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**INNOVATION PRACTICES AND PERFORMANCE OF MANUFACTURING
SMEs IN KEDAH**



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Thesis submitted to
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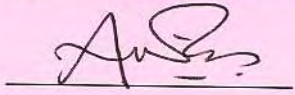
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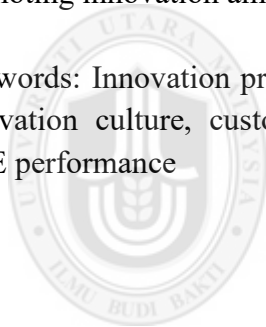


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ABSTRACT

The purpose of this research is to assess the innovation practices and performance in small and medium-sized enterprises (SMEs) from the resource-based view (RBV) perspective in the Malaysian manufacturing sector. The research focused on SMEs because of the importance of SMEs in the economy and the high percentage of them in the Malaysian business population. Furthermore, manufacturing SMEs are mostly involved in innovation activities. The present research assessed the relationship between innovation practices, namely innovation strategy, organizational formal structure, innovation culture, customer and supplier relationship; and technological capabilities on SME performance. This research used survey methodology by questionnaire, then analysed by descriptive analysis, correlation and regression analysis. Findings showed that dimension of innovation strategy and technological capabilities has a positive significant relationship and influence on SME performance. This study has contributed to the flow of RBV and innovation research and provided important contributions for practitioners in developing policies and strategies for promoting innovation among SMEs in Malaysia.

Keywords: Innovation practices, innovation strategy, organizational formal structure, innovation culture, customer and supplier relationship, technological capabilities, SME performance

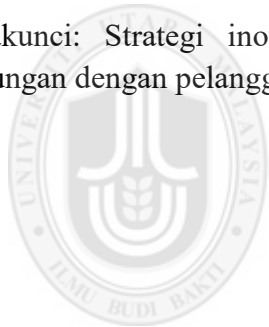


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ABSTRAK

Tujuan kajian ini adalah untuk menilai praktis inovasi dan prestasi dari perspektif *resource-based view* (RBV) yang melibatkan perusahaan kecil dan sederhana (PKS) dalam sektor pembuatan. Kajian ini memberi fokus kepada PKS atas dasar kepentingan PKS dalam sistem ekonomi dan populasi PKS yang tinggi di Malaysia. Tambahan lagi, PKS dalam pembuatan sering terlibat dengan aktiviti-aktiviti inovasi. Kajian ini telah menilai praktis inovasi dari dimensi strategi inovasi, struktur formal organisasi, budaya kerja inovasi, hubungan dengan pelanggan dan pembekal; dan keupayaan teknologi dengan prestasi PKS. Kajian ini menggunakan kaedah tinjauan menggunakan soalan soal selidik dan melibatkan analisis deskriptif, korelasi dan regresi. Dapatan kajian menunjukkan bahawa dimensi strategi inovasi dan keupayaan teknologi mempunyai hubungan positif yang signifikan dan mempengaruhi prestasi PKS. Kajian ini telah menyumbang kepada aliran penyelidikan RBV, kepada bidang penyelidikan berkaitan inovasi dan juga menyumbang buah fikiran kepada pengamal dalam PKS dalam membangunkan polisi dan strategi.

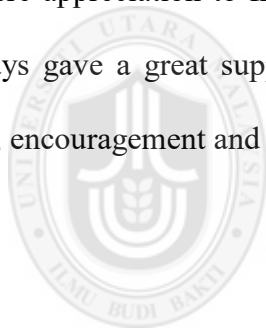
Katakunci: Strategi inovasi, struktur formal organisasi, budaya kerja inovasi, hubungan dengan pelanggan dan pembekal, keupayaan teknologi, prestasi PKS



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Thank you

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ABBREVIATIONS

CEO	- Chief Executive Officer
GDP	- Gross Domestic Product
ICT	- Information Communication Technology
MITI	- Ministry of International Trade and Industry
MOSTI	- Ministry of Science, Technology and Innovation
RBV	- Resources Based View
R&D	- Research and Development
SME	- Small and Medium Enterprise



CHAPTER 1

INTRODUCTION

1.1 Background of the Study

SME or small and medium enterprise is a term used for segmenting businesses or firms which are somewhere between micro and large firms. By referring to SME Corporation Malaysia (2016) in SME Annual Report 2015/16, the new definition of SME in Malaysia has been revised in the year 2014. The definition has increased the threshold of manufacturing firm turnover not exceeds RM50 million. The new definition also emphasized that all Small and Medium Enterprises (SME) must be registered with *Suruhanjaya Syarikat Malaysia* but excludes public-listed companies, subsidiaries of public-listed companies, multinational corporations, government-linked companies, *Syarikat Menteri Kewangan Diperbadankan* and state-owned enterprises. The details of the new SME definition of manufacturing were firms with a sales turnover of RM300, 000 but not exceed RM50 million. In terms of employees, SME counted from 5 but not exceed 200 of permanent employees. The definition for services and other sectors were different from manufacturing sector where sales turnover not exceed RM20 million or not exceed a total of 75 permanent employees (SME Corporation Malaysia, 2016).

