaysia's policy objective of sustainable development. In general, it is a concept that seeks to check and balance between economic protection and development and to incorporate considerations on environmental decisions (Mustafa, 2009).

At the first stage, under the Quality Act of environment, 1974, the punishment are severe with Section 2 providing Rm100,000 fine and/or imprisonment up to 5 years, which is a conviction under the Act to prove challenging in the case of no confession or environmental information with reliable evidence of Actus reus. To comprehend the law as stipulated in the context of inland water resources management for the sustainability and related provisions in the Environmental Quality Act, 1974. There is need to analyze in the context of the definitions for pollutants and pollution itself. The Environmental Quality Act, 1974 under section 2 gives different points that are related to interpretation of Section 25 on restriction on pollution of inland water. There is a reinforcement of the meanings to establish a model in preventing damages to the environment. Thus, there may a consideration to depart from conventional reasoning to form a certain standard to determine whether or not an offence is taken place under the environmental quality act,

1974 or not. The Act referring to the pollution defines it as to be a change in terms of biological, physical or chemical features existing in any part depositing harmful pollutants, substances or waste that adversely affect the beneficial use leading to a situation which is harmful to public health safety including the aquatic and wild life or leading to a violation of human right and causing infringement in which license under this Act is subjected (Sharon, 1998).

The Environmental Quality Act, under Section 2 gives a definition that are related to the interpretation given by section 25 on pollution of land water. It gives an affirmative support in frame working the prevention of environmental damage to land water. Meanwhile, the act might be considered to depart from conventional knowledge to create a clear determination of whether or not an offence committed under the Environmental Quality Act, 1974 (Memon, 2000). In 1974, the EQA controls pollution and also in control of other activities like biological diversity preservation and habitat restoration and protection. Essentially, EQA gives recognition to different environmental measures that control pollution and prevent any environmental damage through system of licensing. Inland water pollution with no accountability to license is an offence punishable according to section 25 of the Act.

2.6 The Relationship between TQM, OP & ERP

There is no doubt; both TQM and ERP have gained people more attention in both academic and business environment (Ahmad & Schroeder, 2002; Besseris, 2012). Such popularity can be referred back to the unprecedented high number of published articles in both fields in an attempt of the scholars in the fields to substantiate its concepts and

theories. In addition, the implementation success gained so far by ES also makes it to be more renowned. This has led to a pronouncement of KM as an organization's critical success indicator in today's technology-driven society. This has also opened a significant number of opportunities for environmentalists such as environment managers and sustainable environment creating teams in many organizations.

Thus, if ERP can be considered as organization's critical success factors, one can then infer that TQM can be best achieved through effective ERP, which eventually lead to a sustainable organizational performance. In view of this fact, the researcher is interested in investigating how combining TQM and ERP will improve organizational performance.

2.6.1 TQM-OP Research

Corredor and Goñi (2011), in his study explored the relationship between TQM and firm performance by taking TQM as an internally consistent system of practices. The study tested the relationship between the two variables using the universal approach to analyze whether the most competitive firms are those adopting TQM, and equally test for an isomorphic effect on other firms. The study used a sample of Spanish firms that have received TQM prizes between 1997 and 2003. The study revealed TQM pioneers experience performance gains; however, late adopters do not experience similar results. The study concluded that firms using TQM are not necessarily better than their counterparts are, before putting the system into action.

Also, Azizan (2010) explained the understanding of total quality management (TQM) practices at the small to medium-sized enterprise (SME) level within the under-researched context of the Malaysian economy. The objectives of this study were

designed through extensive literature review and interviews with academics experts in the field of TQM. The objectives of this research were to determine differences in performance and the differences in features engaged at high and lower performing businesses. The findings of this research show those three levels of TQM application starting with quality control, then a broader application of management involvement with quality assurance process and finally a system-wide application of TQM that involves a high degree of strategic integration of TQM principles. This research focuses on eight SME businesses that employed simple technology such as plastic injection molding and metal stamping. This paper provides an understanding of TQM practices offering design advice for professional managers and academia who work within SME businesses. The paper finds that there is a logic and structure to high performance businesses and the application of TQM.

On the other hand, Changiz (2011) provided in his study, reliable and valid constructs of total quality management (TQM) and a measurement instrument in the context of Iranian manufacturing small to medium- sized enterprises (SMEs). Statistical analysis revealed that a number of significant relationships between TQM practices and organizational performance of the manufacturing SMEs. The result found that leadership plays an important role in enhancing organizational performance of the Iranian manufacturing SMEs. The limitation of the study is that the sample is restricted to only a single region and manufacturing in his data collection methodology. This study has the potential to enhance the understanding of TQM practices impact on organizational performance of the Iranian manufacturing SMEs amongst researches and practitioners. Also the research adds knowledge in the field of quality management within the context of developing

countries and gives a particular focus on the Iran manufacturing SMEs; as a review of literature, has identified no studies that have undertaken a comprehensive analysis of TQM practices and organizational performance of manufacturing SMEs in the Iranian context.

Likewise, Christos, and Evangelos (2010) examined the relationships between the total quality management (TQM) factors and organizational performance. Exploratory and Confirmatory Factor Analysis were applied to assess the measurement model reliability and validity. The TQM factors revealed by the study were the quality practices of the top management, employee involvement in the quality management system, customer focus, process and data quality management and quality tools and techniques implementation. According to the study, these factors significantly affect the companies' performance with respect to their internal procedures, customers, market share and the natural and social environment. The subjective data being dependent on the perceptions of the quality managers and the fact that the sample companies came from different sectors constitute the limitations of the study. The paper describes a reliable and a valid TQM model and a way for a company to lay the foundations for business performance improvement.

However, David and Lynne (2007) explored the influence of a total quality management (TQM) programme on the level of focus in project management practices. The theme of the study is that those in organizations with a TQM programme in place are more customer-focused in their project management practices than those in organizations with no TQM programme. Given the exploratory nature of the research reported in this paper there is the opportunity for further work on larger populations to confirm the generalizability of the findings. The existence of a link between a TQM programme and

customer-focused project management practice provides a potential route for those looking to improve project performance through placing a greater emphasis on satisfying the customer. The exploratory research in this paper focuses on the link between TQM and an area of operational practices, namely, project management-related that has received limited attention in prior studies.

According to Fatih, Mehmet and Tezcan (2009), the extent of total quality management (TQM) practices in primary schools based on teachers' perceptions, and how their perceptions are related to different variables were determined. This study was carried out in Malatya city centre on teachers working at primary schools. There were significant differences among teachers' perceptions on TQM practices depending upon the variables of branch, level of education and tenure, while there were no meaningful differences according to the gender variable. The findings reveal the need for an effective change management, educating staff and utilizing human resources to attain a system-wide quality improvement, to implement the principles of TQM. Quality improvement is a continual process that should be taken up from the operational level to senior management. The journal would be instrumental for teachers, headmasters and principals of primary and high colleges generally as TQM efforts at primary schools are fundamentally important to achieve a high quality education system. This paper sheds light on how to improve quality at this basic level.

Furthermore, Mehra and Ranganathan (2008) examined the role of total quality management (TQM) towards enhancing customer satisfaction. It is found in this research that TQM substantially increases customer satisfaction across diverse industrial and cultural settings. This research broadens the scope of TQM applicability across varied

industrial and cultural settings to achieve higher customer focus, increased customer satisfaction, and stresses the need for more meta-analytic studies on the subject. In the same way, Huang and Lin (2002) besides the financial factor discussed by economists, the authors proved that quality management should also be considered as a major factor in this development. The research investigates how industry in Taiwan implemented quality issues, especially total quality management, within the last decade. The result can be used to study the comparative impacts of quality management in the area of the Asia pacific. In addition to that, TQM, ISO 9000, total productivity management (TPM), participation in an organizational excellence award like quality management excellence awards (QMEA) are activities encouraged by Malaysian government in order for SMEs to be more competitive in the global market (Abdullah, 2010).

Therefore, these aforementioned research works found that the successful implementation of TQM can lead to improvements in organizational performance. The results showed that TQM when consistently implemented with organizational design postulates can increase the organizational performance benefits of TQM.

2.6.2 TQM-ERP Research

Environmental issues are business issues and that has led them playing, increasingly, a more significant role within organizations. Christofi *et al.* (2008) stated in their study that TQM has to incorporate sustainability in order to maintain and strengthen an organization's competitiveness, services and productivity. It should be noted that the global and national regulations are the force attracting businesses to take into consideration the environmental impacts of all their processes, products and services (Stainer & Stainer, 1997).

In their study, Yang *et al*. (2013) investigated the mediating effect of an environmental information system on top management's commitment and environmental performance through responses from a survey of chief financial officers or chief management accountants in the top 200 listed companies in Australia. The purpose of the study is to examine the antecedent factor, top management's commitment to environmental issues, for the adoption of a well sophisticated internal environment information system that are measured by the broad-scope, timeliness, aggregation and integration of the information. The result showed that top management commitment to environmental sustainability was associated with the adoption of a sophisticated internal environmental information system.

Also, Sarkis (2001) stated that organizational environmental regulation and policy has been the key factor of many management theorists and progressive thinking practitioners throughout the early part of the 1990s. The study researched on the manufacturing's role in corporate environmental sustainability. He posited that the natural environment and the manufacturing functions are becoming extremely connected. From total quality environmental management (TQEM) point of view, United States Environmental Protection Agency approved the categorization of TQEM into seven elements namely: environmental leadership; strategic environmental quality planning; environmental quality management systems; human resources development; stakeholder emphasis; environmental measurements; and environmental quality assurance. The research study concluded that integration and development of environmental concerns into corporate practice ranging from industrial ecology to green purchasing will be influenced by environmental pressures and practices.

In the same trend, Rebelo, Santos, and Silva (2014) examined a generic model for integration of quality, environment and safety management systems . The purpose of this study is to propose a generic model of Integrated Management System of Quality, Environment and Safety (IMS-QES) which can be adapted to adopt numerous management systems. A survey was carried out in a real environment from 160 employees of a Portuguese organization where the conceived model was implemented in a first phase for the integration of Quality, Environment and Safety Management Systems. The result of this study highlighted: the reduction of conflicts between individual systems with resources optimization; creation of additional values to the business by eliminating several types of wastes; the integrated management of sustainability components in a global market; the improvement of partnerships with suppliers of goods and services; reducing the number of internal and external audits.

Despite, the fact that the studies conducted to show the relationship between TQM and ERP in food and beverage company context are limited; the researcher found through the reviewed literature that, there are some related studies (Konig, Silva, & Mhlanga, 2013; Sangodoyin & Iipadeola, 2000; Psomas & Fotopoulos, 2010). Although these studies contain valuable and resourceful information that can help understand the relationship between TQM and ERP, it is important to extend these works using a more methodologically rigorous research to distinguish the pattern of the interrelationship between TQM and ERP empirically.

2.6.3 ERP-OP Research

Only a few researchers have studied the relationship between ERP and OP despite the global view of the impact that environmental rules and regulation can have on an

organization; thereby determining its performance (Aigner & Lloret, 2013). The insinuation about the potential impact of ERP on OP is derived from ERP's ability to create pro-active environmental system (Bracci & Maran, 2013). This has made ERP to be identified as a strategic resource in the design and implementation of organizational strategies. Dam and Petkova (2014) equally posited that ERP is directly related to OP. Thus, establishing all these impacts of ERP on OP makes it incomplete to study OP through TQM without considering ERP in this information and technology era.

Dutta, Lawson and Marcinko (2013) revealed that meaningful incorporation of environmental and social responsibility goals into organizational strategic plans contribute to performance. In the same vein, Endrikat *et al*. (2014) studied the relationship between corporate environmental performance(CEP) and corporate financial performance(CFP) through a meta-analytic review of 149 studies. Their study exclusively showed that a positive and partially bidirectional between CEP and CFP is stronger when the strategic approach underlying CEP is proactive rather than reactive.

In addition, Gadenne, *et al.* (2012) investigated the influence of sustainability performance management practices on organizational sustainability performance in organizations operating in Australia. Using a mailed printed questionnaires to obtained data from 314 medium to large organizations and personal interview with 20 senior executives, the findings revealed that the organizations apply eight sustainability performance management practices (SPMP) to enhance seven (customer value, new product development, information capital performance, environmental, employee value, social responsibility and financial performance) different sustainability performance indicators (SPIs).

On another end, Goosen (2012) elaborately studied the multidisciplinary interrelationships between sustainable development, human health and the environment. The study specifically placed emphasis on globalization and sustainable growth, bioethics and poverty, organizational performance and sustainability, environmental management and individual progress, human and ecosystem health and water resources and recycling. The study posited that top management will become more informed that environmental concerns need to be addressed and tackled within their organizations as more business around the world incorporate ecological activities and performance in their financial statements and reports; and also as more stakeholders require modern and better ways to communicate green issues.

Similarly, dimensions of Global Environmental Policy Standardization is identified in three ways from a review of the literature on the cross-country organization of Multinational Companies (MNC)'s environmental policies: the level at which an MNC sets minimum worldwide environmental performance standards; the extent to which an MNC standardizes its operational environmental policies globally; and the extent to which an MNC standardizes the content of its environmental communication globally. Global standardization of all aspects of an MNC's environmental policy is complicated by differences among the countries in which it operates, which include differences in environmental regulations, in existing environmental infrastructure, and in education of the workforce (Brown et al., 1993; Rappaport & Flaherty, 1992).

Therefore, many MNCs aim at standardizing the environmental impact of their operations across countries, while allowing their country subsidiaries to adapt policies, procedures, and technologies to local conditions. MNCs can achieve these goals by setting minimum

environmental performance standards for all their operations worldwide. Alternatively, MNCs can focus on standardizing the content of their environmental policies. In accordance with the literatures reviewed, two content dimensions of environmental policies that MNCs can standardize globally are revealed (Brown et al., 1993; Rappaport & Flaherty, 1992; United Nations, 1993).

The first dimension includes operational environmental policies, such as environmental management practices, environmental control and auditing procedures, management incentives for environmental performance, and environmental technologies used in operations (Rappaport & Flaherty, 1992). The second dimension includes the content of environmental messages in advertising and in communications to the public (United Nations, 1993). MNCs can implement each of these environmental policy standardization dimensions on a continuum ranging from national differentiation, in which country subsidiaries determine their environmental standards and policies, to global standardization, in which corporate headquarters set high global environmental performance standards and establish environmental policies for all facilities worldwide. Only two of these three global environmental policy standardization dimensions - setting stringent minimum global environmental performance standards and standardizing operational environmental policies - reduce MNCs' ability to take advantage of cross-country differences in environmental regulations, and thus constitute self-regulation. The third dimension, global standardization of environmental communication, aims to inform and influence external constituencies but does not affect the environmental impact of operations. Thus, standardization of communication can be seen as a public relations strategy rather than a self-regulation strategy.

In line with the previous authors, as might be expected for ES application in organizational performance context, little qualitative empirical research has been conducted (Green, *et al*. 2012). And also, empirical research conducted by Hirsh (2014) and López-Rodríguez (2009) were lacking in terms of theory-building and rigorous methodology. This therefore justifies the research gaps in the recent study.

2.7 Related Theories

There are several theories that explain how organization make use of quality management to maximize performance such as organization and administrative theory, resources based view (RBV), progressive utilization theory (PROUT), contingency theory and institutional theory. The PTROUT enhances economic self-reliance, cooperatives environmental balance, RBV explains an art of utilizing organizational resources for sustained organizational performance and the organization and administrative theory explains rationalization of organization activities. The PROUT lacks practical value and relevance as clearly stated by Maheshvarananda and Branch (2010). Also the organization and administrative theory has a huge shortcoming for focusing more on structures and less resources (Acedo *et al*., 2006). The contingency theory suggests that the appropriateness of an organizational system depends on the specific organization and the condition under which the organization operates (Burns & Stalker, 1961; Thompson, 1967; Dent, 1990). Meanwhile according to the institutional theory, external, social, political and economic pressures influence firms' strategies and organizational decision-making as firms seek to adopt legitimate practices or legitimize their practices in the view of other stakeholders (North, 1990; Jennings & Zandbergen, 1995). The contingency theory here has an edge over all other stated theories because it has the ability of

capturing resources, structure and capability of an organization, and firm strategies and decision-making to attain sustained organizational performance. It is on the basis of this argument that this study adopts the contingency theory as the major underpinning theory. Meanwhile, in this study, institutional theory and contingency theory are applied to examine the moderator because according to institutional theory, organizations create structures to look legitimate to the important stakeholders such as TQM and ISO 9000 (Sila, 2007).

