

**RELATIONSHIP BETWEEN PROCESS  
MANAGEMENT PRACTICES AND CORPORATE  
SUSTAINABLE DEVELOPMENT IN THE  
MALAYSIAN MANUFACTURING  
CORPORATIONS: THE MODERATING EFFECTS  
OF KNOWLEDGE MANAGEMENT  
CAPABILITIES AND ENVIRONMENTAL  
INITIATIVES**

**CHARIS D/O SAMUEL SOLOMON KOILPILLAI**

**UNIVERSITI SAINS MALAYSIA**

**2020**

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MANAGEMENT CAPABILITIES AND  
ENVIRONMENTAL INITIATIVES**

by

**CHARIS D/O SAMUEL SOLOMON KOILPILLAI**

**Thesis submitted in fulfilment of the requirements  
for the degree of  
Doctor of Philosophy**

**May 2020**

## ACKNOWLEDGEMENT

First and foremost I would like to thank the Almighty God for His Grace and for granting me the strength and courage to complete this research. I would also like to express my deepest gratitude to my supervisor, Dr. Marini Nubanum Binti Mohamad for her supervision, valuable advice, motivation and guidance from the beginning until the end of this research. You have been a great mentor to me. Special appreciation also goes to my co-supervisor, Prof. Ramayah Thurasamy for his supervision and constant support. I am truly indebted to both my supervisors for their valuable time to read my thesis and providing constructive comments. Thank you for not giving up on me, words cannot express how grateful I am.

In addition, I would like to convey my gratitude wholeheartedly to all my family members, who gave me devoted support and prayers. To my loving husband, Allan Melvin, thank you for being my best friend and pillar of strength. You are my source of support whenever I fall and kept me motivated. My parents Selvam Amertha and Samuel Solomon Koilpillai, your prayers and support always guided me through rock bottom times. To my siblings Shekinah Solomon and Chaziz Solomon, also my brother-in-law, Kenneth Duru you have all been a great source of comfort and support when I need it. Not forgetting my nephew, Jayden Okechukwu Duru and my niece, Ninna Chioma Duru for bringing me rays of hope, joy and encouragement throughout my study.

I would also like to thank my in laws, Andrew, Arulmary, Elango and Anne Rosline, also my niece, Edna, for their understanding and encouragement throughout my studies. Also, I would like to thank my extended family members Hannah Prema, Cherlas Anthony, Joanna Philip, Harris Ray, Joachim and Racheal Sabreena. Additionally, a special thanks to my church members, Dr. Ragunathan and family, Mdm.Anammal and family, also Mr. Peter and family, for their constant encouragement throughout my study. To those who indirectly contributed to this research, your kindness means a lot to me. Thank you very much.

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## LIST OF ABBREVIATIONS

AEC	ASEAN Economic Community
APQC	American Productivity Quality Centre
AVE	Average Variance Extracted
BPM	Business Process Management
BPMP	Business Process Management Practices
BPR	Business Process Reengineering
CES	Compendium of Environment Statistics
CMV	Common Method Variance
CR	Composite Reliability
CSD	Corporate Sustainable Development
E&E	Electrical and Electronics
EcoDev	Economic Development
EI	Environmental Initiatives
EnvDev	Environmental Development
EPA	Environmental Protection Agency
FMM	Federation of Malaysian Manufacturers
GDP	Gross Domestic Product
HR	Human Resource
ISO	International Organization for Standardization
KBV	Knowledge Based View
KMC	Knowledge Management Capabilities

MENGO	Malaysian Environmental NGOs
MIDA	Malaysian Investment Development Authority
MQLI	Malaysian Quality of Life Index
MUQLI	Malaysian Urban Quality of Life Index
NGO	Non-Government Organization
NRBV	Natural-Resource-Based View
PC	Process Control
PD	Process Design
PI	Process Improvement
PLS	Partial Least Square
PLS-PM	Partial Least Squares- Path Modeling
PLS-SEM	Partial Least Square- Structured Equation Modeling
QM	Quality Management
QMS	Quality Management Systems
RBV	Resource Based View
SEM	Structured Equation Modeling
SIRIM	Standard and Industrial Research Institute of Malaysia
SME	Small and Medium Enterprises
SocDev	Social Development
SOP	Standard Operating Procedures
SPSS	Statistical Package for the Social Sciences
TQM	Total Quality Management
UNEP	United Nations Environmental Programme



URL Uniform Resource Locator

WCED World Commission on Environment and Development

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**HUBUNGAN ANTARA AMALAN PENGURUSAN PROSES DENGAN  
KELESTARIAN KORPORAT DALAM SYARIKAT PEMBUATAN DI  
MALAYSIA: KESAN PENYEDERHANAAN KEMAMPUAN PENGURUSAN  
PENGETAHUAN DAN INISIATIF ALAM SEKITAR**