In economy, SMEs are the essential elements playing a major role in driving innovation. Establishment of SMEs has increased competition and economic growth in many countries including Malaysia. Instead, Bozkurt and Kalkan (2014) mentioned that SMEs cover in most of the society, and generate an economic impact

of 99.5 percent shares. Latest SMEs' profiling in Malaysia can be traced in the economic census conducted in 2011. The result showed that there was a total of 645,136 SMEs operating in the country. The numbers actually implied that SMEs covering of Malaysia business establishment up to 97.3 percent. Majority of SMEs involved in three main sectors (i.e. services, manufacturing and construction). Services sector emerge as the largest sector with 580,356 establishments (90%), the manufacturing sector was 37,861 (5.9%) while there were 19,283 SMEs (3%) in the construction sector (SME Corporation Malaysia, 2016). Focusing on SMEs alone, it is noted that manufacturing constantly becomes second major contributors compared to the overall gross domestic product (GDP) structure. Table 1.1 below shows detail contribution of SMEs according to their respective sectors.

Table 1.1
Sectoral Contribution to GDP in 2015

	Percentage share to total (%)	
	SME GDP	Overall GDP
Services	58.9	53.5
Manufacturing	21.7	23.0
Agriculture	12.0	8.9
Construction	5.7	4.4
Mining & Quarrying	0.4	9.0

Source: SME Corporation Malaysia, SME Annual Report (2016)

Kedah has been among the top five within manufacturing sector in SMEs with 2809 establishments (SME Corporation Malaysia, 2016). Instead, other than service sector which covers about 89 percent, Kedah SMEs were actually dominated by manufacturing sector (8%), followed by agriculture (2%), construction (2%) as well as mining and quarrying (1%) (SME Corporation Malaysia, 2016). Kedah's economic growth has been contributed by the manufacturing sector for years. The state

government of Kedah has put full support and encouraged manufacturing sector in the creation of an environment that conducive to the industrial investors.

In any contemporary market conditions, the competition between firms is one of the external forces faced by any organization. Competition between SMEs has been a key factor in the business development, so that the competitiveness of SMEs become a pre-condition for the prosperity of business successes. Competition equally affects domestic and international firms as well as large firms and SMEs. Most of the studies have confirmed that large firms reported a nearly 100 percent survival rate, whereas SMEs do not enjoy such a survival rate due to the phenomenon of the rich are becoming richer, and the poor are becoming worst (Chen & Chen, 2013). Following that, innovation has long been considered as the key factor for the survival, growth and served as the competition instrument for firms. The latter become crucial within knowledge-based and technology driven industries (Castro, Delgado-Verde, Navas-López, & Cruz-González, 2013), as well as in the context of SMEs where such firms known to having extraordinary potential for flexible adaptation, business adjustment (Ahmedova, 2015), changes and developments (Bozkurt & Kalkan, 2014) to the economic circumstances or market changes.

Innovation has been classified into numerous types, but the definition in Oslo Manual by OECD (2005) was the most commonly used. The manual distinguished innovation into four types (i.e., process, product, organizational and marketing innovation). As researchers continue to study on the subject of innovation, it is Schumpeter's view of innovations influenced and discussed in most of the literature. Schumpeter, 1934 (cited in Harvey, Kiessling, & Moeller, 2010) stressed that the innovations lately

become crucial as global competition increased and offers opportunities to a vast number of entrepreneurs. The firms, however, responsible for searching and utilising these individuals or resources towards innovation. Schumpeter again stressed that innovation in the capital economy or society is an essence for growth and development. Innovations contribute by introducing new products or services that are different from usual. As Schumpeter believed in the wealth of innovation knowledge, other disciplines including strategic management explore innovation over the years (Harvey, Kiessling, & Moeller, 2010). Nowadays, innovations have become one of the important aspects of every business activity due to the fact that they can create new space for specialization and future growth to surpass the business boundaries. Ehrenberger, Koudelková and Strielkowski (2015) quoted that interconnecting region and business entities due to globalization nowadays has increased necessity of innovation. Such claim brings to the fact that innovation is not an option for SMEs survival as well as business development.

This study also stems on Resource-based View (RBV) which explain strategy practices from the firm's internal characteristics. RBV stressed that in order to achieve competitive advantage, firm needs to manipulate its resources, capabilities and internal characteristics. The competitiveness resulted in achievement of superior performance (Camisón & Villar-López, 2014). Thus, using RBV will facilitate the analysis of innovation practices within organization and its performance.

Subrahmanya (2015) in the study of innovation and growth of engineering SMEs indicated clearly that primarily firm level resources and capabilities distinguished innovative firm from non-innovative firm as well as a successful firm from the

unsuccessful firm. In relation to innovation, it reflects the firm's internal resources and its manipulating capabilities of its strategy and strength. The study reflected internal strength in term of firm organisation and presence of dedicated innovation office, whereas internal strategy is reflected in firm age and firm's business objective. Thus, a firm should have the internal strength to strategize its resources for successful innovation activities. It can be done through an integrated coordination of a business strategy, structure of work, marketing, skilful employees and use of technology (Bayarçelik, Taşel, & Apak, 2014).