2.8 The Connection of Contingency Theory, Institutional Theory and this Study

Successful organizations employ structures and process characteristics that are suitable to the uncertainty of their environment (Miller *et al.,* 1992; Duncan, 1972). In this study, environment is selected for comparative study of the relationships - the impact of environmental regulation and policy as moderator. In accordance with contingency theory, environment is one of the contingency factors that influence the selection of management practices (Doty *et al*., 1993). Based on reviewed literatures, it is expected that environmental regulation and policy will have much stronger relationship between TQM and organizational performance (Ahmad, *et al.*, 2014). Contingency theory proposes that organizations can create congruence between organizational structure and environmental uncertainty will achieve higher performance result (Ellis *et al*., 2002). Examples for contingencies are the environment, organizational size, and organizational strategy (Miller *et al*., 1992). In this study, environment is selected for comparative study of the relationships. And also, Contingency theory is of the opinion that no theory or method can be applied in all instances. In another vein, there is no one best way to design, lead or manage an organization because much in business life is situational and

subject to a variety of environmental influences (Lau, 2014). Also, the framework of firm resource-based theory as proposed by Barney (1991) which hypothesized that there would be a significant and positive relationship between the acquisition of technology innovations and organizational performance (Irwin, Hoffman, & Lamont, 1998).

Institutional Theory provides a theoretical lens through which researchers can identify and examine influences that promote survival and legitimacy of organizational practices, including factors such as culture, social environment, regulation (including the legal environment), tradition and history, as well as economic incentives, whilst acknowledging that resources are also important (Baumol *et al*., 2009; Brunton *et al*., 2010; Hirsch, 1975; Lai *et al*., 2006; Roy, 1997). Institutional Theory is traditionally concerned with how groups and organizations better secure their positions and legitimacy by conforming to the rules (such as regulatory structures, governmental agencies, laws, courts, professions, and scripts and other societal and cultural practices that exert conformance pressures) and norms of the institutional environment (DiMaggio & Powell, 1983, 1991; Meyer & Rowan, 1991; Scott, 2007). Consider the issue of early implementers or late implementers. Institutional Theory (Di Maggio & Powell, 1983; Meyer & Rowen, 1977) tries to account for homogeneity between organizations. Indeed, a number of authors use Institutional Theory in the analysis of TQM (Mueller & Carter, 2005; Sila, 2007; Staw & Epstein, 2000; Westphal & Shortell, 1997; Zeitz *et al*., 1999). This study focuses on the relationship between the relationship between TQM practices and organizational performance among food and beverage companies in Malaysia using environmental regulations and policy under environmental regulation and policy as the moderators. Institutional theory was chosen for this study to complement contingency

theory because it offers a theoretical connection between TQM and organizational performance (Mueller & Carter, 2005).

2.9 Research Constructs and Measuring Dimensions

This is to conceptualize each of the constructs involved in this study's model with highlight of the explicit dimensions to be used in measuring each of the constructs. Constructs to be conceptualized are given the befitting metric as the direction of this study suggests are Organizational performance, Environmental regulation and policy and TQM. Under TQM, Quality assurance, and Continuous process improvement are the sub-variables.

2.9.1 Operational Definition and Measuring Dimensions on Organizational Performance (OP)

In review of literature in the past studies, it is understood that there are discrepancies in the way the constructs of OP were measured. The constructs for measuring OP was based on how Organizational Performance was mostly defined by previous studies in terms of Customer satisfaction, financial performance , employee and/or shareholders satisfaction, operational performance, sales growth, market share, return on capital invested (Sillanpää, 2011**;** John & Ngoasong, 2008**;** Epstein, Buhovac, & Yuthas, 2012**;** Argilés-Bosch *et al*., 2014**;** Akgün, *et al*., 2014; Alomaim, Tunca, & Zairi, 2003; Fawcett, Smith, & Cooper, 1997; Feng, *et al*., 2013**)**. However, this study employs financial performance, customer satisfaction, and operational performance as the dimensions in measuring organizational performance of food and beverage companies as focused by this study as the measurements have been tested and validated to effectively measure organizational performance

Respondents are required to indicate their views on how organizational performance is influenced by TQM with or without the presence of the moderators based on five-point Likert scale from "1" =Strongly Disagree to "5"= Strongly Agree.

2.9.2 Operational Definition and Measuring Dimensions of TQM

Baird *et al*. (2011) argued that TQM is a management philosophy with systematic approach of managing quality purposely established in achieving high performance in terms of financial, customer satisfaction and production achievement which requires commitment from the company leadership by adopting effective core quality elements (quality assurance and continuous process improvement) to develop a productive and sustainable environment, which expedites the continuous improvement for all agro-allied processes and activities. Furthermore, in this present day, TQM practices refer to those responsibilities and duties performed in organizations regardless of size or goal, to effectively enhance organizational performance (Aurelie & Fallery, 2010). Although there are many disputations and inconsistencies on what comprises TQM practices as extensively discussed in many previous studies (Stanciu, Constandache, & Condrea, 2014; Sahai & Srivastava, 2012; Rodrigue, Magnan, & Boulianne, 2013). This study under this heading, investigates quality assurance and continuous process improvement as they are more elaborate and comprehensive as justified in previous sections. Their operational definitions and attending dimensions are discussed below.

2.9.2.1 Quality Assurance

Quality assurance basically is the maintenance of a desired level of quality in a service or product, especially by means of attention to every stage of the process of delivery or production. It involves systematic management and assessment procedures used to ensure

achievement of quality outputs or improved quality. This study employs planning and analysis, design, production, post production and delivery (Abdous, 2009 ; Tran, Cahoon, & Chen, 2011; Cukier, *et al*., 2012) as befitting sub-variables to investigate Quality assurance in Food and Beverage companies of Malaysia.

2.9.2.2 Continuous Process Improvement

Continuous Process Improvement, also often called continuous improvement is an ongoing effort to improve products, services, or processes. Organizations are now employing this philosophy as it seeks incremental improvement over time or breakthrough improvement all at once. This study encapsulates the associated efforts of continuous improvement under the use TQM to impact organizational performance. Quality of processes, company products and services and effective feedback system (Adina-Petruţa & Roxana, 2014 ; Jonsdottir, Ingason, & Jonasson, 2014 ; Barber, Munive-hernandez, & Keane, 2006) are used as sub-variables of Continuous Process Improvement.

2.9.3 Operational Definition and Measuring Dimensions of ERP

Several attempts have been made from past studies to conceptualize ERP ; such as, Bracci and Maran (2013) and Dutta, Lawson and Marcinko (2013) . Moreover, one thing that appeared to be very common in those interpretations is that they referred ERP as an important rules and requirement that generally covers two things: pollution control: regulating how much pollution such as chemicals and undesirable materials in achieving organizational performance. This has made many organizations to consider it as a necessity with the rate at which environmental regulation and policy improves organizational performance through environmental management (Krechovská &

Procházková, 2014; Aravind, 2012).The fact that different organizations adopts environmental regulation and policy for different purposes shows that it could be measured differently. This study from its scope uses environmental policy and environmental regulation (Santos-Reyes & Lawlor-Wright, 2001; Daily & Huang, 2011; Muhammad, 2011; Leshinsky, 2012) as dimension to moderate between TQM and organizational performance.

2.10 Conceptualizing the Theoretical Framework

This section explores the linkages between TQM elements, organizational performance and environmental regulation and policy variables within the context of the Malaysian food and beverages Companies.

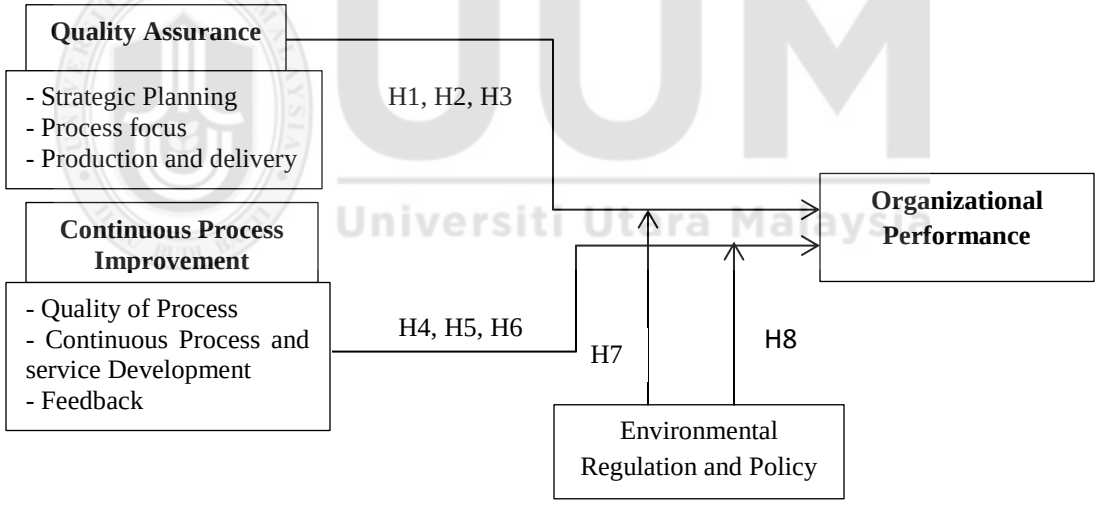


Figure 2.1**:** *Conceptual Research Model linking Quality Assurance, Continuous Process Improvement, Organizational Performance and Environmental Regulation and Policy*

The proposed model as depicted in above Figure 2.1 is based on four main variables: Quality Assurance; Continuous Process Improvement; Organizational Performance and; Environmental Regulation and Policy.

2.11 Hypothesis Formulation

Hypotheses to be tested in the research study are formulated and presented below:

H_1: Quality assurance as a TQM element has a significant effect on financial performance of an organization

H_2: Quality assurance as a TQM element has a significant effect on operational performance of an organization

H_3: Quality assurance as a TQM element has a significant effect on customer satisfaction of an organization

H_4: Continuous process improvement as a TQM element has a significant effect on financial performance of an organization

H_5: Continuous process improvement as a TQM element has a significant effect on operational performance of an organization

H_6: Continuous process improvement as a TQM element has a significant effect on customer satisfaction of an organization

H_7: Environmental regulation and policy moderates the effect of quality assurance on the organizational performance significantly

H_8: Environmental regulation and policy moderates the effect of continuous process improvement on the organizational performance significantly

2.12 Summary

This chapter presents the scholarly foundation for this study by providing a broad literature review. From the literature review provided, the conceptualization of all the constructs involved; TQM, organizational performance and environmental regulation and policy are done. This chapter exclusively presents the interconnectivity and relationship among the variables, and presented the theoretical, practical and methodological gaps that are to be justified by this study. Some of the previous researches in the area of TQM delved into issues that relate to organizational performance positively and from the negative angle to be able to provide an opener to curtailing their intensity. Similarly, those researches revealed that QA and CPI are important elements in promoting positive changes and attaining effective organizational performance. This study argues that organizations should be able to synthesize issues both from TQM angle and from the point of view of Environment Regulation and Policy because focusing on one angle may not provide a lasting solution to issues related to organizational performance. In reference to that, the research framework to be validated by this study is presented. Lastly, the dimensions and variables to be used in this study are educed and hypotheses to be tested are outlined.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology employed in this study. This chapter is divided into four main parts. The first part elucidates the research paradigm of the study. The second part exclusively describes research design. The third part discusses the research approach employed by the study. The final part focuses on the data collection, instrumental design, sampling and, reliability and validity of measurement items.

3.2 Research Paradigm

This research is categorized under the correlational research as it is in accordance with testing of the formulated research hypotheses (Creswell, 2009). The approach to the research is post-positivism which is regarded as a pattern of research conducted with research activities ranging from identification of problem, literature review, and specification of research purpose, collection of data, analysis and interpretation and then reporting (John, 2008). These steps are followed in their strict terms so as to achieve the research objectives. Since the purpose of this study is to measure the impacts and effects with a view of analyzing and predicting the nature using statistical computations and hypotheses testing, a quantitative approach is appropriate for this study (Zikmund *et al*., 2010). In achieving this, the study is also guided by underpinning theories as explained in chapter two. This study represents a formal research to empirically investigate the influence of continuous process improvement and quality assurance as TQM elements on organizational performance (financial and operational performance and customer satisfaction) of food and beverage companies, with the use of environmental regulation

and policy as a moderator. Due to the highlighted objectives of this study, it is exclusively a quantitative research with methods for the realization of the objectives (Sekeran, 2000).

3.3 Research Design

This study is of exploratory research design because it focuses on an aspect of study where previous studies have been conducted, but still require further study to attend other questions that are yet to be given answers. The choice of this research design is based on the methods and techniques used for the conduct of the research because it elucidates how data would have been gathered and analyzed towards the realization of the research objectives.

Many previous studies have undoubtedly investigated the impacts of TQM on organizational performance although mainly in corporate enterprises with sub-variables that are peculiar to such domains. Apart from the fact that this research study contextualizes the dimensions of TQM in view of meeting the specificity of food and beverage companies, environmental regulation and policy is newly introduced as a moderator to be tested in the research model. This is the importance of the quantitative type exploratory study done by this study. The significance of a study being an exploratory type is that it helps in understanding the situation being studied more comprehensively and accurately (Sekeran, 2003).

In the course of employing the exploratory research design of this study, the following are to be achieved accordingly:

i. Definition of the problem of the domain and consequent formulation of the hypotheses to be investigated;

ii. Identification of the concepts and challenges in the research techniques;

iii. Presentation of belief concepts and approach that can implement effective data interpretation, especially in multivariate data analysis;

iv. Exploring quantitative data to reveal unknown relationship between the variables studied.

The issues educed in this study are addressed by the application of the exploratory research study as listed above. Figure 3.1 presented the summary of the whole research from research paradigm to analysis, interpretation and reporting.

3.4 Research Approach

Generally, there are two main approaches to research: qualitative and quantitative. The third approach, commonly referred to as mixed approach is the combination of quantitative and qualitative, and it is currently getting more attention (Creswell, 2009). This study employs the quantitative method to identify the impact of all the elicited TQM core elements on organizational performance, and the moderating role of environmental regulation and policy.

Therefore, study is much of regression, studying the effect of one variable on the other (Sekeran, 2003). Quantitative design gives the befitting opportunity to effectively test the research hypotheses, and practically solve the pointed research problem. And also, taking into consideration of the methodology employed by past studies, especially their statistical analysis process, this study makes a methodological contribution.

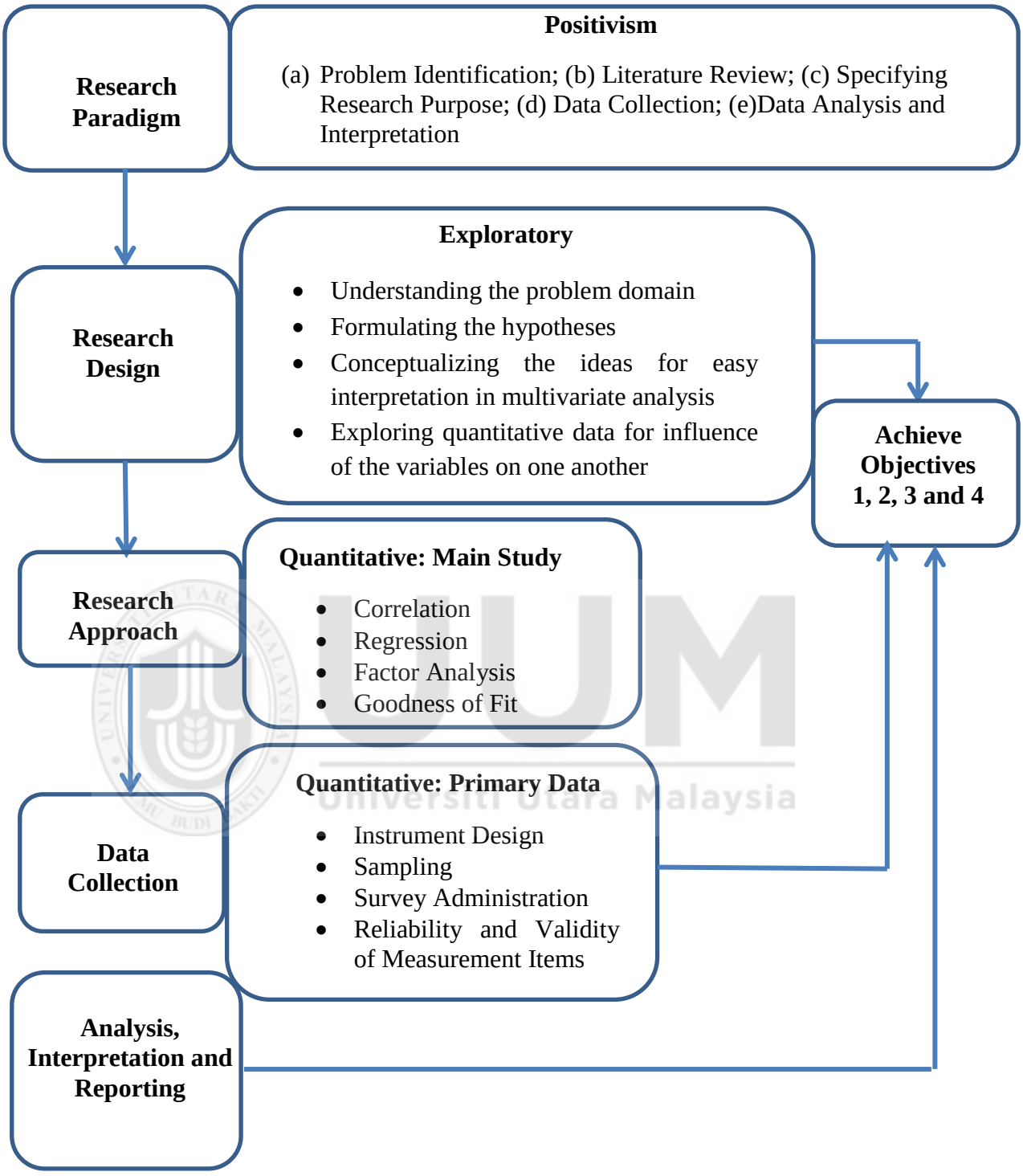


Figure 3.1**:** *Research Methodological Framework*

Descriptive method of analysis and some univariate or bivariates tools are mostly used (Rungtusanatham, Ogden, & Wu, 2003; Pavlov & Bourne, 2011 ; Bon & Mustafa, 2013).