**ABSTRAK**

Sejak dua dekad yang lalu, secara umumnya persaingan domestik dan globalisasi telah mengancam perkembangan, keuntungan dan kewujudan kebanyakan syarikat. Pelbagai kajian mendapati bahawa syarikat-syarikat harus meneliti pengamalan pengurusan proses mereka untuk mengatasi isu-isu kelestarian. Lalu, pengamalan pengurusan proses telah muncul sebagai satu pendekatan untuk penambahbaikan berterusan dan pembangunan lestari secara sistematik. Walaupun kepentingan pengamalan pengurusan proses dalam mengetengahkan isu-isu kelestarian, meningkatkan prestasi dan meningkatkan nilai pasaran syarikat adalah jelas, hanya sedikit yang diketahui tentang pengamalan pengurusan proses dan potensi meluasnya terhadap amalan kelestarian korporat di Malaysia. Maka, kajian ini mengenalpasti sejauh mana wujudnya amalan pengurusan proses dan pembangunan kelestarian korporat di Malaysia, dan juga kesan penyederhanaan kemampuan pengurusan pengetahuan dan inisiatif alam sekitar terhadap perhubungan antara amalan pengurusan proses dan pembangunan kelestarian korporat. Untuk mencapai objektif kajian ini, kaedah kaji selidik telah digunakan untuk memperoleh maklumat yang diperlukan daripada organisasi-organisasi dalam industri pembuatan. Kajian ini telah dijalankan ke atas syarikat-syarikat yang diiktiraf berstatus ISO 9001 di Malaysia. Sebanyak 213 borang soal selidik yang boleh diguna pakai telah diperolehi dari responden. Keputusan kajian ini menunjukkan bahawa kedua-dua reka bentuk

proses dan kawalan proses mempunyai hubungan yang positif dengan ketiga-tiga elemen pembangunan kelestarian korporat (pembangunan alam sekitar, pembangunan ekonomi dan pembangunan sosial) dan penambahbaikan proses pula mempunyai kesan yang positif ke atas pembangunan sosial. Kajian ini juga telah mengenal pasti kesan penyederhanaan kemampuan pengurusan pengetahuan yang positif ke atas hubungan kawalan proses terhadap pembangunan alam sekitar, pembangunan ekonomi dan pembangunan sosial. Tambahan pula, kesan penyederhanaan inisiatif alam sekitar yang positif ke atas hubungan antara penambahbaikan proses dan pembangunan alam sekitar telah dikenalpasti dalam kajian ini. Di samping itu, kajian ini telah mengenalpasti bahawa pembolehubah kawalan, saiz syarikat (bilangan pekerja) adalah peramal pembangunan kelestarian korporat dari segi pembangunan ekonomi dan sosial. Secara menyuluruh, kajian ini menyediakan satu garis panduan untuk pihak pengurusan yang berasaskan indikator-indikator untuk, amalan pengurusan proses, kemampuan pengurusan pengetahuan, inisiatif alam sekitar dan pembangunan kelestarian korporat supaya pendirian mereka dapat dikaji. Dengan pandangan ini, syarikat-syarikat boleh menghasilkan peralatan pengurusan yang praktikal dan polisi-polisi yang berkesan untuk pembangunan kelestarian mereka.

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**ABSTRACT**

Over the past two decades, domestic competition and globalization has threatened the growth, profitability and the very survival of many corporations in general. Various studies have shown that corporations need to be concerned with their process management practices to overcome sustainability issues. Thus, process management practices has emerged as an approach for continuous improvement and sustainable development in a systematic manner. Although the significance of process management practices highlights sustainability issues, improves performance and increases corporation market value, little is known about process management and their vast potentials towards corporate sustainable development in the Malaysian context. This study therefore investigates the existence of process management practices and corporate sustainable development in Malaysia, and the moderating effects of knowledge management capabilities and environmental initiatives on the relationship between process management practices and corporate sustainable development. To attain the objectives, this study utilized a survey method to acquire the required information from manufacturing corporations. The survey was carried out among ISO 9001 certified corporations in Malaysia. A total of 213 usable questionnaires were received from the respondents. The results of this survey indicated that both process design and process control have a significant relationship with all

three elements of corporate sustainable development (environmental development, economic development and social development) and process improvement has a positive relationship with social development. This study also identified a positive moderating effect of knowledge management capabilities on the relationship between process control with environmental development, economic development also social development. Furthermore, a positive moderating effect of environmental initiatives on the relationship between process improvement and environmental development was identified in this study. Finally, this study identified that the control variable, corporation size (number of employees) is a predictor of corporate sustainable development in relation to economic and social development. Overall, this study provides a guideline for managers based on indicators for process management practices, knowledge management capabilities, environmental initiatives and corporate sustainable development to examine their standpoint. In view of this, corporations can then develop practical management tools and effective policies for their sustainable development.

## **CHAPTER 1 : INTRODUCTION**

### **1.1 Introduction**

This chapter describes the background of the study whereby the changing landscape of businesses has forced corporations in the manufacturing industry to transform their approaches and focus on their critical business processes. Next, this chapter examines the research problems, research gaps, research objectives, research questions, significance of the study, definition of key terms and the organization of the study.

### **1.2 Background of the Study**

Over the past two decades, domestic competition and globalization have threatened the growth, profitability and the very survival of many corporations in general. Corporations and technological factors are combining to create a very competitive business environment in which customers are the focal point. The pace of change and the degree of uncertainty are accelerating in the twenty-first century. Specific developments however are difficult to predict with certainty, and the types of changes varies across industries. Competition has continued to increase both at home country and abroad. Parallel to this change, sustainable development is an accelerating trend that is important to all humankind globally. People are enjoying higher quality of life with rapid economic growth, but they must also cope with serious environmental degradation (pollution, global warming, etc.) and social problems (diseases or inequity). Yet so, profitability is still the priority of most corporations. To increase financial benefits, many corporations sacrifice the environment aspects.