1.2 Problem Statement

Globally, researchers agreed that SMEs make up as significant contributors to the economy. Besides serving as wealth creation, SMEs also provides job to eradicate poverty (e.g., Prajogo & McDermott, 2014). The statement also reflected Malaysian SMEs where SMEs' GDP growth exceeded country's GDP growth. Excluding the redefinition effect that instantly increased SMEs' growth, 2011-2015 recorded an average annual growth of 6.7 percent versus the country's overall economic growth of 5.3 percent. Hence, table 1.2 below shows SMEs contribution to GDP increased to 36.3 percent in 2015 from 32.2 percent in 2010 (SME Corporation Malaysia, 2016). However, it is noted that the contribution percentage of manufacturing sector only slightly increased in 5 years. SMEs manufacturing contributed at 7.9 percent in the year 2015 compared to 7.2 percent in the year 2010. Several reports could be possibly linked to this stagnant performance such as according to Rasiah and Yap (2015), lower productivity could relate with poor innovation efficiency. Perera (2016) mentioned that the main reason holding SMEs back and influence productivity was

due to neglecting to prioritize innovation element. Based on World Bank Productivity and Investment Climate Surveys, productivity performance of SMEs can be improved by having the innovation; and this element was the highest impact among other six elements -- market access, human capital development, lesser extent of regulations, access to financing, and business infrastructure (National SME Development Council, 2012).

Table 1.2
SME Contribution to GDP

	SME Contribution to GDP	
	2010 (%)	2015 (%)
Overall	32.2	36.3
Construction	0.9	2.1
Services	19.6	21.4
Mining & Quarrying	0.05	0.2
Agriculture	4.3	4.3
Manufacturing	7.2	7.9

Source: SME Corporation Malaysia, SME Annual Report (2016)

In general, manufacturing forecasted to grow by 5.1 percent per annum up to the year 2020 and contribute 22.5 percent to Malaysia GDP. Where Malaysia has long been depended on traditional factors of production like capital and labour, the biggest challenge for the manufacturing subsector mainly involves strengthening innovation among others (“Malaysia behind”, 2016). Considering innovation as the main predictor for productivity improvement, this study was used Terziovski’s (2010) innovation practices construct which consists of innovation strategy, formal structure, innovation culture, customer and supplier relationship; and technological capabilities. This study was conducted to assess its influence on SMEs performance in Malaysia, specifically in Kedah.

In term of innovation, countries have put attention to encourage innovation in SMEs by formulating incentives considering SMEs' roles in country development. However, Forsman, (2011) mentioned that innovation study in SME was scarce. The majority of studies have focused on large firm when it comes to innovation. Similarly, strategic orientations and innovation linkages have been well researched in developed economies as well as for large businesses. Otherwise, little is known about emerging economies like Malaysia and SMEs particularly (Batra, Sharma, Dixit, & Vohra, 2015).

As large firms normally have technological capabilities, financial and learning ability, SMEs on the other part associated with resource limitations and less sophisticated management structures. This weakness finally gives a negative effect on innovation strategy due to SMEs often unable to recognize market opportunities and new technologies (Prajogo & McDermott, 2014). Following that, researchers also argue that SMEs possess different resources and capabilities compared to the large firm (e.g., Forsman, 2011). Thus, trigger the question whether innovation factors, practices and capabilities that have been shown in the large firm will be effective within the scope of SME towards creating innovation. As far as SMEs and large firm have different innovation factors, the study also needs to concern on the variety of factors between innovative versus non-innovative SMEs. Some of the innovative successful SMEs believe to have its own resources and capabilities. They manipulated greatly on internal strength and formulated innovation strategy compared to non-innovative firm (Subrahmanya, 2015).

In the industrial sector, the issue of innovation was long becoming an important subject. Among ways to increase profits and market shares were by strengthening innovation activity as the key drivers. Consequently, innovation has been the recipe for sustainable competitive advantages (Bozkurt & Kalkan, 2014). To elaborate more, innovation effects and its capability to firm performance have been studied by multi-faceted construct thus adopted a certain type of innovation between product or process innovation, radical or incremental innovation rather than overall firm's innovation capability and performance. Thus, Saunila (2014) stressed the importance to know how does each aspect of innovation capability impact the performance of SMEs. In relation, it is also not clear whether and to what extent each of the innovation capability determinants such internal source strength related with overall performance.

Studies on SMEs innovation practice and its effect on performance found that innovation strategy has the greatest impact on SMEs performance (e.g., Terziovski, 2010). The study which draws 600 data from Australian's manufacturing SMEs concluded that SMEs' performance was improved whenever SMEs recognized innovation culture and innovation strategy are aligned. Those practices must be linked throughout the process of innovation. Yet, Sethibe and Steyn (2016b) argued that very few studies are designed to investigate the causal path of the effect of innovation on organisational performance systematically by examining the influence of organisational climate (i.e., norms, practices and procedures that encourage reactivity, trying new things and develops employees to take risk).