To the best knowledge of the researcher, none of the studies ascribed to multivariate statistical analysis using Structural Equation Modeling (SEM).

3.5 Data Collection Procedure

This study is using a survey research as its quantitative approach of study. Thus, questionnaire is suitably appropriate as a gathering instrument. All the variables to be investigated in this study are a continuous variable. They are: Quality assurance and Continuous Process Improvement, with each of them different sub-variables. The other variables are Organizational Performance as the dependent variable, and the Environmental Regulation and Policy as the moderating variable (Zikmund, *et al*., 2010). Also, due to the suitability of quantitative research data to be numeric, administering questionnaires serves as the most reliable approach of data collection that will fit in with these features. This is undoubtedly justified because this study is interested in capturing the opinions of managers of the food and beverage companies in Malaysia. It means the information expected to be deducted from the respondents can best be derived from the individuals' reflection of the work environment reality and its differences.

The data was collected from company employees who are managers of the food and beverage producing companies, as covered by this study in view of attending to issues raised in the background of this study – as shown in chapter one. This survey was also done offline, individually administered to the companies' respondents through Post Mail. The items designed are as questions to be asked under each of the constructs studied by this study. This was administered to the company employees that are of managerial positions (Creswell, 2009; Neuman, 2007; Babbie, 2010).

3.5.1 Instrumentation

This study employs survey questionnaire as the instrument of data collection. Therefore, it is important to carefully design the items of the questionnaire with due simplicity in view of reflecting the dimensions used in measuring the constructs of the research model. It should be noted that items of the questionnaire's questions are designed based on conceptual explanation from the literature, adapted or adopted. This is justifiable according to Zikmund, *et al.* (2010). Items addressing questions to measure the company's Organizational Performance, Environmental regulation and policy, Quality Assurance and Continuous Process Improvement are into parts of the questionnaire. The development of the survey instruments is guided by relevant literatures. In cases where the items are newly developed i.e. where primary data collection method has not been previously used, the supporting literatures are adequately cited also.

3.5.1.1 The Questionnaire Structure

Using questionnaires in survey researches is as important as structuring the questionnaire (Organ *et al.,* 2006). Perhaps, this is true as there are a lot of challenges that may adversely tamper the validity of the data and the rate of responses (Hair *et al*., 2007). In order to get rid of those challenges, this study followed the suggestions by Organ *et al*. (2006) and Gutpa (2006) and took different precautions such as abiding by the research ethics of protecting the respondent's identity, appropriate and unambiguous scaling of items and separating items according to constructs. The following section discussed the scales of the questionnaire.

3.5.1.2 Scale of the Questionnaire

There are series of patterns of designing a questionnaire but depends on what researcher intends to measure and why. The scholars believe that patterns to be used should be common and universally acceptable. For example, the statements used in the questionnaire must be easily understood by the respondents (Oppenheim, 1992; Warwick & Lininger, 1975); the statements in the questionnaire should not be leading the respondents (Parten, 1950; Young, 1939). Also, researchers should try the most effective way or manner to maximize the items validity, lessen the stress of answering the questions from the respondents and be very economical in terms of cost of data collection. On this basis, this study therefore uses Likert scale type of questionnaire.

Likert scale is a psychometric type of scale used in instruments to tap respondents' extent of agreement or otherwise in a given statement. Likert scale was originally 5-point scale that ranges from "strongly disagree" to "strongly agree" with "neither disagree" nor agree in between. Many researchers will prefer to use longer scales by adding options (i.e. a 7-point 9-point or 10-point scales). Other researchers rather use an even number scale like 4-point and 6-point scales. According to Malhotra (2004) longer scales allows the respondents to independently choose the options without been compelled. Also, Martin and Polivka, (1995) mentioned that respondents prefer to be given a no opinion option or neutral for them to feel free from been restricted to researcher's choice. From another perspective, Malhotra, and Peterson (2006) and Robert (2009) hold the opinion that providing a no opinion or neutral option tampers with the value of the data which is perhaps very obvious in various researches conducted across the globe. The participants are quietly stimulated to think over a given item before they finally make decisions.

In this study, the selection of an odd scale particularly the 5-point scale is appropriate because it will increase the reliability of the data as well as lessen social desirability bias (Krosnick, 1999). Respondents shall be asked to respond to the items by indicating their level of agreement using five-point Likert scale. In addition, five-point scale is used because the scale can make compromise between the conflicting goals of offering enough choice since only two or three options means measuring only direction rather than also strength of opinion and making things manageable for respondents. And lastly, it is mostly recommended from previous studies (i.e. Fink, 1995; Dawes, 2008; Dilman, *et al*. 2009)

a. Quality Assurance Dimension

The explanations of Abdous (2009) and Bayraktar *et al.,* (2008) given on the concept of quality assurance was adopted and modified into this 15-item construct description. This study categorizes quality assurance to planning, process focus and production and delivery, with 5-item each. The quality assurance items and their coding identities are shown in Table 3.1 below.

Table 3.1
Quality Assurance Coding

Authors	**Item**	**Code**
Abdous(2009) & Bayraktar *et al.,* (2008)	**Planning**	
	In our organization, the leadership provides sufficient internal communication facilities for effective planning	QA01

In our organization, employees ensures using the best planning and learning method for achieving quality	QA02
Our organization encourages innovative plan to achieve best practice	QA03
Our organization has a collective way of planning	QA04
Our organization considers quality planning a top priority in their regular meeting	QA05
Process Focus	
The production process is designed in such a way that it adds value to our products	QA06
Newly introduced process is critically examined prior to its actual implementation	QA07
The necessity of learning process are totally provided to guarantee value creation for customers	QA08
Good relationship between employees and customers is maintained	QA09
The organization is committed to the review of traditional technique to meet the current standard	QA10
Production and Delivery	
Our employees are frequently trained to ensure quality in jobs-specific skills	QA11
Our employees are able to learn from each other on how to improve production quality of its services	QA12

	Our employees are able to learn from each other on how to improve production quality of its goods	QA13
	Emphasis is placed on effective service delivery with regards to quality	QA14
	Emphasis is placed on effective product delivery with regards to quality	QA15

b. Continuous Process Improvement Dimension

The Continuous Process Improvement, as used in this study, is of three sub-variables; namely, quality of process, continuous process and service development, and feedback. This is in support of Siew (2013), and the items were designed using Adina-Petruţa and Roxana (2014) on similar domain as a guide for adoption. These items are presented in table 3.2.

Table 3.2
Continuous Process Improvement Coding

Authors	**Item**	**Code**
Siew (2013) and Adina-Petruţa & Roxana (2014)	**Quality of Process**	
	Continuous improvement of the production process is based on a systematic approach	CIP01
	Our organization continually looks for ways to improve the quality processes	CIP02

Quality assurance as a mechanism for continuous improvement is integrated in all aspects of the organizational process	CIP03
There is a continuous evaluation of the organizational quality of process	CIP04
The necessities of process quality are totally provided to guarantee valuable goods and services for the customers	CIP05
Continuous Product and Service Development	
My organization develops new product for the customers	CIP06
My organization develops new services for the customers	CIP07
Our organization always provides new services for its employees	CIP08
Compared to past years, our organization has developed new products and services overall.	CIP09
There is significant increase in effectiveness of our research products	CIP10
Feedback	
There is an effective feedback system for organization product quality improvement and assurance	CIP11
Quality assurance system of improvement is documented properly	CIP12
There is a continuous review of the feedback from the customers	CIP13

	There is a continuous effort by my organization in strategizing quality related issues	CIP14
	The suggestions from the customers are taken into account when designing new organizational services	CIP15

c. Environmental Regulation and Policy Dimension

The environmental regulation and policy construct is measured to designing the totality of 10-item construct. The items designed are adapted from the works of Muhammad (2011) and Daily and Huang (2011). Table 3.3 presents the items used in measuring the competitive advantage and the coding.

Table 3.3
Environmental Regulation and Policy Coding

Authors	Items	Code
Muhammad(2011) and Daily & Huang (2011)	**Environmental Regulations and Policy**	
	This organization ensures public health in all aspects through all the obstruction such as emitting air pollution, public and private nuisance	ERP01
	Our organization establishes free environment for all the customers	ERP02
	Our organization enforces constitutional law relating to environmental obligation	ERP03
	Our organization keeps human habitation free from pollution	ERP04
	Our organization establish environmental balance for keeping	ERP05

	nature and natural beauties	
	Our organization has enforcement of human right to pollution-free environment under constitutional obligation for its employees	ERP06
	Our organization has coordination between legal and technical authorities in framing as well as respecting environmental issues	ERP07
	Our organization keeps up the provision of the constitution relating to environmental obligation for ensuring human right	ERP08
	Our organization has laws relating to air pollution for maintaining ecological balance from imbalance	ERP09
	Our organization is committed to comply with environmental legislation and regulation	ERP10

d. Organizational Performance Dimension

The Organizational performance construct is measured using sales growth, inventory management system and increase in customer satisfaction. In totality, eighteen (15) items are adapted from the works of Nokhal (2013) and Siew (2013). The last three years of the organization activities is used to designate the period of the assessment. Table 3.4 presents the items used in measuring the organizational performance and the coding.

Table 3.4
Organizational Performance Coding

Author	Item	Code
	During the last three years, my organization achieved…	
Nokhal (2013) & Siew (2013).	**Sales Growth**	
	Significance increase on return on asset	OP01
	Significance increase on return on capital investment	OP02
	Our shareholders are always satisfied on their annual dividends	OP03
	Significance increase in the number of shareholders	OP04
	Significance increase in the number of sales of our products	OP05
	Inventory Management System	
	This organization has developed technologies to manage its customers' relationship duties	OP06
	This organization has developed technologies to manage its employees' relationship duties	OP07
	This organization always employs technologies to manage its inventory	OP08
	This organization sometimes employs technologies to manage its inventory	OP09
	This organization has developed technologies to manage suppliers' relationship duties	OP10
	Customer Satisfaction	
	Significance increase in number of our customers	OP11

	Significance increase in number of repetitive purchase	OP12
	Our customer feel safe because we are responsive	OP13
	Our customer always follow new instructions	OP14
	Our organization always receive good feedback from our customers	OP15

3.5.2 Reliability and Validity of Measurement Items

The instrument items designed for this study is subjected to both content and construct validity testing. The newly-constructed questionnaire and adapted parts were evaluated for content validity and feedback from the respondents was taken into account for further improvement. Also, a pilot study to test the internal validity of the constructs that are to be investigated by this study is recommended (Creswell, 2009; Kumar, 2011). Due to that, the questionnaire passed through phases of transition processes. Some items were corrected to increase the degree of reliability of their sources and all the items were scrutinized and screened as they have their roots from reliable sources. After that, also some copies were distributed to some PhD students in Universiti Utara Malaysia to respond in order to determine whether the wordings can be easily comprehended by the respondents. Some suggestions were offered and the questions were revised.

3.5.3 Population of the Study

A research population is known to be a collection of individuals or objects known to have related characteristics. All individuals or objects within a particular population have a common feature, characteristic or peculiarity. Population is regarded as one of the most important elements in research. Castillo (2009) pointed out that; population could be

classified into two: target population and accessible population. Target population is the whole group of individuals or objects in which researchers are interested in drawing the conclusions – it is referred to as theoretical population. The accessible population on the other hand is the population in which the researchers can apply their conclusions. In the same vein, it is called the subset of the target population and it is also known as the study population. It is from the accessible population that researchers draw their samples to be used. Based on this foundation, the target population for this study is all food and beverage companies in Malaysia which is a subset of agro-based industry. A total number of 250 companies are gotten from food and beverage Federation of Malaysian Manufacturers in joint collaboration with Malaysia External Trade Development Corporation directory (FMM-MATRADE Industry Directory, Food & Beverage, 2005/06, p. A34-37). The information like postal, e-mail addresses and telephone numbers of the targeted population will be derived from the directory of the Federation of Malaysian Agro-based Manufacturers (Ahmad, 2012). The following segment discussed the sample of the study.

3.5.3.1 Sample of the Study

According to Sridhar (2009), sample depicts a selection of some part of an aggregate on the basis of which a statistical inference is made about the aggregate. The fact is that researchers usually cannot make the option of a sample inevitable (Herek *et al.*, 2010). Undoubtedly, the sample corresponds to the larger population on the characteristics of interest. In those circumstances, the researcher's assumptions from the sample are perhaps applicable to the entire population.

3.5.3.2 Sample Size

Since this study is employing SEM-PLS as the analysis technique, the sample size is gotten through the Rule of 10. With respect to PLS, the literature frequently uses the "10 times" rule of thumb as the guide for estimating the minimum sample size requirement. This rule of thumb suggests that PLS only requires a sample size of 10 times the most complex relationship within the research model. The most complex relationship is the larger value between:

1. The construct with the largest number of formative indicators if there are formative constructs in the research model (i.e., largest measurement equation(LME) ; and
2. The dependent latent variable (LV) with the largest number of independent LVs influencing it (i.e., the largest structural equation (LSE).

In summary, the Rule of 10 states that the minimum sample size for a model is based on the maximum number of arrows pointed at any latent variable in the model. From Figure 2.1 at page 68, the research model shows the conceptual model of this research where Quality Assurance (QA) dimensions: strategic planning, process focus, and production and delivery making three arrows to be pointed towards organizational performance being the latent variable. And also continuous process improvement (CPI) with three dimensions: quality of focus, continuous process and service development and feedback has three arrows in general pointing to organizational performance. And lastly, ERP being the moderating variable is pointing towards organizational performance, making all the arrows to be 7. Using the Rule of Thumb, a minimum number of 70 is required for the sample size of the study.

Alternatively, G-power table can be used to determine the sample size instead of Krajcie and Morgan table which is only useful if you are doing Probability Sampling. Sample size should be decided based on the basis of power analysis. Table 3.5 below reveals the sample sizes based on the power analysis. This study considers two predictors, QA and CPI which makes the sample sizes to be 481, 66, and 30 for small, medium and large respectively. This study is taking 66 to be minimum number of sample size as most people often use medium effect size.

Table 3.5:
Determination of Sample Size through G-Power Analysis (Green.1991)

	Sample Sizes Based on Power Analysis		
Numbers of Predictors	**Effect Size**		
	Small	**Medium**	**Large**
1	390	53	24
2	481	66	30
3	547	76	35
4	599	84	39
5	645	91	42
6	686	97	46
7	726	102	48
8	757	108	51
9	788	113	54
10	844	117	56
15	952	138	67
20	1066	156	77
30	1247	187	94
40	1407	213	110

3.5.3.3 Sampling Technique

Techniques for probability sampling in researches are many and differed. For instance, simple random sampling directly selects element given equal opportunity for every component to be selected, Cluster sampling on the other angle prefers to group components in accordance with their laid down criteria. Robert *et al.* (2009) stated that

some researches combine more than one sampling technique at a time. Multistage sampling occurs when sampling procedures were carried out in different stages where researcher breaks down the sample into smaller sampling component at each stage.

This study employed simple random under non-probability sampling technique because every individual in the population is known and each has a certain probability of being selected. A random process decides the sample based on each individual's probability. A list of all the companies of the population is created and used to obtain participants by random selection. This random selection guarantees that each individual has an independent and equal chance of being selected.