In line with that, Malaysia is now stirring its development precedence to other business sectors, such as the automotive sector, agricultural sector, services sector and

manufacturing sector (Rahman, 2012). More importantly, the rapid change in technologies and the marketplace requires the manufacturing sector to pick up performance by accentuating cost reduction, increasing quality and delivery levels, and improving equipment and human assets flexibility (Ahuja and Khamba, 2008). Malaysia has come a long way from being a low income developing economy and is currently a rapidly developing economy in Asia. Malaysia, has transformed itself from a producer of raw materials into an emerging multi-sector economy (Department of Statistics, Malaysia, 2020). Additionally, the Government of Malaysia is continuing efforts to boost domestic demand by weaning the economy off its dependence on exports. Thus, from a year-on-year basis, the Manufacturing sector output rose by 2.1 per cent in January 2020 after recording a growth of 3.4 per cent in December 2019. (Department of Statistics, Malaysia, 2020). Therefore, the government is targeting Malaysia to become a High-Income Advanced Economy in 2020 and to record RM2 trillion of economy and trade value by year 2025 (The Star: Budget 2018 Full Speech, 2018).

On that note, according to the 11<sup>th</sup> Malaysia Plan (2016-2020) much documentation concerning the expansion and growth of the manufacturing sector was carried out. This sector is expected to record a growth of 5.1% per annum during the Plan period, led by the domestic-oriented subsector, which is expected to increase by 4.4% in line with better business confidence and consumer sentiments. Among the key manufacturing industries that will drive growth are, food and beverages, fabricated metal products and machinery and equipment. Given improvements in external demand, the major sub-sectors contributing to the increase in January 2020 were Non-metallic Mineral Products, Basic Metal and Fabricated Metal Products (3.9%), Petroleum, Chemical, Rubber and Plastic Products (3.6%) and Electrical and



Electronics Products (3.2%). These key industries are expected to play a fundamental part in how Malaysia sees the role of natural resources and the environment in its socio-economic development, protecting both development gains and biodiversity at the same time (Department of Statistics Malaysia, 2020).

Many corporations outside the developing countries especially newly-industrialised countries in the South East Asian region, has increasingly realised the significance of PMP and the implementation of modern Quality Management (QM) approaches which should not be avoided if a corporation wishes to be competitive in the global market. In order to succeed or even survive in this dynamic world, corporations must not only take traditional action, such as lowering costs, but also take innovative action, such as changing structure or processes (Padua and Jabbour, 2015). Past researchers have proposed various paradigms, theories, and strategies to cope with the ever changing environment and to sustain corporate competitiveness (Enllin et al., 2017). However, the three proposed strategies by Sanders (2008) are Process Design (PD), Process Improvement (PI) and Process Control (PC).

A good and formal conceptual definition, is as defined by Wacker (2004), “Process Management Practices (PMP) is the design, improvement and control of a system of organized work activities that result in a product or service.” This definition is concise, parsimonious, clear, consistent with the field, and unique. This definition of PMP is also consistent with previous academic literature on PMP by Evans and Lindsay (2005) and Juran and Godfrey (1999) and is simply stated with clear-cut terms. However in this ever evolving age, many corporations design, improve and control human resource processes, accounting processes, and other critical business processes.

Similarly, sustainability in terms of sustainable development has been researched upon since the mid-1900s. In the corporate context, the scholar Wilson (2003) mentioned that Corporate Sustainable Development (CSD) can be viewed as a new and evolving corporate management paradigm. He calls it a ‘paradigm’ intentionally because CSD is made up of alternatives in comparison to the traditional growth and profit- maximization model. CSD has evolved as a result of economic growth, environmental regulations, and a push for social justice and equity. However, many areas of CSD remain technically ambiguous, making it difficult to plan an effective course of action. Despite ambiguities about CSD, there is now widespread support for sustainable development principles within the business community in terms of corporate PMP. Today, the goals of sustainable development are far reaching, multidisciplinary and cross-sectoral to address environmental risks. In other words, PMP and CSD are both not just nice strategy tools and jargon that concerns a corporation. Therefore, in this research, the applications of PMP (PD, PC and PI) are sought to be implemented for CSD.

### **1.3 Research Problems**

At this present age of globalization, various studies have shown that corporations need to be concerned and keen to overcome sustainability issues (e.g., poverty reduction and pollution reduction) in order to get actively involved in addressing sustainable development measures (Burritt and Schaltegger, 2010). This insight is supported by Hall and Wagner (2012) who identified that most corporations, especially corporations that implement Quality Management Systems (QMS) and PMP into their business model for problem solving has better performance in the economic dimension and a

positive association with both the environmental and social dimension. Also, according to Nguyen et al. (2018) it is more likely for corporations with QMS to take actions and apply appropriate sustainability management tools such as PMP for continuous improvement and sustainable development in a systematic manner.

At present, most corporations assume that no matter what quality management activities are set for big or small business, all of them improved corporate performance (Padua and Jabbour, 2015). This view is supported by Kumar et al. (2009), they identified that once continuous improvement processes has been carried out in a corporation, high quality and low cost results will consequently emerge. Additionally, Neubauer (2009) also proved that PMP could increase a customer's satisfaction in various industries or cultures. Even so, there are still some uncertainties about the effectiveness of practicing PI activities. For example, Psomas et al. (2010) pointed out that PMP is not the only solution to improving the performance of corporations. There are many other complicated elements to consider. Due to contradictions or inconsistency in literatures concerning PMP which is the independent variable of this study, the direct and moderated relationship of PMP towards CSD is aimed to be tested. This is also supported by Jones and Linderman (2014) who suggests that process management is a trade-off within corporations, because it places too much attention on operational efficiency, while hindering a firm to focus on developments and innovation for their sustainability.