Further literature found that evidence on innovation management specifically for SMEs are limited and significantly lower, as researchers were more focus on large organization (Love & Roper, 2015; Maletič, Maletič, Dahlgard, Dahlgard-park, & Gomišček, 2014; Terziovski, 2010). Previous study often involved small sample sizes and simple analysis (Love & Roper, 2015). In most studies of SMEs, analysis often failed to tackle issues like the relationship between innovation and performance. Studies also unable to differentiate whether innovation itself improved performance versus successful firms chooses to innovate. On the other side, the literature on innovation and firm performance were confined to industrialised and developed countries translating that there is relatively less research conducted exploring factors of innovation in emerging economies (Subrahmanya, 2015) such like Malaysia.

Prajogo and McDermott (2014) argued that SME has less sophisticated or formal management structures where it can influence innovation in a negative way. Such formal structure was found to facilitate firm in term of management decision, enables technical innovation with their clear definition of labour hierarchy and procedures. Formal structure distinct from informal where it has a set of characteristics. The formal firm has well-defined regulations and rules to be followed. Such firm also provides clear mission, objectives and policies implemented. The formal structure also facilitates activities documentation and record. Gambatese and Hallowell (2011) stressed that formal structure within firm accelerated lessons and disseminate innovation knowledge through a proper mechanism where it provides coordination among different departments or units (Kalay & Lynn, 2015).

In modern customer-oriented firms, most companies clearly depended on their customers' feedback when innovating (Bos-Brouwers, 2010). Within innovation view, firms may gather the data through discussions, surveys or special events with customers to gain an insight into product preferences. It is due to the fact that customer references and trends changing over time (Dibrell, Craig, & Neubaum, 2014). At the same time, SMEs also uses their suppliers as the source in gaining new knowledge and technological information. It is a normal practice, since SMEs have limited range of capabilities and poses financial constraint. Due to that, SMEs seeks help from their suppliers or partners to take part in product development or produce part of their product (Yeniyurt et al., 2014). The strong relationship between both parties brings to the supplier's willingness to invest in resources and technology sharing. The activities signal commitment to the relationship with supplier consideration on future product or business ventures (Henke Jr. & Zhang, 2010). Customers and suppliers actually have the same objective which is to satisfy their end users. Such statement brings to the fact that the relationship between both parties stronger over time.

Researcher still argued that not all innovative behaviour brings good to the organization even though the literature tends to assume that all corporate innovative actions and culture as automatically beneficial (Kuratko, Covin, & Hornsby, 2014). Although innovation usually glorified as a successful strategy for growth, Kuratko et al. (2014) again mentioned that innovative firm kept their innovation implementation secret from outsiders. Hence, the introduction of new knowledge that leads to innovation practices and innovation culture is important for the positive effect of firm

performance and development of product-innovation and process-innovation capability (Brunswicker & Vanhaverbeke, 2015; Camisón & Villar-López, 2014).

Innovation culture touted as important practices for innovation due to its ability in shaping positive atmosphere. Where firms and entrepreneurs willing to take a risk and supported (Jenatabadi, 2014; Kalay & Lynn, 2015; Kamasak, 2015), innovation were found most successful. One of the most powerful innovation cultures is rewards and incentives towards innovation activities. A firm which puts bonuses and promotion based on employees' performance towards innovation can encourage employees to involve in learning, training and activities related to innovation (Kalay & Lynn, 2015).

Technological capabilities have been defined by Morrison, Pietrobelli and Rabellottiare (2008) as the skills in technical, managerial or organizational. It is important in order to utilize the hardware and software of technology. Transferring technology capabilities is not like transferring equipment to a firm, rather it takes time and abilities to mastering, adapting and diffusing such technology to build future capabilities. However, SME has been accessed to having poor technological capabilities, which can have a negative impact on innovation (Prajogo & McDermott, 2014). Innovation investment especially on technology, reported able to shape individual's exploration of new knowledge for the firm (Brunswicker & Vanhaverbeke, 2015), especially in the manufacturing firm where research and development (R&D) has a critical role in elevating technological capabilities to accelerate new product development (Guo, Zheng, & Liu, 2017). Dibrell, Craig, and Neubaum (2014) also urged firm to improve their resources and technological

capabilities towards innovation by focusing on such investment. Such action may help firm to identify opportunities, combine value-creating resources that lead to firms' innovative processes which resulting into new and improve products. However, Bozkurt and Kalkan (2014), reported that 41.8 percent of SME does not have the budget for R&D. The study then indicated that most of SMEs was not aware of innovation and should develop and acquired new technology with applying a certain amount of expenditures. On top of R&D, previous studies also mentioned that the ability for the capability to adopt technology, imitation and minor modification, and innovative marketing are all significantly related to innovation performance. Such practices (non-R&D-based innovation activities) are important for SMEs' innovativeness in China (Guo et al., 2017). It is also known that lack of knowledge regards to innovation, insufficient training, inexperience staff and communication barriers between departments lead to lack of capability in manipulating technology (Bozkurt & Kalkan, 2014). In turbulence market, technological capabilities may be exploited to respond against customer and market demand by using information technology skills, enterprise resource planning, or even continuous improvement method. Such capabilities enable firms to have sufficient intelligence towards customer requirements (Kamasak, 2015).