3.5.4 Unit of Analysis

Sample is a representative of a particular population for a purpose of a study (Creswell, 2009). The companies' personnel are the unit of analysis, implying that they will administer the questionnaires, and their responses are computed using the normal 5-point Likert scale. This study focuses on Food and Beverage companies in Malaysia as shown in chapter one of this study. The study shall be conducted in 250 food and beverage companies of Malaysia. The respondents are drawn from the organization's managerial and operational personnel. The following discussion is on the technique of data analysis to be employed.

3.5.5 Technique of Data Analyses

This research shall use SmartPLS 2.0 M3 (Ringle et al., 2005) as tools of analysis. SmartPLS 2.0 M3 (Ringle *et al*., 2005) is a powerful multivariate analysis technique that comprises specific versions of a number of other analysis methods as special cases. Fox

(2006), SmartPLS 2.0 M3 (Ringle *et al*., 2005) reflects an informal thinking about causal relationship that is common in social science theorizing, and facilitates translating such theories into data analysis though in courses such as economics, structural-equation models may stem from formal theory. SmartPLS 2.0 M3 (Ringle *et al*., 2005) is a promising method that avails researchers with vast opportunities. It is a regression like approach that is capable of reducing the residual variances and has the unique ability to work efficiently with both larger and fewer samples unlike AMOS SEM that does not work well with some samples (Hair *et al.*, 2011).

In terms of reliability, SmartPLS 2.0 M3 (Ringle *et al*., 2005) takes measurement errors into account by clearly including measurement error variables that correspond to the measurement error portions of observed variables. Hence, conclusions about relationship between constructs are not biased by measurement error, and are similar to connections between variables of perfect reliability. This is actually very important as data in the social sciences frequently contain a lot of measurement errors. SmartPLS 2.0 M3 (Ringle *et al*., 2005) is widely known for its ability to test the hypotheses and their compatibility; their assumptions about parameters, the variances and co-variances of all the observed variables. Few studies on TQM and organizational performance with the moderating effect of environmental policy and regulation used structural equation modeling (SEM). SEM approaches are superior to bivariate correlations or regression analyses, because SEM allows simultaneous estimation of causal relationships between variables (Hair, et al. 2010).

3.6 Summary

This chapter discussed the methods to be employed in achieving the objectives set for this study and their supporting justifications. As highlighted, the research will be a type of quantitative research using survey questionnaire administration with SmartPLS 2.0 M3 as the statistical techniques for the data analysis. The design of the items involved in the questionnaire design is discussed extensively with discussion on the measurement of the variables to be studied. The chapter also discussed detailed procedure for data collection, population sample, sampling techniques and unit of analysis.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter reports the results from the data analyzed. Firstly, this study examined the distribution of the demographic variables (Gender, Age, Years of Experience and Qualifications) for all respondents. The demographic variables are considered because the data are collected from company employees who are employees of the food and beverage producing companies or those who are in the best positions to answer the questionnaire like the top managers. This is undoubtedly justified because this study is interested in capturing the opinions of managers of the food and beverage companies in Malaysia. It means the information expected to be deducted from the respondents can best be derived from the individuals' reflection of the work environment reality and its differences. Also, this study discusses the descriptive analysis of the variables and the normality testing. The study employed the Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine the outer measurement model before the inner structural model assessment and hypotheses testing.

The goodness of the outer model connected to the constructs of this study namely total quality management (with Quality assurance and continuous process improvement as dimensions), environmental regulation and policy and organizational performance (with financial performance, operational performance and customer satisfaction as dimensions. Next is the examination of the quality of the structural model through construct validity. Finally, the results of the hypotheses testing procedures were reported and the moderating effect of environmental regulation and policy were equally reported.

4.2 Demographic Distribution of the Respondents

The data was collected using the survey questionnaire over the period of five months from May 2015 to September 2015 from 71 food and beverage companies after 250 questionnaires were sent out. The demographic variables have been categorized into four, which are gender, age, years of experience and qualifications. In table 4.1, the respondents who responded to this study from male gender are 52 which represent 73.2% and female are 19 with 26.8%. The majority of the respondents are holding degree qualification (47) which represents 66.2% , Secondary (9.9%), Primary (1.4%) , no certification held (2) which represent 2.8% and the rest of 14 respondents (19.7%) possess graduate degree (Master or Doctorate). In terms of years of experience of the respondents, majority of them are having 4-6 years of experience (42.3%), 7 for respondents having Below 3 years of experiences (9.9%), 9 for respondents having 7-9 years of experience (12.7%) and the rest (25) were having experiences above 10 years (35.2%).

Table 4.1
Participants' Demographic Information

Demographic Variable	Category	Frequency (N=71)	Percent (%)
Gender	Male	52	73.2
	Female	19	26.8
Age	18-34	13	18.3
	35-44	38	53.5
	45-60	20	28.2
Quality of Education	Postgraduate	14	19.7
		47	66.2

	First degree	7	9.9
	Secondary		
	Primary	1	1.4
	No certification held	2	2.8
Years of Experiences	Below 3 years	7	9.9
	4-6 years	30	42.3
	7-9 years	9	12.7
	Above 10 years	25	35.2

4.3 The Rationale behind Choosing PLS SEM for this Study

The purpose of this study is to investigate the relationships among the latent variables; therefore, the latent analysis technique is considered to be the most suitable option. There was an option to use covariance-based SEM technique such as AMOS but the data must be normally distributed (Byrne, 2010; Hair et al., 2010). The assumptions have been previously tested in SPSS before choosing the technique of the analysis. Researchers' arguments for choosing PLS as the statistical means for testing structural equations models (Urbach & Ahleman, 2010) are as follows:

1. PLS makes fewer demands regarding sample size than other methods;
2. PLS does not require normal-distributed input data;
3. PLS can be applied to complex structural equation models with a large number of constructs;
4. PLS is able to handle both reflective and formative constructs; and
5. PLS is especially useful for prediction.

4.3.1 Test of Linearity

Linearity testing locates the relationship of independent variables with dependent variables which predicts the hypotheses' right way; therefore, the positive values show the relationship is considered to be positive. According to suggestion of Hair et al. (2006), the partial regression plot was employed for each variable when there is more than one independent variable to guarantee the accurate representation in the equation. To achieve this aim, the normal P-P plot of regression standardized residual plot was imposed for independent variables on dependent variables. The outcome results revealed that the normal distribution was readily achieved.

4.3.2 Multicollinearity Test

It is highly recommended, the test of Multicollinearity among variables before the beginning of testing the proposed model (Hair et al., 2010). It indicates the existence of relapse in the correlation matrix where the independent variable is high and significantly correlated with another independent variable. Also, the revelation of Multicollinearity can be revealed when the correlation value is more than 0.90 (Hair et al., 2010). The test of Multicollinearity is examined by assessing the variance influence factor (VIF) and the tolerance value also.

Furthermore, the value of VIF is the amount of variability of the chosen independent variable which is explained by other independent variables whereas the tolerance is simply the inverse of VIF (Hair et al., 2010). The VIF and tolerance values cut-off points are 10 and 0.10 respectively which shows that VIF closer to 1.00 represents little or no Multicollinearity.

Table 4.2 indicates that the model highlights Collinearity statistics for the independent variables. In addition, the correlation between variables was below 0.9 which shows that there is no issue in Multicollinearity. Similarly, VIF values range between 1 and 2.851, while tolerance values range between 0.35 and 0.687. Therefore, from the results reported, there is no violation of Multicollinearity assumption.

Table 4.2
Multicollinearity Test

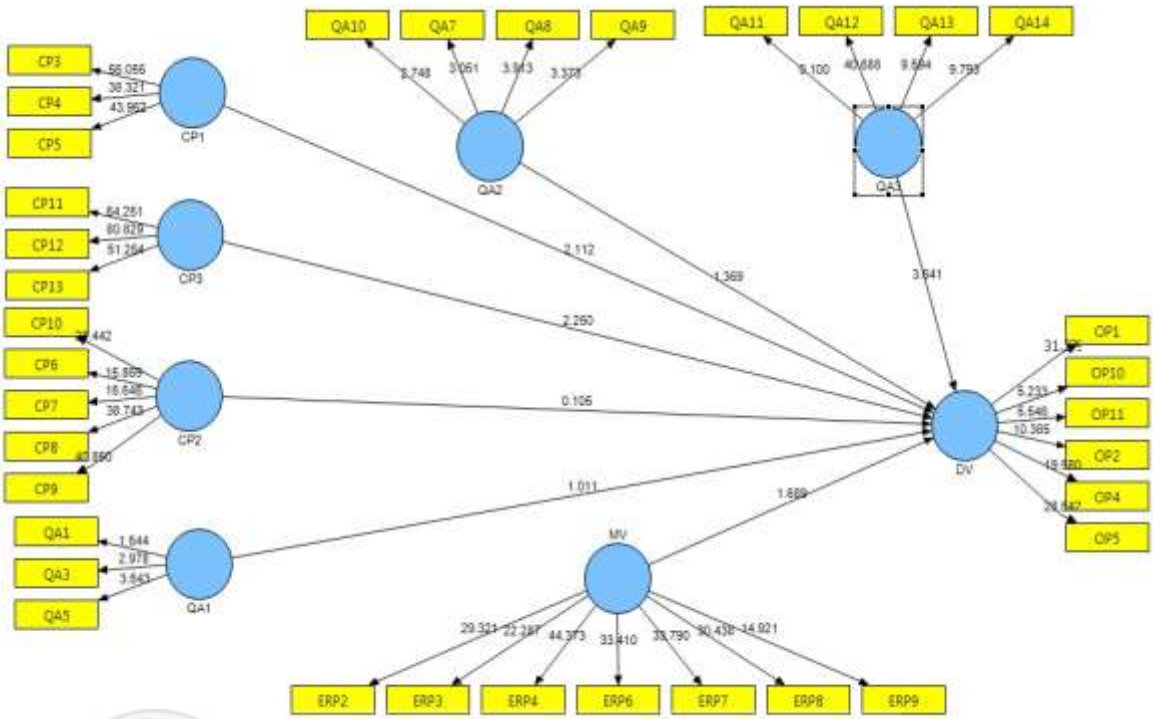
Model		**Collinearity Statistics**	
		Tolerance	**VIF**
Quality Assurance	Environmental	0.358	2.794
Continuous Process Improvement	Regulation and Policy	0.351	2.851
Environmental Regulation and Policy	Organizational Performance	0.687	1.455

4.4 Testing the Goodness of the Measurements

The goodness of the measures of this study was examined to identify the factors underlying the variables (in chapter 5) and utilized the Partial Least Square Structural Modeling using SmartPLS 2.0 to set up the construct validity of the measures which shall be discussed in the following sections.

4.4.1 Testing the Measurement, Outer, Model Using PLS Approach

The measurement model, outer model was assessed through the partial least square structural equation modeling (PLS- SEM) technique before testing the study's hypotheses. In order to achieve that, this study followed the method suggested by Anderson and Gerbing (1988). Figure 4.1 shows the model of this study with structural dimensions below.



Continuous Process Improvement (CP), Dependent Variable (DV), Independent Variable (IV), Quality Assurance (QA), Environmental Regulation and Policy (ERP), Organizational Performance (OP), Moderating Variable (MV).

Figure 4.1: *The Research Model*

4.4.1.1 The Construct Validity

The construct validity can be examined through the content validity, convergent validity, and discriminant validity (Hair et al. 2010).

4.4.1.1.1 The Content Validity

The content validity is referred to as the degree to which the items proposed to measure a construct can suitably measure the concept that designed to be measured (Hair et al., 2010). Otherwise, the items that are designed to measure a construct should be higher in their loaded on their respective than their loading on other constructs. Therefore, through deep-depth review of the past studies in literature review, this can be insured on how items were generated. According to the analysis in factor analysis concept, all items were

correctly assigned to their constructs. Table 4.3 shows the content validity of the measure used as explained in two manners. Firstly, there are high loading in the items on their respective constructs when related to other constructs. The second manner is that, the loading of the items were significantly loading on their respective constructs affirming the content validity of the measure used in this study (Chow & Chan, 2008).

Table 4.3
Factor Analysis and Loading of the items (Cross Loadings)

	CP1	CP2	CP3	DV	MV	QA1	QA2	QA3
CP3	**0.957332**	0.869072	0.728391	0.792282	0.41258	0.168757	0.145998	0.640969
CP4	**0.933777**	0.815755	0.696736	0.783953	0.441091	0.142444	0.061852	0.682863
CP5	**0.941633**	0.780765	0.678092	0.744535	0.401206	0.164257	0.070893	0.610854
CP6	0.866614	**0.847454**	0.693721	0.745282	0.419201	0.081061	-0.00569	0.670905
CP7	0.831503	**0.844634**	0.71163	0.739727	0.480119	0.135939	0.000534	0.675336
CP8	0.742009	**0.923804**	0.867928	0.765379	0.621193	-0.07199	-0.01507	0.749128
CP9	0.709439	**0.916451**	0.855384	0.75794	0.542413	-0.05969	0.071059	0.685951
CP10	0.716971	**0.899171**	0.935465	0.765208	0.529195	0.038831	0.114258	0.700083
CP11	0.720308	0.898874	**0.963009**	0.783333	0.575022	-0.07779	-0.03705	0.750214
CP12	0.709199	0.859821	**0.963752**	0.793612	0.582693	0.026247	0.091925	0.717094
CP13	0.707166	0.881715	**0.94925**	0.799993	0.645647	0.113972	0.021082	0.764371
OP1	0.792183	0.813416	0.836644	**0.882627**	0.493803	0.12179	0.170373	0.717565
OP10	0.455912	0.462312	0.433159	**0.693796**	0.535631	0.181491	0.065211	0.637145
OP11	0.559224	0.578749	0.515596	**0.719624**	0.606244	0.185671	0.054325	0.677537
OP2	0.654585	0.695726	0.719161	**0.790259**	0.481862	0.116213	0.046612	0.665304
OP4	0.70441	0.723959	0.662394	**0.847305**	0.403957	0.126357	0.236646	0.698084
OP5	0.728783	0.769275	0.744775	**0.869645**	0.447064	0.135637	0.144038	0.647891
ERP2	0.390748	0.564095	0.642549	0.570044	**0.871834**	0.066814	0.063331	0.743313
ERP3	0.340586	0.456657	0.490609	0.477303	**0.859408**	0.11261	0.002769	0.656549
ERP4	0.406294	0.531153	0.537773	0.548266	**0.910205**	0.100426	-0.03992	0.779115
ERP6	0.447214	0.573166	0.587515	0.569152	**0.912987**	0.092137	0.039701	0.725477
ERP7	0.373025	0.536606	0.580861	0.522932	**0.922192**	0.05014	-0.16068	0.784242
ERP8	0.380197	0.432904	0.491895	0.506439	**0.868988**	0.120718	0.000364	0.699906
ERP9	0.383296	0.495863	0.516897	0.513042	**0.811134**	0.042183	0.016335	0.774389
QA1	0.069071	-0.06013	-0.04587	0.014662	0.128952	**0.562331**	0.237789	0.015288
QA3	0.110383	0.005632	-0.01367	0.123471	0.061546	**0.777656**	0.272261	0.0601
QA5	0.165105	0.041516	0.047428	0.170132	0.085635	**0.884315**	0.254549	0.067336
QA10	0.016834	-0.05613	-0.08377	-0.01352	-0.0378	0.291585	**0.740224**	-0.05254
QA7	0.11932	0.047592	0.016082	0.145857	0.010624	0.358583	**0.925089**	-0.04834
QA8	-0.01373	-0.07249	-0.01026	0.065746	-0.06919	0.385768	**0.841267**	-0.04557

QA9	0.103386	0.059369	0.037635	0.162003	-0.00819	0.194991	**0.946662**	-0.0089
QA11	0.069071	-0.06013	-0.04587	0.014662	0.128952	0.562331	0.237789	**0.015288**
QA12	0.761758	0.808387	0.746478	0.894565	0.550847	0.107152	0.06536	**0.861388**
QA13	0.413088	0.486347	0.500006	0.475515	0.85632	0.103011	-0.19685	**0.795311**
QA14	0.390979	0.54999	0.609337	0.562138	0.794978	-0.0579	-0.03608	**0.815517**

Continuous Process Improvement (CP), Dependent Variable (DV), Independent Variable (IV), Quality Assurance (QA), Environmental Regulation and Policy (ERP), Organizational Performance (OP), Moderating Variable (MV).