In the current climate of increasing global competition, there is no doubt about the value of knowledge and learning in improving CSD. This can be seen in learning corporations that are constantly expanding their capabilities to create and achieve desired corporate results through nurturing new ways of thinking and prevailing collective ambitions. These corporations encourage the creation of a learning

corporation by implementing PMP systems that generate knowledge (Li et al., 2012). In this sense, an increasing number of corporations have recognized that their Knowledge Management Capabilities (KMC) is a key resource for competitiveness, and a resource they can create and use to achieve greater value and sustainable development (Meinlschmidt et al., 2016). On the other hand, according to Al-Roubaie and Alvi (2014) it is only developed countries that benefits and makes valuable contributions to CSD through KMC because they have access to information strategies, up-to-date technologies and abundant resources. Developing or underdeveloped countries conversely, face obstacles to access technologies and lack finances for investments in research and development. Therefore they may not benefit from the KMC of their corporation. Thus, this study seeks to identify the moderating effect of KMC towards PMP and CSD.

These days, Environmental Initiatives (EI) to reduce pollution are increasingly being considered an essential competitive priority in the manufacturing industry due to its promising scope for productivity when successfully implemented within a corporation's processes. (Psomas et al., 2014). It is significant therefore to ensure that corporations have the right focus and are journeying towards safeguarding the environment for their sustainable development (Stuebs and Sun, 2015). However, although pressures for pollution prevention and improved environmental performance in corporations have intensified, most corporations do not know how to fully utilize existing resource. Therefore, initiatives that could prove beneficial for corporations to develop and implement appropriate environmental strategies remains somewhat limited or unutilized in most corporations (Roy et al., 2013). Thus, it is high time that actual commitment to EI are displayed by corporations to encompass various aspects of the corporate entities for continuous improvement and CSD (Murfield and Tate,

2017). In that view, this study seeks to identify the moderating effect of EI towards PMP and CSD.

The main problems that were identified in this study are (1) there are mixed results in the literatures concerning the effect of KMC towards CSD and (2) there are mixed results in the literatures concerning the effect of EI towards CSD.

#### **1.4 Research Gaps**

The degradation of the natural environment has become an important issue for governments and societies throughout the world (UNEP, 2018). After governments and societies awakened to the urgency of this problem, they started to put pressure on manufacturing corporations in various ways. In tandem with the shift in the corporate world, several research studies have been conducted about distinct aspects of sustainability. To a certain extent, it has been thought that the incorporation of sustainability issues into the corporate strategy is a trade off with a firm's other goals, specifically meeting corporate goals for profit maximization (Mathews, 2006). However, this view has been challenged by a number of scholars, such as Kauppi (2013). Kauppi (2013) believes that Institutional Theory can be utilized not only for developing, designing and carrying out business processes but can also reflect the connections between business processes towards handling, investigating and increasing productivity for profit gains in corporations. Therefore, the crucial question to be addressed is, "Has PMP been researched upon sufficiently to discover opportunities for sustainable operational efficiency?" (Sikdar and Payyazhi, 2014).

To this end, a multitude of strategies, policies, plans, and programmes have been developed around the world to put sustainable development into practice (Aras

and Crowther, 2009). Therefore, much efforts have also been made by corporations to adapt quality systems, performance management programmes, and business excellence models which provides a cross-functional view of the corporation for CSD (Iden, 2012). Similarly, among ISO 9001 certified manufacturing corporations in the modern world, sustainability development initiatives are an essential element of their business strategy (Salwa et al., 2017). Therefore, the yet obstructing challenge in corporations is in improving their processes to benefit the corporation and at the same time contribute to the quality standards and requirements of society (Newman, 2011).

In terms of ISO 9001 certification, some researchers query on the effectiveness of this standard towards corporate sustainability (Hall and Wagner, 2012). This view is supported by Psomas et al. (2011), they mentioned that PMP in ISO 9001 certified corporations are perceived to be worth noting, however it lacks empirical evidence and positive findings in corporations to significantly increase benefits and profitability. Also, according to Psomas et al. (2014), there is no concrete evidence that ISO 9001 certification has led to positive levels of CSD in the manufacturing industry. Therefore, this study intends to fill in this gap by identifying evidences that PMP leads to CSD (social development, environmental development and economic development) among ISO 9001 certified manufacturing corporations in Malaysia that leads towards their sustainable development.

Up to date, there is no shortage of empirical researches on CSD, most of these recent works have still measured the CSD dimensions based on qualitative analysis using corporation declarations (Simanis and Hart, 2009), on empirical analysis using annual reports (Chang et al., 2013), or on approximations using a single indicator of corporations (Lindgreen et al., 2009). But one weakness of this approach to study CSD applications is that these studies have failed to address adequately the needs of industry

based decision makers because their findings have not described clearly a set of successful CSD reference within a corporation (Ding 2008).