Considering discussed issues, the relationship between the practices of innovation and its performance are still debatable and arguable especially in term of SME is somewhat new. The literature on this topic revealed that study of strategic and innovation has been lacks of comprehensive reviews and findings were considered as inconsistent between scholars. The idea is that innovation predictors or practices can be varied between firms and between geographic location. Recently, researchers (i.e.,

Bozkurt & Kalkan, 2014; Naranjo-Valencia, Jiménez-Jiménez, & Sanz-valle, 2016) urged the importance to determine factors that may influence innovation for SMEs. Consequently, following RBV theory, this research has been carried out to investigate innovation practices and its implication on SME in the manufacturing sector to explore more knowledge of innovation in the field of strategic management.

1.3 Research Questions

This study is conducted to examine whether the independent variables, that is innovation practices which include innovation strategy, organizational formal structure, customer and supplier relationship, innovation culture and technology capabilities have a relationship and able to influence the performance of the SMEs in manufacturing firms as the dependent variable. Based on the problems above, several questions have arisen which then become the basis for this study. Thus, this study will try to identify and find the answers to the following questions:

- a) What is the relationship between innovation practices (i.e., innovation strategy, organizational formal structure, customer and supplier relationship, innovation culture and technological capability) and firm performance?
- b) Does innovation practice (i.e., innovation strategy, organizational formal structure, customer and supplier relationship, innovation culture and technological capability) influence SMEs' performance?

1.4 Research Objectives

This study purposely has been carried out to examine the relationship between SMEs' resources and innovation within the manufacturing sector. With this aim, the objectives of the study are as follows:

- a) To examine the relationship between innovation practices (i.e., innovation strategy, organizational formal structure, customer and supplier relationship, innovation culture and technological capability) with firm performance.
- b) To examine the influence of innovation practices (i.e., innovation strategy, organizational formal structure, customer and supplier relationship, innovation culture and technological capability) on SME performance.

1.5 Significance of the Study

The importance of innovation study can be traced back to 1934 where Schumpeter (cited in Kamasak, 2015) mentioned that firm's success is the outcomes of innovation and the use of new technologies rather than influenced by market power. As SMEs react to competition and market preferences, firms have to replace their product and service concepts. In doing so, innovation has to be part of the product development process in gaining competitive advantage and market preferences (Kamasak, 2015). Considering the contribution of innovation towards firm's performance, this study in SMEs can be considered significant since the government has encouraged new ideas,

new strategies, technology and modern processes to enhance business innovation in Malaysia.

Since one of the innovation determinant surrounding innovations is that of excellent resources, this paper then, offered a bridge between the SMEs resources and its innovation in Malaysian manufacturing. The main reason SMEs was chosen is due to its contribution to the overall Malaysian economy as well as the manufacturing sector as active innovators compared to other sectors. Since the literature found on innovation within SMEs is lacking, particularly on its internal resources, this study will benefit by adding new knowledge apart from the existing literature, findings and recommendations. Findings expected to contribute to knowledge and understanding following inconsistently results from previous studies. Finally, the present study will also contribute to the RBV theory where the theory stressed that internal resources are strategically important as a driving force of innovation in Malaysian SMEs.

1.6 Scope of the Study

Firstly, the research only focused on the SME status firms which will be defined later in the following topic. SME was chosen as it is well-known that SME has a major contribution to the economic growth, GDP as well as more flexible to practice innovation. Secondly, this research only focused on SME within the manufacturing sector in Kedah. The reason was to find out only the manufacturer who involved in innovation to produce new product and also invent a new work process in order to gain efficiency and cost reduction. Thirdly, this research was only obtained from owner or entrepreneur or manager or other top management of the SMEs

manufacturing firms as the respondents. It implied that those people are a person who knows well about the company's plans, strategies, future directions as well as with the overall performances of their company. Finally, this study assessed innovation practices from resource-based view only rather than combining internal and external resources of firm's innovation.

1.7 Definition of Terms

1.7.1 SME

SME Corporation Malaysia has published 'Guideline For New SME Definition' which defined manufacturing SME as firm whose sales turnover not exceeding RM50 million or full-time employees not exceeding 200 workers (SME Corporation Malaysia, 2013).

1.7.2 Performance

Performance is an outcome and can be measured as financial and non-financial measures (Simpson, Padmore, & Newman, 2012) while Balk, Kwant and Neudecker (2014) refers innovation performance when it adds value for better products, process, more profit or larger market share for example.

1.7.3 Innovation Practices

OECD (2005) defines innovation as the implementation of a new improved product, marketing method, process or a new organizational method. Practices of innovation explained by Kalay and Lynn (2015) as enterprise practices or implementation to establish preconditions which in turn encourage creativity. It depends on enterprise's ability to manage its owned resources including technology, human relationship, culture and business processes to support innovation within the enterprise. Thus, innovation practices in manufacturing mean activities applied or implemented in creating new products or work practices. According to Terziovski (2010), among resource-based innovation practices include innovation strategy, organization formal structure, customer and supplier relationship, innovation culture and technological capabilities.