4.4.1.1.2 The Convergent Validity Analysis

The convergent validity is regarded as the degree in which a group of variables converge in measuring a particular concept (Hair et al., 2010). As opined by Hiar et al. (2010), in establishing the convergent validity, three criteria should be tested concurrently, namely: the factor loadings, composite reliability (CR) and average variance extracted (AVE). Hence, the loading of all items were examined where all items have loading more than 0.5 which is an acceptable level by following the literature of multivariate analysis (Hair et al., 2010). Table 4.4 shows that all the factors' loading were significant at the 0.01 level of significance. The second criterion to test convergent validity is the composite reliability which refers to the degree which a set of items consistently indicate the latent construct (Hair et al., 2010). In Table 4.4, the values of Cronbach Alpha and Composite reliability were examined. The values of Cronbach Alpha ranged from 0.890 to 0.964 and the composite reliability ranged from 0.759 to 0.971 which exceeds the recommended level of 0.7 (Fornell & Larcker, 1981; Hair et al., 2010). These results confirm and affirm the convergent validity of the outer model. Therefore, the values of the average variance extracted (AVE) were examined in order to confirm the convergent validity of the outer model. AVE indicates the average of variance extracted among a group of items in

relation to the variance shared with errors from measurement. Furthermore, AVE measures the variance covered by indicators in relation to the variance assigned to the measurement errors. Hence, when the value of AVE is at least 0.5, these set of items have an adequate convergence in measuring the concerned construct (Barclay et al., 1995). In this study, AVE values range from 0.510 to 0.919 that indicate a good level of construct validity of the measures employed (Barclay et al., 1995).

Table 4.4
The Convergent Validity Analysis

Construct	Items	Loading	Cronbach's Alpha	AVE	Cr
Continuous Process Improvement	CP3	**0.957**	0.923	0.892	0.961
	CP4	**0.934**			
	CP5	**0.942**			
	CP6	**0.847**	0.928	0.787	0.948
	CP7	**0.845**			
	CP8	**0.924**			
	CP9	**0.916**			
	CP10	**0.899**			
	CP11	**0.963**	0.944	0.919	0.971
	CP12	**0.964**			
	CP13	**0.949**			
Organizational Performance	OP1	**0.883**	0.946	0.646	0.916
	OP10	**0.694**			
	OP11	**0.720**			
	OP2	**0.790**			
	OP4	**0.847**			
	OP5	**0.870**			
Environmental Regulation and Policy	ERP2	**0.872**	0.941	0.775	0.960

	ERP3	**0.859**			
	ERP4	**0.910**			
	ERP6	**0.913**			
	ERP7	**0.922**			
	ERP8	**0.869**			
	ERP9	**0.811**			
Quality Assurance	QA1	**0.562**	0.918	0.568	0.792
	QA3	**0.778**			
	QA5	**0.884**			
	QA10	**0.740**	0.892	0.752	0.923
	QA7	**0.925**			
	QA8	**0.841**			
	QA9	**0.947**			
	QA11	**0.015**	0.891	0.510	0.759
	QA12	**0.861**			
	QA13	**0.795**			
	QA14	**0.816**			

CR = (Σ factor loading) 2 / {(Σ factor loading) 2) + Σ (variance of error)}
AVE = Σ (factor loading) 2 / {Σ (factor loading) 2 + Σ (variance of error)}

Continuous Process Improvement (CP), Dependent Variable (DV), Independent Variable (IV), Quality Assurance (QA), Environmental Regulation and Policy (ERP), Organizational Performance (OP), Moderating Variable (MV).

4.4.1.1.3 The Discriminant Validity Analysis

To affirm the construct validity of the outer model, it is very paramount to establish the discriminant validity. Therefore, before testing the hypotheses through the path analysis, discriminant validity testing is compulsory. Its measures reveal the degrees to which items differentiate among constructs. In another vein, the discriminant validity shows that

items used different constructs do not overlap. Additionally, the discriminant validity of the measures shared variance between each construct; therefore should be greater than the variance shared among distinct constructs (Compeau, Higgins, & Huff, 1999). For this study's purpose, the discriminant validity of the measures was ascertained by employing the method of Fornell and Larcker (1981). As illustrated in Table 4.4, the square root of AVE for all constructs was replaced at the diagonal elements of the correlation matrix. Therefore, the discriminant validity of the outer model for this study was confirmed where the diagonal elements in the table were higher than the other elements of the column and row where they are located. From the testing made above for construct validity of the outer model, it is believed that the obtained results pertaining to the hypotheses testing should be highly reliable and valid.

Table 4.5
*The Discriminant Validity Matrix (**Latent Variable Correlation**)*

	CP1	**CP2**	**CP3**	**DV**	**MV**	**QA1**	**QA2**	**QA3**
CP1	0.944298							
CP2	0.871225	0.886948						
CP3	0.742913	0.918043	0.958693					
DV	0.819781	0.851274	0.82657	0.803841				
MV	0.443233	0.585481	0.627307	0.603632	0.880277			
QA1	0.167763	0.026998	0.022414	0.174333	0.094456	0.753432		
QA2	0.098989	0.037628	0.02668	0.15595	0.011435	0.315688	0.867125	
QA3	0.683504	0.085557	0.676028	0.35243	0.339078	0.074989	0.032308	0.71411

Continuous Process Improvement (CP), Dependent Variable (DV), Independent Variable (IV), Quality Assurance (QA), Environmental Regulation and Policy (ERP), Organizational Performance (OP), Moderating Variable (MV).

4.4.2 The First-Order Constructs

Before moving forward to examine the conceptual and theoretical aspect of the order constructs of the model, the distinctions between the first and second order measurement models have been explained as discussed in the following paragraphs:

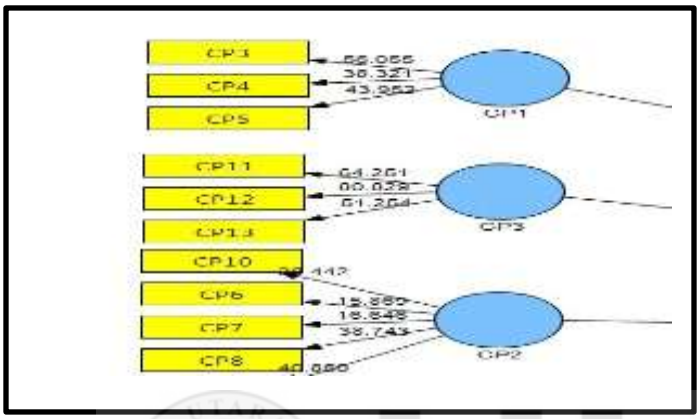


Figure 4.2
First Order Measurement Model of TQM- CP

As shown in Figure 4.2, Total quality management-continuous process improvement as a latent construct was measured by a set of measured variables namely CP1 to CP10. Similarly, as Total Quality Management-quality assurance constructs was measured directly by 15 items through other layer of latent constructs. Therefore, the independent variables are called a first-order measurement model. The second-order factor structure has two layers of latent variables. In this study as example, continuous process improvement and quality assurance being an elements of Total Quality Management (TQM) considered, environmental regulation and policy (ERP) and organizational performance(OP) are called a first-order constructs as they are directly linked together (Hair et al., 2010). The following sub-sections illustratively justify more using TQM, ERP, & OP as a second-order factor models.

4.4.3 The Assessment of the Inner Model and Hypotheses Testing Procedures

When the goodness of the outer model has been confirmed, the next thing was to test the hypothesized relationships among the variables. Through the running of PLS Algorithm using SmartPLS, the hypothesized model was tested. Therefore, the path coefficients were generated as illustrated in the Figure 4.3 below.

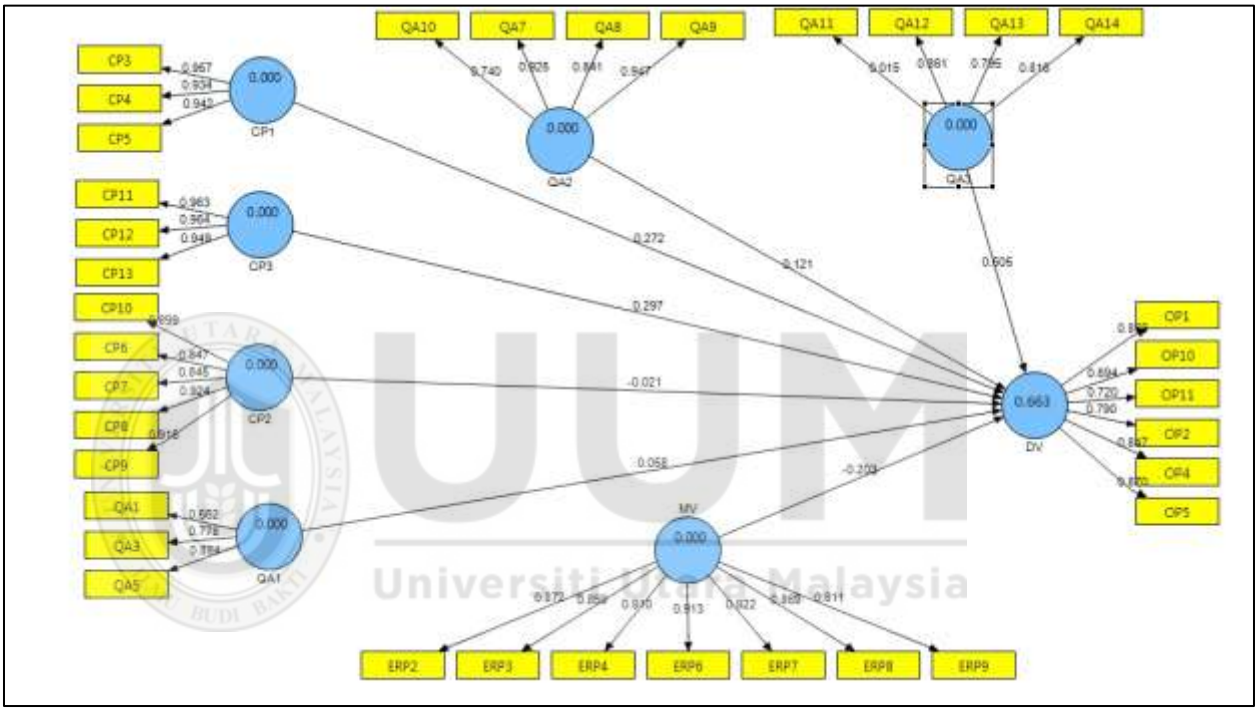


Figure 4.3: *Path Model Significance Results*

Table 4.6
The Results of the Inner Structural Model

Hypothesis	Path Coefficient	Standard Error	T Statistics	P Value	Decision
H_1: QA1 -> DV	0.058	0.060	1.021	0.160	Not Supported
H_2: QA2 -> DV	0.120	0.088	1.324	0.190	Not supported
H_3: QA3 -> DV	0.604	0.153	3.751	0.000	Supported
H_4: CP1 -> DV	0.272	0.125	2.180	0.002	Supported
H_5: CP2 -> DV	-0.021	0.202	0.115	0.450	Not Supported

H_6: CP3 -> DV	0.296	0.139	2.248	0.001	Supported
H_7&H_8: MV -> DV	-0.202	0.113	1.689	0.005	Supported

Continuous Process Improvement (CP), Dependent Variable (DV), Independent Variable (IV), Quality Assurance (QA), Environmental Regulation and Policy (ERP), Organizational Performance (OP), Moderating Variable (MV).

For the purpose of drawing conclusion whether the path coefficients are statistically significant or not, bootstrapping techniques embedded in this study with SmartPLS 2.0. As reported in table 4.6, the T-Values with each path coefficient were determined using bootstrapping technique and P-Values subsequently were generated. The results showed that Quality assurance as Total Quality management (TQM) element has no significant effect on Organizational Performance (β = 0.058, t = 1.021, p>0.1). Therefore the hypothesis H_1 of the effect of QA (Strategic Planning) on organizational performance was not supported. The other hypothesis H_2 (Process Focus) does not also have significant effect on organizational performance (β = 0.120, t = 1.324, p>0.1) while H_3 (β = 0.604, t = 3.751, p<0.01) of QA (Production and delivery) has a significant effect on organizational performance. Also, Continuous Process Improvement, CP: CP1, Quality process (β = 0.272, t =2.180, p< 0.01) has significant effect, CP2, Continuous product and service development (β = -0.021, t = 0.115, p>0.1) has no significant effect, while CP3, Feedback (β = 0.296, t = 2.248, p< 0.01) has a positive significant effect on Organizational performance making the hypotheses H_4 H_5 and H_6: supported, not supported and supported respectively. Lastly, the result (β = -0.202, t = 1.689, p< 0.01) showed that ERP has a positive significant effect on organizational performance making hypotheses H_7 and H_8 to be supported.

As it is normal that the self-assessment showed high performance, this study revealed that the respondents criticized the current performance in food and beverage companies which is a reflection of the problem of the study. Also, the small values of standard deviation indicated the fact that this perception is virtually agreed upon among most managing directors of food and beverage companies.

4.4.4 Testing the Moderating Effect of Environmental Regulations and Policy

According to the theoretical framework of this study, the moderating effect of environmental regulation and policy has been proposed between TQM (i.e. QA and CP) and Organizational performance. For testing the moderating effect of environmental regulation and policy, SmartPLS 2.0 was used to examine the effect. As illustrated in table 4.7, the results showed that there is a full moderating effect of environmental regulation and policy in the relationship between QA and organizational performance at the 0.01 level of significant ($\beta = 0.374$, $t = 1.000$, $p < 0.01$) according to the bootstrapping method. Therefore, the result supports hypotheses of the study as postulated in $H_{7.}$ In addition, the moderating effect of ERP in the relationship between CP and organizational performance has been found to be significant ($\beta = 0.743$, $t = 0.757$, $p < 0.01$) and therefore, hypotheses H_8 supported this study.

Table 4.7
Testing the Moderating Effect of Environmental Regulation and Policy

Hypothesis	Path Coefficient	Standard Error	T Statistics	P value	Bootstrapping Effect
CP1 -> DV	0.743	0.981	0.757	0.450	
CP1 * MV -> DV	-0.705	1.341	0.525	0.300	Moderating effect
CP2 -> DV	0.524	1.833	0.285	0.390	
CP2 * MV -> DV	-0.700	2.551	0.274	0.390	Moderating effect

CP3 -> DV	-1.150	1.222	0.941	0.170	
CP3 * MV -> DV	1.994	1.624	1.227	0.110	Moderating effect
MV -> DV	0.374	0.374	1.001	0.160	
QA1 -> DV	0.0329	0.328	0.100	0.460	
QA1 * MV -> DV	0.133	0.474	0.281	0.390	Moderating effect
QA2 -> DV	0.622	0.407	1.528	0.070	
QA2 * MV -> DV	-0.628	0.486	1.291	0.100	Moderating effect
QA3 -> DV	1.024	0.563	1.817	0.040	
QA3 * MV -> DV	-0.828	1.087	0.761	0.220	Moderating effect

Continuous Process Improvement (CP), Dependent Variable (DV), Independent Variable (IV), Quality Assurance (QA), Environmental Regulation and Policy (ERP), Organizational Performance (OP), Moderating Variable (MV).

4.4.5 The Predictive Relevance of the Model

In the study of multivariate data analysis, R square of the endogenous variable is explained by the predictor variables. Therefore, the R square's magnitude for the endogenous variables were considered to be an indicator of predictive power of the model. In addition, the technique of reapplying sample was implemented as developed by Stone (1975) and Geisser (1975) to confirm the predictive validity of the model. As convincingly argued by Wold (1985), PLS is employed as very well and fit software for the sample's reuse technique for this purpose (Gotz, Liehr-Gobbers, & Krafft, 2011).

4.4.5.1 Cross-Validated Redundancy

The model predictive relevance can be examined using the stone-Geisser non-parametric test (Chin, 1998; Fornel & Cha, 1994; Geisser, 1975; Stone, 1975). Using Smart-PLS package, the blindfolding procedure can be performed to examine the predictive of the

model. Blindfolding step is then designed to discard some data while handle them as a missing values for parameters estimation. Therefore, the estimated parameters are employed again to rebuild the raw data that are supposed earlier to be missed. Due to this blindfolding process, a general cross-validating metrics Q^2 is produced.

In general, there are several Q^2 that can be gotten based on the form of the chosen prediction. A cross-validated communality is obtained when the points of the data are predicted using the underlying latent variable scores. While the prediction of the data points is acquired by the LVs that predict the block in question, a cross-validated redundancy Q^2 is the output. It has been opined by Fornell and Cha (1994) that the cross-validated redundancy measure can be considered as a reliable indicator of the model predictive relevance under control. Fornell and Cha (1994) stated that the redundancy communality was discovered to be larger than 0 for all endogenous variables. Thus, the model is regarded to have predictive validity, but if not, the predictive relevance of the model cannot be concluded. As indicated in table 4.8, the cross-validated redundancy for organizational performance is 0.550. Thus, according to the criteria suggested by Fornell and Cha (1994), all value is more than zero which shows that there is an adequate predictive validity of the model.