In Malaysia, sustainable development indicators from a country wide context are existent through a previous study by Hasan (1996). Further initiatives on sustainable development indicators in Malaysia can also be broadly categorised into government, non-government and research initiatives (Pereira and Hasan, 2004). Three major government driven initiatives include the Malaysian Quality of Life Index (MQLI), Malaysian Urban Quality of Life Index and the Compendium of Environment Statistics (CES). These have been developed for the purpose of periodic reporting and have already been institutionalised, where the Department of Statistics acts as the central information depository agency in Malaysia (Department of Statistics Malaysia, 2020). In these initiatives, end users are either at the national, state or local levels.

Non-government sustainable development indicator initiatives are generally on an ad hoc basis and the selection of indicators are based on a bottom up consultative process. On the other hand, research initiatives generally provide basic sectorial data to close the information gap and also serve as the basis for formulating sustainable development initiatives frameworks (Pereira and Hasan, 2004). Thus, in Malaysia, previous empirical studies on sustainable development initiatives frameworks based on a corporation's operations are yet lacking (Khan et al., 2012). Therefore, corporations in Malaysia need to obtain a set of indicators that will help them determine their current levels of environmental development, economic development, and social development based on their ongoing PMP.

The main gaps that were identified in this study are (1) There is a growing need to study the effects of PMP towards CSD in the Malaysian manufacturing industry

context to understand how corporations manage their ongoing processes towards sustainable development; (2) identifying evidences that PMP leads to CSD (social development, environmental development and economic development) among ISO 9001 certified manufacturing corporations in Malaysia that leads towards their sustainable development; and (3) there is a need for empirical measurement scale (indicators) in the context of the manufacturing industry in Malaysia that will help corporations determine their current levels of CSD and therefore provide awareness for corporations and policy makers to formulate strategies to heighten PMP in their operations.

### **1.5 Research Objectives**

The following research objectives guide the research process:

1. To assess the direct relationship between PMP (PD, PI and PC) implemented in manufacturing corporations that leads to CSD.
2. To investigate the moderating effect of KMC towards PMP and CSD.
3. To investigate the moderating effect of EI towards PMP and CSD.

### **1.6 Research Questions**

Sanders (2008) conducted a global study in a single manufacturing plant to examine PMP and its relationship to operational and business performance. She identified that it can be generally classified into three major categories. Those elements are PD, PI and PC. This study being an extension of Sanders's findings, focuses on identifying and explaining the relationship between PMP and CSD when KMC and EI are present. Thus the below research questions are proposed for this research.



1. Is there a direct relationship between PMP (PD, PI and PC) implementation in corporations and CSD?
2. Does KMC have a moderating effect between PMP and CSD?
3. Does EI have a moderating effect between PMP and CSD?

### **1.7 Practical Significance**

The concept of CSD has gained importance in recent years (Hahn and Figge, 2011). Thus, many authors tying processes to sustainability have been developed, including Chee Tahir and Darton (2010) and Hall and Wagner (2012). However, Asif et al. (2009) suggest that the tools and techniques used to integrate sustainability into business processes normally have an environmental focus and fail in the integration of all aspects of sustainability. Due to this, there is a rapidly increasing awareness in corporations that their processes are not wholly sustainable for the future (Joseph, 2012). As the population of the world increases and resource availability decreases, corporations are starting to realize that PMP strategies must be embraced to remain competitive (Padua and Jabbour, 2015).

Therefore, this study provides insight to corporation managers in the industry to emphasize PMP strategies. This is because, PMP could pave the way for further expansion towards CSD through identification of existing environmental development, economic development and social development levels. The influential factor, KMC in this study may or may not serve as a critical moderator for ISO 9001 certified manufacturing corporations embarking on the reach for CSD. Thus, this study provides managers a more holistic perspective on KMC so that corporations can consider becoming learning corporations. This is in line with a study by Costa and

Monteiro (2016), they identified that knowledge provides corporations with a sustained competitive advantage through its application in new or significantly improved products or services, production processes, managerial practices and marketing strategies, that is, innovation.

Next, this study pinpoints to corporation managers the influential factor, EI which may or may not serve as a critical moderator for ISO 9001 certified manufacturing corporations embarking on the reach towards CSD. However, in this study, a wholesome picture is provided for top management within a corporation to emphasize EI and reduce pollution or harmful impact towards their surroundings. This is likely because today's more environmentally aware consumers may be inclined to purchase products from corporations that are sensitive to environmental issues. Similarly, Bouranta et al. (2017) asserted that corporations that implement EI within their processes, enjoy increased profits, better reputation and superior brand image in the marketplace.

Furthermore, this study highlights that, for sustainable development, operations managers need to make a good balance in managing the exploitation and exploration activities in corporations. In summary, this study seeks to provide a guideline for managers based on indicators for PMP, KMC, EI and CSD to examine their standpoint. In view of this, corporations can then develop practical management tools and develop effective policies for their sustainable development.

## **1.8 Theoretical Significance**

Over the years, the PMP literature has grown significantly. Nair and Prajogo (2009) states that Institutional Theory provides motivations for high performing firms to implement quality management systems. This motivation comes from the need for improvement rather than a desire to attain certification. This is because, Institutional Theory posits that structural and behavioural changes in corporations are determined less by competition and the desire for efficiency, but more by the need for corporate sustainability (Liu and McKinnon, 2016). Therefore, Sarkis et al. (2011) mentioned that much future research is required in certain areas because it is yet unclear how internal factors interactively promote PMP towards sustainable development. This study therefore provides added value to institution theory by addressing and answering the above gap in this theory. Also, implementing a more complete framework such as presented in this study suggests possible significant insights for managers into how corporations effectively arrange, coordinate and adopt PMP in the corporation, eventually leading to sustainable development.