1.7.4 Innovation Strategy

Kalay and Lynn (2015) defined innovation strategy as a guide before they started to innovate. Innovation strategy contains business growth and financial purposes concern with a new good or services. Thus strategy is overall criteria providing a set of filters through which the notions of strategic roles and a new product or services should have passed. While Lendel and Varmus (2011) stated innovation strategy as the direction of company taken towards innovation. It is whether in term of choices of objectives, methods and ways to fully utilize and develop the firm's innovative potential.

1.7.5 Formal Structure

Miller, 1987 (cited in Kalay & Lynn, 2015) defined organizational structure as permanently distributing work roles and administrative mechanisms to enable an organization to perform, coordinate and control its business activities and resource flows.

1.7.6 Innovation Culture

Innovation culture as defined by Castro et al. (2013) is the shared common values, beliefs and assumptions of organisational members. Hence, innovation culture is a value and belief that being practices to facilitate innovation within the firm.

1.7.7 Technological Capability

According to Cerulli, 2014 (cited in Kalay & Lynn, 2015), technological capability related to acquiring, harmonizing and improving information and capabilities. Technological capability is firm ability to gain knowledge and process and translate it to provide firm with innovation capacity.

1.8 Organization of the Chapter

This report consisted of 5 chapter. Chapter 1 introduced to the background of this study, discussion of problem statement, research question, objectives of the study, significance and scope of the study as well as the definition of key terms. The next

chapter (chapter 2) emphasized on literature reviews pertaining the subject of SME, innovation and performance. Chapter 3 continues with research methodology, including theoretical model, hypotheses, research design, sampling and data collection procedure as well as the instrumentation used in this study. The following chapter 4 presents findings of analysis, hypotheses testing and discussion of the result. Finally, chapter 5 concludes and summarizes the whole study, then followed by recommendation and an insight into future research.



CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature review of the topic concern to SMEs and its innovation related. It is useful to review the related areas of the current studies to understand the perspective of RBV theory used in this study, innovation practices and its relationship as well as innovation performance measured to anticipated study outcomes.

2.2 SMEs in Malaysia

SME in Malaysia has been classified according to several sectors namely 1) manufacturing which refers to physical or chemical transformation of materials or components products, 2) services which refer to services including distributive hotels and restaurants trade, business professional and ICT services, entertainment, private education and health, financial intermediation and manufacturing related services, 3) agriculture including perennial crops and cash crops, forestry and logging, livestock and aquaculture, 4) construction which covers infrastructure as well as residential and non-residential, and 5) mining and quarrying (SME Corporation Malaysia, 2016).

In developing countries like Malaysia, SME is well recognized as an economic agent. The government has put priority on SME development so that SME may strives since the global economic crisis 2008/2009. The focus of SME development was to achieve

inclusive and sustainable growth. As SMEs serves as a mean to reduce poverty, creating jobs and contribute to the economy, Malaysia has put a proper policy framework, activities to encourage the start-up of small businesses and financial assistant. The focus has an impact where SME in Malaysia reported to contribute a growth of 6.1 percent in 2015 GDP. The number reflected growth across major SMEs economic sectors. SMEs' GDP supported by domestic demand, particularly from consumer consumption as well as government and private investment activities (SME Corporation Malaysia, 2016).

In sectoral contribution, manufacturing contributed to a total of 21.7 percent of SME GDP as the second largest contributor after services sector (58.9%). Other sector contribution includes agriculture (12%), construction (5.7%) and, mining and quarrying (0.4%). Manufacturing SME value-added growth expanded by 6.0 percent in 2015 compared to year 8.6 percent in the year 2014. Customer related cluster, which mainly produces food and beverages has the largest shares with 21.3 percent of overall manufacturing growth. Then, the contribution of SME comes from other primary sectors such petroleum related products as well as plastic and rubber products.

According to Department of Statistics Malaysia (2016), Kedah has contributed about 5.6 percent of total Malaysia GDP. Manufacturing has been one of the main sector contributed to the economy in Kedah with 28.6 percent contribution shares after services sector at 53.4 percent. Agriculture contributed for a total of 15.1 percent and construction being the least at 1.8 percent. In SME particularly, Kedah has been among the top five manufacturing states with 2809 establishments translated into 7.4

percent of total SMEs manufacturing in Malaysia (SME Corporation Malaysia, 2016).

In Kedah, manufacturing sector covers about eight percent and being second largest sector after services (89%). Kedah's economic growth has long been contributed by the manufacturing sector. In the first quarter of 2014, manufacturing in Kedah boosted by the RM4 billion investment in the manufacturing sector that put Kedah at second place in the highest investment in Malaysia after Sarawak for that year ('Kedah gets RM4b investment', 2014). The state government of Kedah has assured full support to encourage manufacturing sector in the creation of an environment that is conducive for the industrial investors with the proposed of the Kulim International Airport for example. Currently, Kedah has several industrial parks namely Kulim High-Tech Park, Sungai Petani Industrial Estate, Kedah Science and Tech Park as well as Kedah Halal Park to offer comprehensive industrial infrastructures and facilities. Kedah also has a prominent role within the automotive industry with automotive hubs located in Gurun.