Table 4.8
Predictive Quality Indicators of the Model

Total	SSO	SSE	1-SSE/SSO
DV	762	342.440801	0.550603

4.4.5.2 R-square

According to literatures, R square is the indicator that shows the amount of variance examined in the endogenous variable by its exogenous variable. R square reflects the

quality of the variables included in the model (Hair et al. 2010). However, there are many criteria that can be employed as guidelines in assessing the level of R square. For example, Cohen (1988) criterion opine that R square value equal 0.26 or more is considered to be substantial, 0.13 moderate, and 0.02 weak. Meanwhile, Chin (1998) criterion state that R square value equal or more than 0.67 is substantial, 0.33 moderate, and 0.19 weak.

From the criteria mentioned above, the R square of the endogenous variables namely environmental regulation and policy and organizational performance are 0.651 and 0.663 respectively as provided in Table 4.9.

4.4.5.3 Effect size

In accordance with criterion suggested by Cohen (1988), the effect size is less than 0.02 (0.02 = small, 0.15= medium, 035=high). From table 4.9, the effective size of organizational performance , and the interaction terms , some interaction are above 0.1 while some other are less and considered to be small. The interaction was large only with CP which is considered as small.

$$\text{Effect size (f)} = \frac{R^2_{incl} - R^2_{excl}}{1 - R^2_{incl}}$$

Table 4.9
Direct Effect IV-DV

R-squared	Included	Excluded	f-squared	Effect size
QA2	0.663	0.649	0.1022	Small
MV	0.663	0.651	0.0876	Small
QA1	0.663	0.66	0.0219	Small
CP2	0.663	0.662	0.0073	Non
CP1	0.663	0.648	0.1095	Small

CP3	0.663	0.65	0.0949	Small
QA3	0.663	0.609	0.3942	Large

Continuous Process Improvement (CP), Dependent Variable (DV), Independent Variable (IV), Quality Assurance (QA), Environmental Regulation and Policy (ERP), Organizational Performance (OP), Moderating Variable (MV)

Table 4.10
Direct Effect MV- IV

R-squared	Included	Excluded	F-squared	Effect size
QA2	0.69	0.678	0.1091	Supported
QA1	0.69	0.690	0.0000	Not Supported
QA3	0.69	0.688	0.0182	Not Supported
CP1	0.69	0.689	0.0091	Not Supported
CP2	0.69	0.690	0.0000	Not Supported
CP3	0.69	0.686	0.0364	Supported

Continuous Process Improvement (CP), Dependent Variable (DV), Independent Variable (IV), Quality Assurance (QA), Environmental Regulation and Policy (ERP), Organizational Performance (OP), Moderating Variable (MV).

4.4.6 The Goodness of Fit of the Whole Model

In contrast to CBSEM approach, PLS structural equation modeling has only one single measure for goodness of fit. According to Tenenhaus *et al*. (2005), goodness of fit measure (GoF) of PLS is defined as the geometric mean of the mean of the average communality and average R square for the endogenous constructs. Due to this reason, GoF measure accounts for the variance extracted by both inner and outer model. Following the guidelines set up by Wetzels, Odekeren-Schroder, and Van Oppen (2009), the following formula is given:

$$GoF = \sqrt{(\overline{R^2} \times \overline{AVE})}$$

In this study, the GoF value was obtained by using the above formula to get the following figure:

$$GoF = \sqrt{(0.663 \text{ x } 0.7311)} = 0.6962$$

The comparison was done based on the baseline values of GoF by Wetzels *et al*. (2009) (small = 0.1, medium = 0.25, large = 0.36). Therefore, the results proved that goodness of fit of the model is showing an adequate PLS model validity.

4.5 Summary of the findings

This study used Partial Least Square Structural Equation Modeling (PLS-SEM) as the analysis technique. In this particular chapter, an exclusive treatment of the PLS-SEM mechanism technique of analysis was unfolded as PLS is a new analysis technique in construction. Before the model of this research is tested, some important steps were followed to establish the reliability and validity of the outer model as a standard reporting in SEM data analysis. After the proof on the validity and reliability of the measurement model, the hypotheses on the relationships were also tested. After the hypothesized relationship examinations between the constructs, the predictive power of the model was also examined and reported; then followed by testing the goodness of the overall model which was eventually confirmed. The final procedure was examining the structural model and the results were given in details. The table below 4.11 shows the results of the tested hypothesis.

Table 4.11
Summary of the Results

Hypothesis	Hypothesis Path	Decision
H_1	Quality assurance as a TQM element has a significant effect on financial performance of an organization	Not supported
H_2	Quality assurance as a TQM element has a significant effect on operational performance of an organization	Not supported
H_3	Quality assurance as a TQM element has a significant effect on customer satisfaction of an organization	Supported
H_4	Continuous process improvement as a TQM element has a significant effect on financial performance of an organization	Supported
H_5	Continuous process improvement as a TQM element has a significant effect on operational performance of an organization	Not supported
H_6	Continuous process improvement as a TQM element has a significant effect on customer satisfaction of an organization	Supported
H_7	Environmental regulation and policy moderates the effect of quality assurance on the organizational performance significantly	Supported
H_8	Environmental regulation and policy moderates the effect of continuous process improvement on the organizational performance significantly	Supported

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the study. The first part of this chapter discusses the beginning with the issues and motivations behind the research, and then followed by the research design; conclude with the statistical analysis techniques employed and outcomes of statistical tests in the previous chapter, the contribution of the study and the results' possible implications. The end parts report the limitations of this study and highlight the potential directions for future research.

5.2 Discussion

In the last few years, TQM has been considered to be one of the most important management instrument and a managerial philosophy that leads to the organization's continuous improvement and increase customers' satisfaction and ultimately achieve financial performance (Dean & Bowen, 1994; Shiba, Graham & Walden, 1993; Flynn, Schroeder & Sakakibara, 1994; Grant, Shani & Krishnan, 1994). In the literature, there are several researches examining the effect of TQM in different context and types such as services, public sector, industry, SMEs, manufacturing and higher educational institutions (Al-Swidi & Mahmood, 2011; Douglas & Judge, 2001; Sohal & Terziovski, 2000; Saravanan & Rao, 2006; *et al*., 2004; Demirbag *et al*., 2006; Mohd Nizam & Tannock, 2005; Sohail & Hoong, 2003)

The present literature of quality management showed that the results regarding the relationship between TQM practices and organizational performance are inconsistent

(Kaynak, 2003). Most of the researches that have been conducted reported positive results (Arawati, 2005; Flynn *et al*., 1995; Douglas & Judge, 2001; Kaynak, 2003; Molina-Azorin *et al*., 2009; Sila & Ebrahimpour, 2005; Yasin *et al*., 2004), and yet on the other hand, some other studies reported opposite results (Dooyoung, Kalinowski, & El-Enein, 1998; Sanchez-Rodriguez & Martinez-Lorente, 2004; Sila & Ebrahimpour, 2002). Due to this discrepancies and inconclusive results, some researchers such as Ehigie and McAndrew (2005) suggested that more research should be done about relationship in the light of some other potential influencing variables.

Similarly, the previous literature has conflict results on the role of quality assurance in organizations. A relevant quality assurance literature shows that there are many studies conducted to examine the relationship between quality assurance and organizational performance. Despite of this extensive research work, many empirical studies reported inconclusive results (Kang et al., 2008). Many of these studies argued that quality assurance can increase organizational performance whether financial or non-financial, provide many benefits, enhancing customer services, minimizing inventory, improving sales growth, and help organizations to gain competitive advantages over competitors (Bendoly & Kaefer, 2004; Chung *et al*., 2007; Florescu *et al*., 2010; HassabElnaby *et al*., 2012; Hunton *et al*., 2003; Park *et al*., 2007; Poston & Grabski, 2001; Shatat & Udin, 2012; Velcu, 2007). In contrast, other researchers found negative results that quality assurance may affect the organizational performance adversely (Mohmood & Mann, 1993; Weill, 1992; Wieder *et al*., 2006).

In line with TQM practices, although there are extensive researches conducted in literatures of quality management, several studies pointed out that the relationship

between continuous process improvement and organizational performance is still inconclusive. Many researchers found that continuous process improvement is part of TQM element which is positively related to organizational performance (Brun, 2011;Catalin, Bogdan, & Dimitrie, 2014; Christofi, et al., 2008; Williams, Babatunde, & Jeleel, 2012; Wei, Zhao, & Zhang, 2014; Wiklund, 1999; Zahra & Covin, 1995). However, some others reported opposite results (Wiklund & Shepherd, 2005). However, the effect of continuous process improvement on the performance of organizations was not elaborately investigated in the literature. In order to resolve this inconsistency, other factors should be considered on this relationship for further investigation (Wiklund & Shepherd, 2005). Therefore, in this present era of fast-paced technological advancement and globalization, organizations should inculcate continuous process improvement in their system and practices for more development, growth and survival (Dess, Lumpkin & McGee, 1999).

Environmental regulation and policy has been considered as a holistic approach that improves the performance of an organization (Chervinski, 2014), and has high impact on business performance (Santos-Reyes & Lawlor-Wright, 2001). Abiding by the rules and regulations is the main driver of excellence that can enhance and promote the organizations from TQM to business excellence level (Mele & Colurcio, 2006). In this study, because of the inconclusive results of QA and CPI and their relationship with organizational performance, environmental regulation and policy was proposed to be the mechanism that can explain those relationships in clearer way. In other words, environmental regulation and policy as an outstanding practice may help organizations to

achieve the best results in organizational performance through implementing rare practices such as QA and CPI.

The motivation behind this study is the inconclusive findings in the recent related literature concerning the relationship between TQM elements, ERP and organizational performance. However, the inconsistent findings of these relationships need further study to solve the issues and challenges behind that (Al-Swidi & Mahmood, 2011c).

In addition, this study was motivated by the fact that the variables considered in this study being QA and CPI have similar objectives in enhancing organizational performance and equally share important success factors. Although, there are comprehensive review of literatures which disclosed the fact that, there has been an extensive research work regarding the discrete effect of QA, CPI and ERP on organizational performance; the corollary impact of all of them has been unnoticeably neglected.

The main objective of this study was to investigate the moderating role of environmental regulation and policy between TQM elements such as QA and CPI and organizational performance as reflected in Malaysian food and beverage companies. Also, this study investigates the collective joint effect of QA, CPI, and ERP on organizational performance.

Thus, based on the problem highlighted in this study from chapter one and the comprehensive review of the relevant literature in chapter 2, this study aimed to achieve the following main objectives:

1. To examine the relationship between Quality Assurance as TQM element and Organizational Performance.

2. To examine the relationship between Continuous process improvement as TQM element and Organizational Performance.

3. To examine the moderating effect of Environmental regulation and policy between Quality assurance and organizational Performance.

4. To examine the moderating effect of Environmental Regulation and Policy between Continuous Process Improvement and Organizational Performance.

For the purpose of establishing the aforementioned objectives of this study, a comprehensive literature review was conducted in chapter 2. The previous literature related to quality assurance and continuous process improvement revealed that total quality management despite their wide use and practice in SMEs, public and service organizations, there are minimal researches in agro-allied industry, specifically in food and beverage companies. As it has been stated earlier, the majority of the previous researches related to TQM reported positive effect on organizational performance. On the other hand, TQM implementation and practices were not successful in all cases. Therefore, some authors paid a considerable attention to examine the reasons behind failure of these practices. However, other researchers opined that some other influential variables in the relationships of these variables for better explanation and findings.

As discussed in chapter 2, the theoretical framework of this study could be grounded and underpinned by many theories such as organization and administrative theory, resources based view (RBV), progressive utilization theory (PROUT), contingency theory and institutional theory. However, contingency theory is the main theory in this study while

institutional theory is employed to complement it. Contingency theory underlies on the match between available opportunities and organizational capabilities which will lead to achieve and increase organizational performance. Institutional theory provides a theoretical lens through which researchers can identify and examine influences that promote survival and legitimacy of organizational practices, including factors such as culture, social environment, regulation (including the legal environment), tradition and history, as well as economic incentives, whilst acknowledging that resources are also important (Baumol *et al*., 2009; Brunton *et al*., 2010; Hirsch, 1975; Lai *et al*., 2006; Roy, 1997).

In the light of the objectives of this study in chapter 1 and chapter 2, variables are deduced to be used and formulate the framework of this study. Thus, to test the developed theoretical framework, a quantitative methodology approach has been applied that was introduced in chapter 3. According to the problem statement, research questions, research objectives, and literature review, hypotheses of this study have been developed and suitable to be empirically tested. According to the research methodology and research design, a survey questionnaire was used to collect the data that reflected the constructs of the study. All the questions used in the questionnaire were either adopted or adapted from previous and different resources to support the content validity. Also, a Likert scale was used to measure all the items.

In collecting the data of the study, questionnaires are sent by mail and later returned by stamped addressed envelope by postal mail. This method was adopted for the entire population. The questionnaire was produced in two languages: English Language and

Bahasa Melayu. A number of 250 questionnaires have been distributed and 71 have been returned representing 28.4% as a response rate. For the purpose of analyzing the collected data, structural equation modeling partial least squares (PLS-SEM) has been employed through SmartPLS software; however, SPSS was employed to obtain the descriptive data, non-response bias, and normality testing. The results of the analyzed data were reported in chapter 4 to be further in this chapter. Additionally, the discussion of results of the analyzed data in this chapter, recommendation, contribution of this study, limitation, direction of future research and conclusion has been concluded.

5.3 Discussion on Research Objectives

This section explains the theoretical and empirical analysis between the constructs considered in the study. It further justifies how the research objectives of this study are met and achieved.

5.3.1 Relationship between TQM and Organizational Performance

For the main objective of this study to be achieved regarding the effect of TQM on organizational performance, the relationship between TQM and organizational performance were examined through quality assurance and continuous process improvement. As illustrated in chapter 4, the relationship between TQM, as a composite construct, and the organizational performance was found positive in some of the QA and CP dimensions, while negative in some. This result is consistent with the finding of the exsiting studies (Flynn *et al*., 1995; Douglas & Judge, 2001; Irfan, Ijaz, Kee, & Awan, 2012; Kaynak, 2003; Kumar *et al*, 2009; Llorens Montes & Verdu Jover, 2004; Molina-Azorin *et al*., 2009; Munizu, 2013; Pinho, 2007). The results suggested that TQM practice is crucial for Malaysian food and beverage companies to attain its objectives and

achieve the intended performance. Without doubt, food and beverage companies in Malaysia with an effective and efficient TQM implementation would be able to mitigate customers' and society complaints, increase their satisfaction, produce good delivery system and eventually lead to high performance.

The result supported the positive and significant impact of TQM on organizational performance which is broadly reported in the literature of quality management; and also the importance of TQM as a management philosophy and a determinant for any organization to survive, develops, and delights its customers (Khamalah & Lingaraj, 2007; Kumar *et al*., 2009). In addition, successful implementation of TQM can help food and beverage companies to improve the services and avoid many defects in their daily work. Successful TQM initiatives lead to reduction in competitive work, improvement in services offered, increase in number of employees and customers' satisfaction and also improve the entire organization performance. Therefore, TQM successful initiatives can reduce and maintain the rate of errors (Al-Mansour, 2007).

Since the contribution degree of each TQM critical factor varies (Llorens Montes & Verdu Jover, 2004), this study hereby conducted more examinations of the importance of each TQM factor. The comprehensive understanding of TQM factors can help the managers of food and beverage companies for a better utilization of the available resources. Therefore, towards a successful practical implementation of TQM, more attention must be paid and more investment should be allocated for highly contributing TQM elements when compared to less contributing factors. Past studies reported mixed results regarding the relationships between TQM dimensions and organizational performance (Rahman & Bullock, 2005). Table 4.6 in Chapter 4 showed that the TQM

elements are significant predictors of the organizational performance which will be discussed in the following sub-sections.

5.3.2 Quality Assurance and Organizational Performance

The results of this study showed that quality assurance has insignificant effect on organizational performance as shown in Table 4.11 in Chapter 4, page 110. Therefore the hypothesis H_1 ($\beta = 0.058$, $t = 1.021$, $p>0.1$) of the effect of QA (Strategic Planning) on organizational performance was not supported. The other hypothesis H_2 (Process Focus) does not also have significant effect on organizational performance ($\beta = 0.120$, $t = 1.324$, $p>0.1$) while H_3 ($\beta = 0.604$, $t = 3.751$, $p<0.01$) of QA (Production and delivery) has a significant effect on organizational performance. In general, it shows quality assurance does not have significant effect on organizational performance. These finding is inconsistent with other studies that found a strong relationship between quality assurance and organizational performance (Lau & Tang, 2009; Law, 2010; Timothy, 2008; Mergenthaler, Weinberger & Qaim, 2009; Llorens-Montes & Verdu-Jover, 2004; Talib *et al*., 2013). Lakhe and Mohanty (1995) argued that consistent quality assurance would improve the organizational performance.