The Knowledge Based View (KBV) Theory identifies, knowledge as an important resource of the corporation. Dierickx and Cool (1989) identified that knowledge as an asset which influences corporation's differentiation and competitive advantage. The current interest in knowledge management capacity within corporations has been growing among both scholars and practitioners because it provides a new competitive landscape (Wang et al., 2016). Yet so, studies from a KBV perspective that focuses on the role of firms in efficiently producing knowledge or capabilities within a corporation are lacking and must be further explored (Nickerson and Zenger, 2004). This study therefore provides added value to KBV by addressing and answering the above gap in this theory. Also the aim of this study is to

conceptualise how KMC should be integrated into the strategic processes of corporations to subsequently influence sustainable competitive advantages.

Awareness and importance of EI towards sustainability have been budding over time with that theme now becoming mainstream. A display of this is the increasing presence of EI such as pollution prevention which is a corporations' core competence (Zopf and Guenther, 2015). This view is supported by Hart's (1995) Natural-Resource-Based View (NRBV), who stated that environmental concerns are an important future sources of competitive advantage. Yet so, the NRBV concerning EI through pollution prevention has been criticized by academics because of its weak conceptual and theoretical development related to the competitive advantage of corporations (Walls et al., 2011). Therefore, this study seeks to provide added value to the NRBV by addressing and answering the above gap in this theory. Also the aim of this study is to conceptualise how EI should be incorporated within a corporation's operational processes to result in sustained competitive advantages.

## **1.9 Definition of Key Terms**

Following are definitions of key terms used in this study:

**Corporate Sustainable Development.** In this study, CSD is understood as demonstrating the inclusion of social and environmental concerns of a business operations alongside their focus for economic growth (Bertoni, 2017).

**Corporation.** In this study, corporation is understood as an organization that meets certain legal requirements to be recognized as having a legal existence, as an entity separate and distinct from its owners. And are owned by their shareholders who share

in profits and losses generated through the corporation's operations, and have three distinct characteristics, legal existence, limited liability and continuity of existence (Oxford Dictionary, 2018).

**Economic Development.** Economic development in this study means, managing a corporation as a durable participant in the market, with a positive impact on the economic circumstances of its stakeholders and on systems at the local, national, and global levels (Steurer et al. 2005).

**Environmental Development.** Environmental development in this study refers to a corporation's efforts to manage its operations in such a way that its final products do little harm to the environment, including land, air, and water (Lindgreen et al. 2009).

**Environmental Initiatives.** Environmental responsibility for waste reduction objectives and quality control goals in corporations and are often an integral part of quality programs within corporations processes (Permana et al., 2015).

**Institutional Theory.** Institutional Theory suggests that structural and behavioural changes in corporations are determined less by competition and the desire for efficiency, and more by the need for corporate legitimacy (Liang et al., 2007).

**International Organization for Standardization (ISO) 9001 Certification.** ISO 9001 is the international standard that specifies requirements for QMS. Corporations use the standard to demonstrate the ability to consistently provide products and services that meet customer and regulatory requirements. It is the most popular standard in the ISO 9000 series and the only standard in the series to which corporations can certify. ISO 9001 was first published in 1987 by the International Organization for Standardization, an international agency composed of the national

standards bodies of more than 160 countries (International Organization for Standardization, 2018).

**Knowledge Based View Theory.** The Knowledge Based View of the firm considers knowledge as the most important strategic resource and, in that sense, this perspective is an extension of the Resource Based View of the firm (De Carolis, 2002).

**Knowledge Management Capabilities.** KMC can be defined as a systematic way of creating, sharing and leveraging knowledge within and around corporations (Evangelista and Durst, 2015)

**Manufacturing.** Based on this study, manufacturing is accepted as the process of converting raw materials, components, or parts into finished goods that meet a customer's expectations or specifications. Manufacturing commonly employs a man-machine setup with division of labor in a large scale production (Oxford Dictionary, 2018).

**Natural Resource Based View Theory.** A theory of competitive advantage based upon the firm's relationship to the natural environment. It composes of three interconnected strategies: pollution prevention, product stewardship and sustainable development (Hart, 1995)

**Process Control.** PC is an imperative aspect of PMP because before improving a process, the process must be stable with minimal variation (Evans and Lindsay, 2005).

**Process Design.** Refers to the first stage of product realization, takes place once a market opportunity has been identified and a conceptualization of a new product to address that opportunity has been completed. At this time, product engineers, usually in the research & development arm of the corporation, create conceptual designs,

develop prototypes, and prepare detailed blueprints for the new product. These blueprints meticulously specify the components of the product, what it will do, how it will work and what it will look like (Bertoni, 2017).

**Process Improvement.** PI is changing an existing system of organized work activities with the aim of meeting customer requirements and/or enhancing performance. Whether the change is major or minor, corporations will at some point have to improve their business processes while ensuring that they still meet customer needs (Hammer and Champy, 1993).

**Process Management Practices Strategies.** PMP strategies is the design, control, and improvement of a system of organized work activities that result in a product or service. This definition also distinguishes PMP strategies from operations management, which is a functional management area concerned with quality, processes, inventory, and capacity (Schroeder, 2007).