2.3 Malaysia's Innovation Reviews

Malaysia generally has been an innovation achiever (2011-2014) and recorded the highest rank among the middle-income countries in term of innovation programs and support by the government. Malaysia ranked at 72nd in the world for 2014 following an improvement in Global Innovation Index score relative to the country's GDP. Although Malaysia has intensively supported programs and budget for SMEs, it is reported that Malaysia demonstrated poor performance regarding innovation

efficiency. This indicated government to review and re-plan its rules and policies. The latter are much concern with the implementation of R&D sponsorship funds or grants (Rasiah & Yap, 2015).

On the subject of SME, Malaysia recognized on the important role of SMEs as an economic agent in developing countries. Government has begun to place high priority on SME development as they strive to achieve sustainable and inclusive growth. Anyway, the government realized that there were hiccups in financing gap among SMEs. The matters brought to the proper SME policy framework as well as focusing on encouraging startups and small businesses. By referring to the figure 2.1 below, for the year 2015, labour productivity of SMEs (measured by real value-added per worker) grew by 0.4 percent after declining by 6.6 percent in 2014. The result was due to higher SME GDP growth of 6.1 percent against SME employment growth of 5.6 percent. Despite SME's growth, the margin demonstrates that SME productivity remains low due to being input-driven rather than productivity-led (SME Corporation Malaysia, 2016).



Figure 2.1
SME Growth

Adopted from SME Corporation Malaysia, SME Annual Report (2016)

Where modern innovation much related to technology and information technology update, SME Annual Report 2015/16 also has emphasized on the subject of SME's utilization of information and communication technology (ICT). There has been a discernible increase of technology adaptation, with a majority of SMEs utilized computers, smartphones and internet. Figure 2.2 below shows that about 89.1 percent of SMEs used computers for business as compared to the year 2010 with only 27.0 percent. From a total of SME users, 20.3 percent of SMEs involved in online transactions or online shop. The use of e-payment facilities such as internet banking, credit card and debit card helped to expedite the online transaction processes.

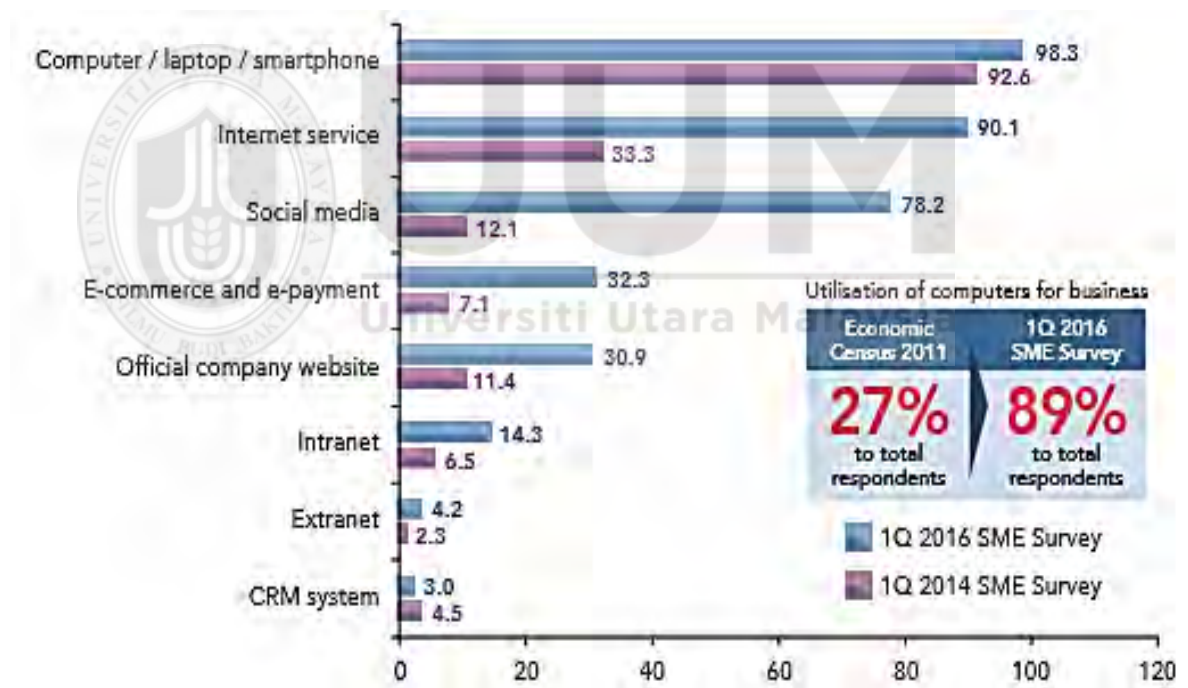


Figure 2.2
 ICT adoption among SMEs.
 Adopted from SME Corporation Malaysia, SME Annual Report (2016)

The government under the 11th Malaysian Plan, also emphasized on innovation towards promoting growth, resilience and sustainability of SMEs. For 2016, a total allocation of RM4.3 billion, used to implement 125 programs benefited 453,945

SMEs which innovation and technology adoption covered about 16 percent out of a total budget as shown in table 2.1 below.