The insignificant effect of quality assurance on organizational performance in food and beverage companies (FBC) could be explained by the fact that customer‘s voice still absent. The impact of customers on organizational quality assurance is still not effective (AL-Zamany *et al*., 2002). In other words, the traditional performance measures of FBC towards focusing on the customers‘ services requirements had become outdated and needs to be improved and changed (Langworthy, 1999). For the sake of improving the assurance of quality, FBC of Malaysia should look again at their policies and reengineer

them if needed, and in turn link them to the capabilities of their employees to enhance the quality of their service.

Furthermore, the results showed the lack of reviewing the quality assurance before introducing and marketing which reflects unsatisfied beneficiaries. In addition, the results also indicated the lack of participation when planning and designing the new service from employees in different departments of Malaysian FBC.

5.3.3 Continuous Process Improvement and Organization Performance

Continuous process improvement is considered one of the most important factors that search for never-ending improvement the output performance (Talib *et al*., 2013). Based on the results illustrated in Table 4.6 in Chapter 4, at page 103 Continuous Process Improvement was found to be significant with organizational performance in all dimensions. That is Continuous Process Improvement, CP: CP1, Quality process (β = 0.272, t =2.180, p< 0.01) has significant effect, CP2, Continuous product and service development (β = -0.021, t = 0.115, p>0.1) has no significant effect, while CP3, Feedback (β = 0.296, t = 2.248, p< 0.01) has a significant effect on Organizational performance making the hypotheses H_4 H_5 and H_6: supported, not supported and supported respectively. This result is in contrast to other previous study (Yusuf *et al*., 2007; Benavent *et al*., 2005; Christos *et al*., 2010; Gatchalian, 1997; Lakshman, 2006; Powell, 1995; Talib *et al*., 2013), however, in line with the study of Burli *et al*. (2012) that found continuous process improvement to be significantly affecting organizational performance.

The result shows that the continuous process improvement practices are not given attention and not implemented effectively in Malaysian food and beverage companies (FBC). FBC as a sub-set of an agro-based industry focuses more on achieving the daily jobs that related to issues happening within the unit of organizations and how it affects the employees and customers. Therefore, they do not pay more attention on how they can improve such service through implementing the continuous process improvement. The continuous process improvement should not only concern on some practices but cover all management practices (Benavent *et al*., 2005). In rapid urbanization needs, FBC should be continuously sensitive to the constituent needs for more successful implementation of TQM practices, managers and employees; FBC should plan and implement a comprehensive continuous process improvement programs that involve all members and levels in the organization. The TQM practice in FBC should involve all the processes and functions integrated to meet customer needs and achieve the desired continuous process improvement (Ganiyu, Uche, & Elizabeth, 2012). The lack of training which was explained above also leads to reduction in the speed of improvement. Therefore, training, involvement, process quality, company products and services, feedback system are the best practices to enhance the continuous process improvement to cover all management practices (Benavent, Ros, & Moreno-Luzon, 2005).

Furthermore, the results indicated that activities and operations in FBC are not given the proper improvement that can focus more on quality as a long-term goal rather than the short-run. Therefore, FBC should increase the awareness among top managers and employees in departments to practice improvement as a strategy that can enable them to serve customers in a better way to fulfill the desired competitive advantages.

5.3.4 The Moderating Role of Environmental Regulation and Policy between Total Quality Management (TQM) and Organizational Performance (OP)

In order to answer the questions raised on this study and meet the research objectives, the researcher investigated the moderating effect between TQM (using Quality assurance and continuous process improvement) and organizational performance. As it can be seen in Table 4.7 in Chapter 4, page 105, the moderating effect of Environmental regulation and policy between TQM and organizational performance was confirmed at the 0.01 level of significance ($\beta = 0.374$, $t = 1.001$, $p < 0.01$) according to the bootstrapping method. This result supported the hypotheses H_7 and H_8 of the study. Moreover, this finding confirmed the logical use of environmental regulation and policy as a practice that can help organizations to improve performance through TQM implementation through quality assurance and continuous process improvement (Kaur, Singh, & Ahuja, 2013). In other words, ERP in this study plays the role of the mechanism that explains the effect of TQM on organizational performance.

Some studies previously confirmed the positive relationship between TQM and organizational performance from one view, and ERP from other view. Therefore, the collective impacts of these variables on organizational performance is logically proposed and confirmed in this study. The result also reflects the importance of the regulation and policy as a mechanism that can explain the effect of TQM practices to improve organizational performance through quality assurance and continuous process improvement. Lastly, the result reflects the awareness of FBC in following regulations and policy in their daily work.

5.4 Conclusions

After the discussion on the relationships between the constructs involved in this study, with the result analysis and findings subsequently, the following contributions of the research work carried out conclude the research undertaken.

5.4.1 Contributions of the Study

In this study, many insights and ideas concerning the issues related to the organizational performance of Malaysian food and beverage companies have been raised. The current study, as to date is one of very few studies conducted in the Asian world to examine the joint effect of TQM and ERP on organizational performance under agro-allied sector. Additionally, this study is an attempt to expand and strengthen the boundary of the current existing knowledge in the literature by investigating the moderating effect of environmental regulation and policy on the organizational performance using PLS-SEM analysis. Therefore, by incorporating the effect of QA, CPI, and ERP, this study has many contributions in the literature and practice. In the following sub-sections, some contributions of this study are elaborated.

5.4.1.1 Contributions to the Literature

This study is conducted to increase the understanding of the connection existing between TQM, ERP and organizational performance. According to the results of the past studies, the framework of the study was developed and employed as a tool to examine the hypothesized relationships. In chapter 1, the significance of this study has been clearly discussed. So many contributions are discussed as follows:

Firstly, this study demonstrated the importance of TQM in agro-allied industries, particularly in the food and beverage companies. Additionally, it contributed theoretically to the TQM literature by reexamining the unresolved matter concerning the relationship between TQM and organizational performance. The inconsistency among researchers in the literature regarding the impact of TQM on organizational performance called for further discussion and investigation. Moreover, this study contributed significantly to the literature by integrating the effective ERP as the innovative strategies and practices to the theoretical model to better explain the variance in the construct of organizational performance.

Second, this study reported the significance of CPI for enhancing the overall organizational performance. However, the direct effect of CPI on organizational performance was not confirmed as some of the CPI's items showed a negative effect on organizational performance. The previous studies in the literature reported inconsistent results. Some of these results showed that CPI can enhance the performance positively, but other argued that CPI can affect the performance negatively and sometimes considered as the main reason for collapsing (Chervinski, 2014; Leshinsky, 2012; Marquita, 2010). Therefore, in this study CPI was examined with other strategic element to prove its significance level.

Third, the current study showed the significance of QA on the organizational performance. Due to the inconsistent results about this relationship, this study contributed to the management literature by reexamining the effect of QA on organizational performance. However, there are bulk research works in the literature that tested the effect of QA on organizational performance; still there is no agreement among the

researchers. As a result of the inconclusiveness in results, many practitioners and academics questioned the suitability of QA strategy for organizational performance (Wiklund & Shepherd, 2005). The findings of this study, however, confirmed the positive significant impact of QA on the organizational performance.

Fourth, the results of the current study revealed that the joint effect of QA, CPI and ERP on the organizational performance was stronger than the separate effect of each of these strategies alone. In addition to that, this study suggested that QA, CPI and ERP should be practiced and implemented as integrated strategies. This can be noticed from the inter-dependent exhibited among the dimensions of every construct. Moreover, when comparing the impact of QA, CPI and ERP as composite variables with their measurements on organizational performance, they are hardly recommended that these practices and strategies should be considered as bundles rather a grouping of strategies and practices.

Fifth, this study provided an important examination about the role played by Environmental regulation and policy in increasing the organizational performance. The moderating effect of Environmental regulation and policy as a mechanism that can explain the relationships more between QA, CPI and organizational performance was examined. The results revealed that Environmental regulation and policy plays an important role in creating and enhancing organizational performance. In addition, the significance of Environmental regulation and policy contributes to the contingency theory as environment is one of the contingency factors that influence the selection of management practices and adding it as an important resource to achieve the organizational competitive advantages (Doty *et al*., 1993).

Sixth, the majority of previous studies concentrated on the public and services sectors. However, this study in contrary extends the existing literatures concerning TQM, ERP and organizational excellence in the manufacturing sector, taking the food and beverage companies as a case. Most of studies in manufacturing sector in general were conceptual, observational, and descriptive in nature. Therefore, this study on the food and beverage companies in Malaysia has been an attempt to add to existing empirical literatures.

Finally, in addition to the hypotheses testing and the model testing, this study conducted a rigorous analysis on the validation instrument. Majority of the previous studies depended on the traditional instrument validation such as factor analysis and Cronbach alpha coefficient. These kinds of instruments are not sufficient in the current complex needed analysis. More specifically, the present study used Partial Least Squares Structural Equation Modeling (PLS-SEM) approach to validate the measurement model and testing the hypothesized relationships. Thus, this study can be considered as one the very few thesis and studies that employed the approach of PLS-SEM to analyze the measurement model goodness of fit and testing the proposed hypotheses.

5.4.1.2 Practical Contributions

The present study‘s results have significant contributions and implications for managers, practitioners, and policy makers. There are many advantageous insights on how TQM and ERP can enhance the overall organizational performance. Some of these practical contributions are the following:

First, the findings of this study suggested that Continuous Process Improvement should be effectively incorporated in Malaysian food and beverage companies. In addition, the

industry policy-makers should pay an attention to restructure the strategies, practices, and policies to be aligned with the technological advancements and implementing managerial strategies. The integration of strategies such as Process quality, company products and services, feedback system can help agro-allied industry as a whole to increase its performance and achieve the optimum competitive advantages.

Secondly, due to the inconsistent in the previous study about the effect of TQM on organizational performance, environmental regulation and policy intervened in this study to explain the practices in a better way. The results show the importance of environmental regulation and policy as a practice to follow in order to increase and enhance organizational performance. In addition, the results increase the awareness in food and beverage industry to follow rules and regulations which involves life safety, innovation and customer focus when implementing TQM. Environmental regulation and policy as a practice in food and beverage companies can lead to higher performance, but also at the same time can be a desire and a result from practicing other initiatives. Moreover, FBC should excel when dealing with other strategies and practices to have the successfulness and obtain the planned goals.

Finally, this study can also give some insights to public, manufacturing and service organizations in Malaysian and Asean region. For example, other industries in Malaysia or other Asian countries can take this study as a guideline when striving for excellence. In other words, FBC whether in Malaysia or outside can have many practical benefits from this study. The extensive literature and arguments, and the results should be taken into consideration from other industries to enhance their performance. In this study, the most important factors were discussed such as QA, CPI and ERP that are necessary nowadays

for any organization that wants to achieve success and competitive advantages. In some companies, TQM practice was implemented but without having information system to link the whole departments, others have systems but not having strategies and practices such as QA and CPI. Therefore, the integration of these strategies and practices will help food and beverage companies to enhance their performance through implementation of the suggested constructs in this study concurrently. In addition, also other private sectors can also have a great value from the findings of this study.

5.4.1.3 Contributions to Knowledge

First, the results of this study can raise the awareness among decision makers and managers in Malaysian food and beverage companies on the significance of implementing TQM in their organizations. TQM as a management philosophy which comprises Quality assurance and Continuous process improvement is considered as a prerequisite for any organization which want to achieve the competitive advantages and increase the organizational performance. In other words, if Malaysian food and beverage companies want to implement any strategies or initiate new system, TQM is needed before that to the problems that can be come out later.

In addition, QA as an element of TQM is an important integrated system, this study highlighted the importance of QA for organizations to align with the competitive environment and achieve the advantages over competitors. As revealed from this study, effective production and delivery is very essential for any organization that has a willing to be global. Also, as reported in the last chapter, the integration between CPI and organization can lead the industry to achieve the desired objectives. The result of this study supporting the impact of quality process on organizational performance will help

Malaysian food and beverage companies to have the advantages of implementing high quality of process and to increase the awareness of employees about the importance of these systematic practices.

With the results of the effect of ERP as a moderator between TQM and organizational performance as significant and supported, this shows the important role of regulatory laws. This result showed that there should be more awareness among FBC managers and the importance of policy to enhance the entrepreneurial traits such as innovativeness, pro-activeness, and to be law-abiding. Therefore, there is a need to increase this awareness about the essential role of environmental regulation and policy.

The figure 5.1 below therefore summarizes the fact that: effective "production and delivery" as one of the QA's dimensions, "Quality of process" as one of the CPI's dimensions ; and the incorporation of and abiding by Environmental Regulation and Policy are very much significant to organizational performance. Therefore, managers should take into consideration the importance of this model when implementing any practice in the future.

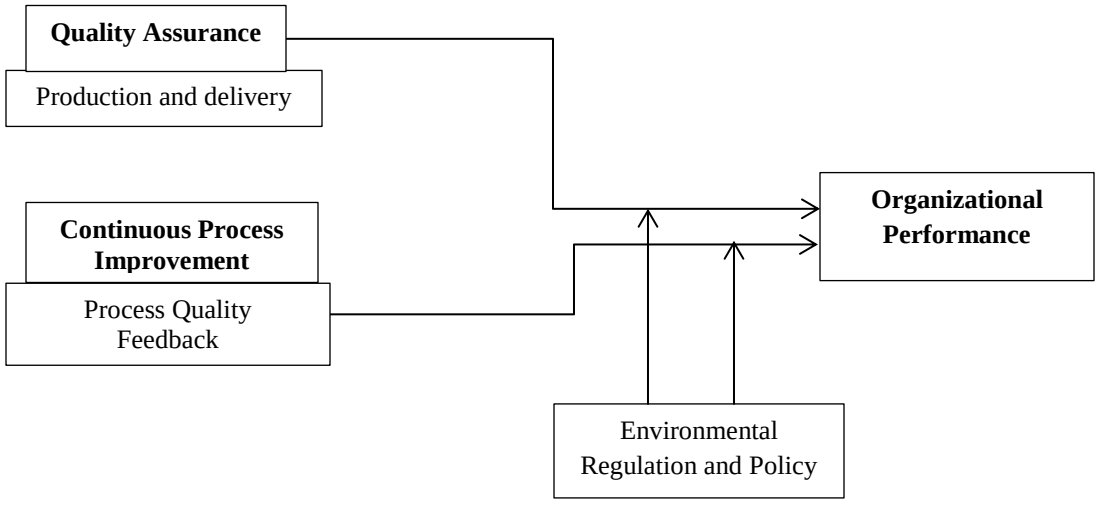


Figure 5.1: The Research Empirical Model linking Supported Quality Assurance's and Continuous Process Improvement's Dimensions, with Organizational Performance and Environmental Regulation and policy

5.5 Limitations of the Study

Despite the fact that this study provides good insights and contributions; there are still some limitations that should be put into consideration when discussing the results of the study.

First, the scope of the present study was limited to food and beverage companies only and not included other agro-allied companies in Malaysia. This limitation is pertained to generalizability of the results of the study. In addition, the unit of analysis in this study was any top personnel in the companies which could replace the role of managers. Although, the FBC is one of the main industries in Malaysia, it would be difficult to generalize the results on other sectors or public organizations, and even to other private companies due to the technology advancement and leadership support.

Secondly, in the methodology part, this study followed a cross-sectional research design to examine the hypothesized relationships at a single point of time which is considered as another limitation. The changes in the psychological human aspects and approaches to issues could be changed from time to another. Based on that, the conclusion generated from this study could be different if the research design was longitudinal rather than cross-sectional study. In other words, a review of TQM and ERP revealed that they are long term strategies in nature. Therefore, studying the relationship between them at one point of time will not be justifiable enough to its accuracy and that is why it is strongly

recommended that the longitudinal studies should be conducted to examine the effect of TQM and ERP on organizational performance.

Third, as the case of quantitative research methods, the respondents were requested to translate their perception based on statement in the survey questionnaire into numbers through Likert scale. These answers may be influenced by the biased perception of the situation (Macinati, 2008). Therefore, this study recommends that future research design should consider mixed research design. In other words, quantitative and qualitative research designs to be employed in the future research to complement each other.

Finally, another important limitation of the present study was the lack of other studies tackling the same factors in Malaysian with the best knowledge of the researcher. The lack of availability of these researchers, limit the research's results to be compared with other results of a study in the same context. In other words, in the context of Malaysia, there has been no researches previously examined the relationships of the constructs of this study; the researcher had to proceed in the study without having the advantages of other findings to be benchmarked or to be used as "compare and contrast" for more explanations.

5.6 Recommendations for Future Research

The current study provides many future research opportunities. Firstly, the data of this study was collected through a cross-sectional approach at a point of time. Due to the complex joint effect in the study strategies such as TQM, ERP and organizational performance, a longitudinal research could be extended. The longitudinal research approach could explain the complex relationship over long period of time and could

explain better the variables development over time for the sake of detecting the changes the relationships between variables through the process.