**Process Management Practices.** In this study, the definition by Benner and Tushman (2002) is accepted, whereby process management functions as the center piece of quality management and as the mediator in transmitting the effects of other quality management components throughout the corporations.

**Social Development.** Social development in this study refers to managing a corporation in such a way as to reduce social inequality and divisions, improve quality of life, and strengthen relationships with its various stakeholders (Ebner, 2008).

**Sustainability.** Sustainability refers to conditions that include meeting current human needs and those of future generation by the responsible use of resources. A sustainable design requires the competent and responsible use of resources so that those resources

are not fully exhausted. Sustainable processes should also increase resource efficiencies and reduce waste (Balkau & Sonnemann, 2010)

**Sustainable Development.** The World Commission on Environment and Development (WCED) (1987)'s definition of sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' is clear about the integration of the economic, ecological and social impacts of development.

### **1.10 Organization of the Study**

The thesis consists of five chapters.

*Chapter 1*, the Introduction, briefly explains the overview, the identification of objectives and research questions, the importance, and the model of the study.

*Chapter 2* is the review of literature. Related literatures include the manufacturing industry in Malaysia, the evolution of PMP, KMC, EI, CSD and finally the underpinning theories involved.

*Chapter 3* provides the theoretical framework and research methodology. It includes the research hypotheses, control variable, research design, data collection methods, population, sample and sampling method, statistical instrument as well as the measurements used in the survey.

*Chapter 4* is the Research findings. This chapter presents statistical analysis of data collected and findings, profile of respondents, response bias, descriptive statistics of variables, results of hypotheses testing and further analysis.



*Chapter 5* ends the thesis by recapitulating the objectives and findings of the study, discussing the implications of this study, contributions, followed by the limitations of the study, future research and ends with the conclusion.

## **CHAPTER 2 : LITERATURE REVIEW**

### **2.1 Introduction**

This chapter reviews the relevant literature on the manufacturing industry in Malaysia, the developments of PMP and the characteristics of ISO 9001 certified corporations. Also covered in this chapter are the dimensions of PMP (PD, PI and PC), KMC, EI and CSD (environmental development, economic development and social development). Finally, this chapter consists of the underpinning theories (institution theory, KBV theory and NRBV theory) to support the literature.

### **2.2 Manufacturing Industry in Malaysia**

The manufacturing sector globally has witnessed rather drastic changes in the later part of the twentieth century. These changes have left their unmistakable marks on the different facets of the manufacturing corporations. In the process, manufacturing strategy, technology, relations-to-markets and customers have been altered. Today's manufacturing corporation can no longer view itself as a closed system focussed on efficiency. Rather, it must operate as an open system in order to cope with the dynamics imposed on it by a demanding global business environment. In this context, it must operate as a customer-focussed, yet technology based open operational system (Anees et al., 2013). Furthermore, the output of a manufacturing effort, which is the creation of value to customers, has been broadening from manufactured goods alone to also include service and PMP (Johnson and Mena, 2008). On the whole, the role of manufacturing indicates the strategic contribution of manufacturers towards the strength of a corporation.

Since its independence in 1957, Malaysia has achieved an impressive development of its manufacturing sector and of its overall economy. Having initially been highly dependent on natural resources like rubber and tin, it first diversified into other natural resources, like palm oil processing industry in the recent few decades. Malaysia has also developed many manufacturing industries, notably electrical and electronics (E&E), as well as the automobile and steel industry. Additionally, Malaysia being a developing country, strives to transform its manufacturing industry into being resilient, broad based and internationally competitive. With that said, Malaysia has come a long way and is currently a leading exporter of manufactured products (Arumugam et al., 2008). Thus, progressive growths are imperative for Malaysia to reach its goal of becoming an industrialized nation by the year 2020.

Since the national economic growth and Gross Domestic Product (GDP) depends largely on the manufacturing industry, there is a noticeable GDP increase to RM81 745 million in the fourth quarter of 2019 from RM79 938 million in the third quarter of 2019. Also, the GDP from manufacturing in Malaysia is expected to be RM76 417 million by the end of the first quarter for year 2020. Looking forward, the GDP from manufacturing in Malaysia is expected to stand at RM83455 million at the end of year 2020. In the long-term, the Malaysia GDP from manufacturing is projected to trend around RM87 378 million in year 2021 and RM91 310 million in year 2022 (Department of Statistics Malaysia, 2020). The growing figures indicates that the manufacturing industry is one of the promising sectors which will accelerate the development of the nation (Ahmad, 2011). The manufacturing sector also makes an indirect contribution to the economy through synergistic relationships with other economic sectors such as trading, financial, transportation and services. Therefore, although the manufacturing sector is increasingly feeling the heat of negative

developments overseas, the manufacturing sales value has been increasing at an encouraging pace from year 2015 up to year 2019, as seen in Figure 2.1.

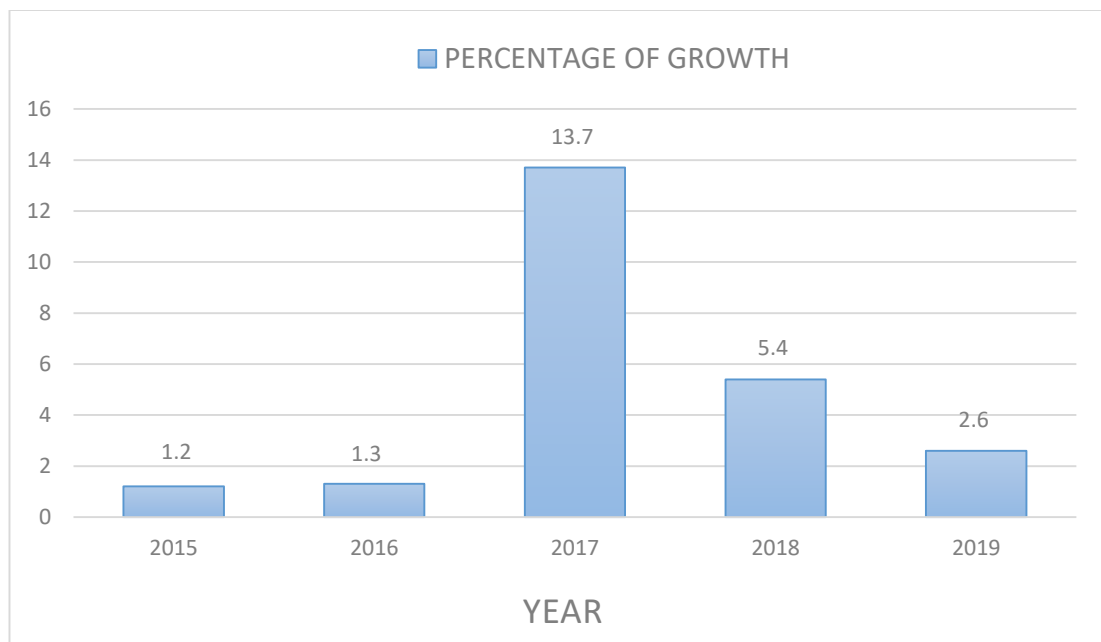


Figure 2.1 Malaysian Manufacturing Sector Sales Value Growth from year 2015 to year 2019 (Source: Department of Statistics Malaysia 2020)

Basically, there are few reasons that encouraged continuous growth of manufacturing sector in Malaysia. Being ideally located in South East Asia, Malaysia definitely offers a dynamic and productive business environment suitable for investors to manufacture high quality products for the export market (Anuar and Rosnah, 2011). In addition to that, the well-developed infrastructure and abundant trained workforce are also some of the reasons that have brought in countless foreign investors to the country. The five state-of-the-art international airports complete with air-cargo facilities and seven international seaports make it convenient for investors to expand and flourish their business in regional and global market (Anees et al., 2013).

The Malaysian Investment Development Authority (MIDA) oversees the promotion and development of manufacturing sectors in the country. Besides that,

MIDA also serves as a platform for national and regional corporations to get in touch and expand abroad for more business opportunities. This is to ensure a smooth progression of the manufacturing sector within the country. In addition to that, the Federation of Malaysian Manufacturers (FMM) was established in 1968 to assist Malaysian manufacturers to adjust quickly with the rapid modernization. Today, the federation consists more than 2,000 manufacturing and industrial service corporations and aims to elevate Malaysian industries to be globally competitive.

However, with a progressive manufacturing industry, environmental issues are becoming key concerns for governments and corporations worldwide, largely as a result of deteriorating climatic conditions. Global warming, ozone layer depletion, waste, and increasing pollution levels create problems all over the world, and a general belief is that most of the problems are a result of poorly regulated manufacturing activities (Shukla et al., 2009). In addition, increasing global demand and industrialization causes land, water, and air pollution, and degrades natural resources (Huang, 2010). Accordingly, manufacturing corporations face pressures from all directions, including end customers who prefer to buy eco-friendly products (Hu and Hsu, 2010). Therefore the government is continually taking measures to pursue and foster sustainability agendas by enabling sustainable consumption and production processes that conserves the natural resources to mitigate environmental problems. The government has also announced a voluntary commitment to reduce 40% of carbon dioxide emissions by year 2020 (Kamaruzzaman et al., 2017). These actions will further reduce industrial and environmental waste for a sustainable future.

In recent years, the importance of the sustainability agenda for the manufacturing industry has become inevitable. The manufacturing industry is one of

the major source of environmental problems worldwide (Gao and Nee, 2018). Additionally, because industrial products have been pin pointed as the major source of sustainability issues, responsible manufacturers must take environmental impact throughout the production processes and life cycle of a product into consideration (Hu and Hsu, 2010). Thus, in response a wholesome approach has to be taken into consideration within corporations to utilize resource optimally, reduce waste, improve production processes and product quality, eliminate environmental pollutants and tap on existing knowledge resources within a corporation to foster sustainability agendas (Khan et al., 2016).

### **2.3 Development of Process Management Practices**

The concept of Business Process Management Practices (BPMP) surfaced in the new millennium during the discovery of the scientific management theory. In the 1960s, technology increasingly became a business driver and amplified the speed of change. This launched the first wave of process orientation and corporations became much more competitive, due, in part, to their focus on quality improvement programs and reduced defects (Antonucci and Goeke, 2011). Businesses next changed focus to measurable processes and to speed that could be combined into “Just in time” manufacturing. The growing use of computers in the 1970s and 80s led to the second wave of process orientation which covered the late 1980s to the early 1990s. Focus shifted to Total Quality Management (TQM), and then to ISO compliance standards (Padua and Jabbour, 2015). Over a decade of statistical analysis increased the need to manage data in a meaningful way. Therefore, corporations shifted from focus on corporate mission and group brainstorming to cross-functional teams and to handoffs