Secondly, the previous limitation regarding the research design approach limited the researcher to observe the subsequently dynamic nature of the relationships and effect between the research‘s variables in long-term strategies. Therefore, to be able to examine the dynamic effect of QA and CPI on organizational performance, case study approach could be considered as a better potential choice. This approach can enable the researcher to investigate in a deeper way on the complex relation between variables, and consequently the results could be different and provide insights into the potential successful factors.

Third, the results of this study were based on the gathered data from a particular officer in FBC. However, they are the best authoritative representatives to answer and describe the TQM and ERP and their effect on organizational performance. In some future studies, these constructs could be evaluated by other respondents such as customers and employees.

Fourth, the limitation of generalizability that has been discussed previously can be improved by conducting more studies about the effect of TQM on organizational performance with the existence of ERP. Some studies can be conducted separately to focus more on each construct. In addition, the model of this study can also be examined through data collected from all manufacturing organizations in Malaysia Government. Moreover, some other studies can be conducted in Malaysia examining the same model

in different sectors. Furthermore, this model can be also examined empirically using data collected from other countries in the region that have strong and unique cultural practices.

Finally, in chapter five, the R-square of organizational performance was 60%. This means that the model's variables contribute to 60% of organizational performance. Based on this result, it can be safely conclude that there are some other variables that may increase the rate of performance which can be considered for future study.

In conclusion, the company organizational performance will remain one of the main issues related to the development of a country. Therefore, the enhancement of the overall organizational performance of an organization has been the attention of all managers and decision makers in the developing countries, including Malaysia. In the literature, it has been widely acknowledged that the important roles of TQM and ERP as the most effective strategies can assist organizations to enhance their performance and achieve competitive advantages over competitors. These strategies have been recognized in Malaysia in general despite the short history of these practices and strategies in Malaysia.

However, the mixed results in this study of supporting or not supporting the proposed hypotheses, the impact of TQM through QA, CPI and ERP and their dimensions confirmed their importance and significant effect on the organizational performance. In spite of the origin of these strategies as Western source, they can be helpful in developing countries for enhancing the organizational performance of the agro-based industries of Malaysia in general and FBC in particular.

This study examined the moderating role of environmental regulation and policy as a mechanism that can explain in a better way the relationship between TQM and

organizational performance. The results confirm that ERP can enhance the role of TQM to achieve higher organizational performance. As a heart of excellence, following the rules and regulations related to environment plays an important role in enhancing the organizational performance through implementing the policies on innovative strategies and practices.

In summary, the results of this empirical study highlight new insights about how TQM and ERP can improve the organizational performance of food and beverage companies in Malaysia.

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Appendix A

SURVEY QUESTIONNAIRE

Borang Kaji Selidik

The Moderating Effect of Environmental Regulation and Policy on the Relationship between Total Quality Management (TQM) and Organizational Performance in the Malaysian Food and Beverage Companies

Kesan sampingan (moderating) polisi dan peraturan persekitaran terhadap hubungan antara keseluruhan kualiti pengurusan (kkp) serta prestasi organisasi dalam syarikat makanan dan minuman di Malaysia

This survey is to investigate the moderating effect of environmental regulation and policy on the relationship between Total Quality Management (TQM) and Organizational Performance in the Malaysian Food and Beverage Companies. The TQM investigated by this study are continuous process improvement and quality assurance. Responses to the items posed in this inquiry are graded by a five-point interval scale. We humbly request for your sincere and objective responses. Your responses are promised to be treated with confidentiality and shall be exclusively used for the purpose of this research.

Kajian ini bertujuan untuk mengkaji kesan sampingan polisi dan peraturan persekitaran terhadap hubungan antara keseluruhan kualiti pengurusan (kkp) serta prestasi organisasi dalam syarikat makanan dan minuman di Malaysia. Tinjauan KKP dalam kajian merupakan proses pembaikpulihan berterusan selain jaminan kualiti. Tindak balas terhadap item-item diklasifikasikan mengikut lima skala-likert. Kami dengan merendah hati dan jiwa mengharapkan jawapan yang jujur daipada anda. Tindak balas

anda dijanji akan dirahsiakan dan akan digunakan sewajar-wajarnya bagi tujuan kajian ini.

This questionnaire comprises five sections. The first section asks with questions about the respondent's demographic details, and the second section contains items measuring organizational performance. Section three and four respectively contain items measuring continuous process improvement and quality assurance. Finally, the last section contains items measuring environmental regulation and policy.

Kaji selidik ini mengandungi lima bahagian. Bahagian pertama lebih melihat maklumat demografik subjek dan bahagian kedua meninjau item-item yang menilai prestasi organisasi. Manakala bahagian tiga dan empat meninjauan proses pembai-pulihan yang berterusan dan jaminan kualiti . Akhir sekali, bahagian terakhir menilai polisi dan peraturan persekitaran.

Thank you for your assistance.
Ribuan terima kasih di ucapkan atas segala kerjasama dan bantuan yang dihulurkan.

For further inquiry, you can contact my research supervisor with the following contact:
Bagi rujukan seterusnya, anda boleh menghubungi penyelia kajian saya seperti di bawah:

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Section I: Demographic Details/*Maklumat Demografik*

1. Your Job Position/*Taraf Pekerjaan*

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2. Gender

Male/*Lelaki* ☐

Female/*Perempuan* ☐

3.Age/*Umur*

Between/*Di antara* 18 and 34 ☐

Between/*Di antara* 35 and 44 ☐

Between/*Di antara* 45 and 60 ☐

4. Years of Experiences/*Pengalaman Bekerja*:

i. ( ) Below 3 years/*dibawah 3 Tahun*

ii. ( ) 4-6 years/*Tahun*

iii. ( ) 7-9 years/*Tahun*

iv. ( ) Above 10 years/*Tahun*

5. Qualifications/*Kelayakan*

Postgraduate Degree/*Sarjana* ☐ First Degree/*Sarjana Muda* ☐
Secondary School Certificate/*Sekolah Menengah* ☐
Primary School Certificate/*Sekolah Rendah* ☐
Certification Held/*tiada sijil* ☐

Section II: On the following scale, please indicate the appropriate number which best reflect your perception

Sila tandakan refleksi terbaik anda pada salah satu skala

(1) Strongly disagree/*sangat tidak setuju* SD	**(2) Disagree/*tidak setuju* D**	**(3) Neutral/*neutral* N**	**(4) Agree/*setuju* A**	**(5) Strongly Agree/*sangat setuju* SA**

Part/ *bahagian* I: Organizational Performance / *prestasi organisasi*
Please indicate your response to the following statements according to the scale above.
Sila tandakan jawapan anda mengikut skala yang disediakan

	During the last three years, my organization	SD	D	N	A	SA

	achieved… ***Pencapaian organisasi dalam masa 3tahun kebelakangan ini***	1	2	3	4	5
	Sales growth/ *Strategi perancangan*					
OP01	Significance increase on return on asset *Peningkatan signifikan ke atas pemulangan aset*					
OP02	Significance increase on return on capital investment *Peningkatan signifikan ke atas pemulangan modal*					
OP03	Our shareholders are always satisfied on their annual dividends *Pemegang saham kami selalu berpuas hati dengan dividen tahunan*					
OP04	Significance increase in the number of shareholders *Peningkatan signifikan dalam bilangan pemegang saham*					
OP05	Significance increase in the number of sales of our products *Peningkatan signifikan dalam jualan produk kami*					
	Inventory management system/*Inventori sistem pengurusan*					
OP06	This organization has developed technologies to manage its customers' relationship duties *Organisasi ini telah membangunkan teknologi untuk mengurus kerja-kerja berhubung dengan pelanggan*					
OP07	This organization has developed technologies to manage its employees' relationship duties *Organisasi ini telah membangunkan teknologi untuk mengurus kerja-kerja berhubung dengan pekerjanya*					
OP08	This organization always employs technologies to manage its inventory *Organisasi ini selalu mengambil teknologi- teknologi untuk menguruskan inventorinya*					
OP09	This organization sometimes employs technologies to manage its inventory *Organisasi ini kadang kala mengambil teknologi-teknologi untuk menguruskan inventorinya*					
OP10	This organization has developed technologies to manage suppliers' relationship duties *Organisasi ini telah mengembangkan teknologi-teknologi untuk mengurus kerja-kerja berhubung*					

	dengan pembekal					
	Customer satisfaction/*Kepuasan Pelanggan*					
OP11	Significance increase in number of our customers *Peningkatan signifikan dalam bilangan pelanggan kami*					
OP12	Significance increase in number of repetitive purchase *Peningkatan signifikan dalam bilangan pembelian yang berulang kali*					
OP13	Our customer feel safe because we are responsive *Pelanggan kami berasa selamat atas sikap tanggungjawab kami*					
OP14	Our customer always follow new instructions *Pelanggan kami selalu ikut arahan baru kami*					
OP15	Our organization always receive good feedback from our customers *Organisasi kami selalu menerima maklum balas dan pelanggan kami*					

Part/*bahagian* II: Quality Assurance/*Jaminan Kualiti*

	Strategic Planning/ Perancangan Strategik	SD 1	D 2	N 3	A 4	SA 5
QA01	In our organization, the leadership provides sufficient internal communication facilities for effective planning *Dalam organisasi kami kepemimpinan menawarkan kemudahan komunikasi dalam yang mencukupi untuk perancangan yang efektif*					
QA02	In our organization, employees ensures using the best planning and learning method for achieving quality *Dalam organisasi kami kesemua pekerja menggunakan perancangan yang terbaik dan kaedah pembelajaran dalam mencapai kualiti*					
QA03	Our organization encourages innovative plan to achieve best practice *Organisasi kami menggalakkan perancangan inovatif untuk mencapai latihan yang terbaik*					
QA04	Our organization has a collective way of planning *Organisasi kami memiliki cara perancangan yang kolektif*					
QA05	Our organization considers quality planning a top					

	priority in their regular meeting *Organisasi kami mempertimbankan dalam mengutamakan perancangan kualiti yang terbaik dalam mesyuarat-mesyuarat kebiasaanya*					
	Process Focus/*Fokus Proses*					
QA06	The production process is designed in such a way that it adds value to our products *Proses hasil pengeluaran telah direka bentuk khas sebagai nilai penabahan terhadap produk kami*					
QA07	Newly introduced process is critically examined prior to its actual implementation *Proses yang baru diperkenalkan lebih kearah penilaian kritikal analisis dalam impimentasi sebenar*					
QA08	The necessity of learning process are totally provided to guarantee value creation for customers *Keperluan dalam proses pembelajaran telah di berikan sebagai pembentukan nilai jaminan kepada pelanggan*					
QA09	Good relationship between employees and customers is maintained *Perhubungan yang baik di antara pekerja dan pelanggan telah dikekalkan*					
QA10	The organization is committed to the review of traditional technique to meet the current standard *Organisasi telah mengimbas kembali teknik-teknik tradisional dalam menghadapi cabaran terkini*					
	Production and delivery/*penghasilan dan penghantaran*					
QA11	Our employees are frequently trained to ensure quality in jobs-specific skills *Pekerja-perkerja kami selalunya dilatih untuk memiliki kualiti dalam kemahiran-kemahiran pekerjaan yang khusus*					
QA12	Our employees are able to learn from each other on how to improve production quality of its services *Pekerja kami berkebolehan mempelajari antara satu sama lain untuk memperbaiki penghasilan kualiti kemudahan*					
QA13	Our employees are able to learn from each other on how to improve production quality of its goods					

	Pekerja kami berkebolehan mempelajari dari satu sama lain untuk memperbaiki kualiti barangan					
QA14	Emphasis is placed on effective service delivery with regards to quality *Penekanan diberikan terhadap kemudahan perkhidmaitan yang efektif sebagai unsur kualiti*					
QA15	Emphasis is placed on effective product delivery with regards to quality *Penekanan diberikan terhadap kemudahan produk yang efektif sebagai unsur kualiti*					

Part/*bahagian* III: Continuous Process Improvement/P*roses Pembaikan Berterusan*

	Quality process/ Proses kualiti	SD 1	D 2	N 3	A 4	SA 5
CPI01	Continuous improvement of the production process is based on a systematic approach *Proses pembaikan berterusan berdasarkan pendekatan sistematik*					
CPI02	Our organization continually looks for ways to improve the quality processes *Organisasi kami berterusan dalam memperbaiki proses kualiti*					
CPI03	Quality assurance as a mechanism for continuous improvement is integrated in all aspects of the organizational process *Jaminan kualiti merupakan salah mekanisme dalam perkembangan kualiti berkait rapat dengan semua perkara berkaitan organisasi*					
CPI04	There is a continuous evaluation of the organizational quality of process *Wujud penilaian berterusan dalam proses kualiti organisasi*					
CPI05	The necessities of process quality are totally provided to guarantee valuable goods and services for the customers *Keperluaan dalam proses kualiti dijamin penuh dalam penghasilan barangan serta perkhidinatan yang bermutu tinggi untuk pelanggan*					
	Continuous product and service					

	development/*Perkembanggan Barangan dan Perkhidmatan yang Berterusan*					
CPI06	My organization develops new product for the customers *Organisasi saya mengeluarkan barangan baru untuk pelanggan*					
CPI07	My organization develops new services for the customers *Organisasi saya mewujudkan perkhidmatan baru untuk pelanggan*					
CPI08	Our organization always provides new services for its employees *Organisasi kami selalu mewujudkan kemudahan baru untuk pekerja*					
CPI09	Compared to past years, our organization has developed new products and services overall. *Jika dibandingkan dengan tahun-tahun sebelum ini, organisasi kami telah menghasilkan barangan dan kemudahan baru secara keseluruhan*					
CPI10	There is significant increase in effectiveness of our research products *Wujud peninggkatan signifikan yang efektif dalam kajian produk kami*					
	Feedback/*Maklum Balas*					
CPI11	There is an effective feedback system for organization product quality improvement and assurance *Wujud sistem maklum balas efektif untuk perkembangan kualiti produk dan jaminan*					
CPI12	Quality assurance system of improvement is documented properly *Menyampaikan sistem jaminan kualiti didokumentasi dengan teliti*					
CPI13	There is a continuous review of the feedback from the customers *Maklum balas pelanggan dipertimbangkan secara berterusan*					
CPI14	There is a continuous effort by my organization in strategizing quality related issues *Wujud tindakan berterusan dari organisasi saya dalam merancang isu-isu berkaitan dengan kualiti*					

CIP15	The suggestions from the customers are taken into account when designing new organizational services *Cadangan pelanggan dipertimbangkan ketika mereka bentuk kemudahan organisasi baru*					

Part/*Bahagian* IV: Environmental regulation and policy/*Peraturan dan Polisi Persekitaran*

	Environmental regulation and policy ***Peraturon dan Polisi Persekitaran***	SD 1	D 2	N 3	A 4	SA 5
ERP01	This organization ensures public health in all aspects through all the obstruction such as emitting air pollution, public and private nuisance *Organisasi ini menjamin keutamaan kesihatan awam dari segi semua aspek melalui semua kekangan seperti pencemaran udara awam dan ganguan privasi*					
ERP02	Our organization establishes free environment and human rights through all obstacles *Organisasi saya mengwujudkan hak-hak persekitaran dan manusia percuma melalui semua kekangan*					
ERP03	Our organization enforces constitutional law relating to environmental obligation *Organisasi yang mengimplimentasi undang-undang berdasarkan perlembagaan berhubung dengan tangungjawab terhadap persekitaan*					
ERP04	Our organization keeps human habitation free from pollution *Organisasi kami mengutamakan keadaan persekitaran manusia yang bebas dari pencemaran*					
ERP05	Our organization establish environmental balance for keeping nature and natural beauties *Organisasi kami mengwujudkan persekitanran yang seimbang dalam memelihara kecantikan alam semula jadi*					
ERP06	Our organization has enforcement of human right to pollution-free environment under constitutional obligation for its employees *Organisasi kami telah mengimplimentasikan hak-hak manusia ke atas pencemaran persekitaran yang bebas di bawah perlembagaan hak-hak pekerja*					
ERP07	Our organization has coordination between legal and					

	technical authorities in framing as well as respecting environmental issues *Organisasi kami telah menyelaraskan autoriti undang-undang dan teknikal dalam mengwujudkan kesedaran bagi menghormati isu-isu persekitaran*					
ERP08	Our organization keeps up the provision of the constitution relating to environmental obligation for ensuring human right *Organisasi kami memegang pada peruntukan institusi berkaitan dengan obligasi persekitaran sebagai jaminan hak manusia*					
ERP09	Our organization has laws relating to air pollution for maintaining ecological balance from imbalance *Organisasi kami mempunyai undang-undang berkaitan pencemaran udara dalam mengekalkan keseimbangan ekologi daripada tidak seimbang*					
ERP10	Our organization is committed to comply with environmental legislation and regulation *Organisasi kami bersetuju mematuhi peraturan dan perundangan alam sekitar.*					

Comments

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THANK YOU/*TERIMA KASIH*