Table 2.1
SME Development Allocation in 2016

Focus Area	No. of Programs	Financial Allocation (RM Million)	Expected Beneficiaries
Access to Financing	31	3,843.0	417,416
Human Capital Development	31	83.1	21,800
Market Access	30	107.1	7,175
Innovation and Technology Adoption	20	208.1	7,004
Infrastructure	13	112.0	550
Total	125	4,353.3	453,945

Source: SME Corporation Malaysia, SME Annual Report (2016)

In order to enhance the quality of products, SMEs must keep up-to-date with the latest technologies and embrace innovation in helping a company upgrading its operational standards. Thus, the government has allocated RM208.1 million for 20 programs in the year 2016 assisted SMEs in exploring innovation and technology adoption. Among the programs managed by Ministry of International Trade and Industry (MITI) were as follows:

Table 2.2
Innovation Related Programs in 2016

Bumiputera Enterprise Enhancement Program	SME Corporation Malaysia provides assistance package to bumiputera SMEs with a budget of RM10 million.
MAI Intelligence Technology System program	Developing existing local vendors and vehicle service centers to level four standard involved 180 vendors and 500 workshops.
The Ministry of Science, Technology and Innovation (MOSTI)	Pre- Commercialization Fund to assist SMEs in developing processes, technology, new products targeted to produce 20 projects with potential for commercialization.

Table 2.2 (Continued)

MOSTI & Malaysian Technology Development Corporation	Commercialization of R&D Fund leverages on technology, science and innovation via commercialization of products and processes expected to come up with five products or services for the overseas market. Fund for Technology Acquisition to promote deployment of foreign technology
Ministry of Communications and Multimedia Malaysia	Bumiputera ICT Demand Aggregation Program to create and identify possible business opportunities for qualified bumiputera technopreneurs and ICT companies.
Ministry of Higher Education	Demand-Driven Innovation Project by Public-Private Research Network to create an ecosystem where knowledge is support, produced and diffused from those who have it, to those who need it. The project optimized and leverage resources and expertise available at higher education institutions aimed for 300 projects to be successfully matched.

Source: SME Corporation Malaysia, SME Annual Report (2016)

With many programs involve greater amount of financial cost, citizen may argue its effectiveness and outcome but, Rasiah and Yap (2015) mentioned previous innovation stimulating programs were good with Malaysia ranked 15th in 2014 in the start-up program with a business indicator improved from 90th in 2012 , business environment rose to 25th in 2014 from 53rd place in 2011. However, Malaysia has not done well in knowledge-based activities which usually, has greater influences over innovation. Country's ranking on knowledge-based workers, knowledge and technology outputs; and innovation networks have fallen continuously from 2011 to 2014. As a consequence, Malaysia has been lack of innovation efficiency and remained an importer of technology and services, incurring payment for licensing.

Although the Malaysian industry and innovation has not been intensely studied, researchers found that Malaysian SMEs management is aware of the innovation roles in the growth of the firms. The manufacturing firms known to has more involvement

in R&D comparing to services industry although resource constraint is a barrier for them to undertake R&D activities or acquire latest technologies in the market (Kamariah Ismail, Wan Zaidi Wan Omar, Soehod, Senin, & Akhtar, 2013). Malaysia innovation influenced by internal networking as the main driver following by market and customer orientation. Internal networking was encouraged by eliminating barriers between departments while responding to the opportunities in the market and filling up the need gaps with speed is a dynamic innovation capability within Malaysian firm (Taherizadeh, Devi, & Fees, 2015). Other research by Lee and Ging (2007) in Malaysia's manufacturing, stated that, new establishment of the small firms were prone to innovate compared to older small-sized firms while among medium and large-sized firms, it is older firms whose tend to innovate rapidly. Determinants of innovation include firm size (positive for small-sized firms), ownership structure (positive for medium-sized firms) and market concentration (positive for medium-sized firms). The paper also reported that SME operates within low-technology industry was rapidly comes out with innovation against their counterparts which operates in medium-high technology industry.

2.4 Resource-Based View

Resource-based view (RBV) in the strategic management study has been popularized by Barney since 1991. The theory explained the manner and focuses on the link between strategy and firm's internal resources through the value, rareness, imitability and non-substitutable framework (VRIN). Those frameworks suggested that firm resources were sustained sources of firm's competitive advantage. In fact, firm higher performer firm was a firm which able to manage this resources advantage efficiently

rather than created imperfectly competitive condition over other rivals (Barney, 1991). The article later explained that firm resources can be divided into three types which are capital resources, human resources and organizational resources. Overall, it includes all assets possessed by the firm, firm's capability, organizational process, attribution of the firm as well as acquired information and knowledge. A Recent study has proved on the relevant of RBV where the ability to develop and then following by ability to deploy unique resources innovatively is a key success of a firm's. This ability and resources are costly to imitate (Dibrell et al., 2014). Organizational resources derived from RBV listed by Terziovski (2010) as innovation strategy, organizational formal structure, customer and supplier relationship, culture and technological capabilities.

Valuable resources mean that when they enable a firm to implement a strategy that in turn will improve firm's efficiency and effectiveness. It may occur in terms of costs related to that activity and outcomes than similar resources in other firms. In addition, such resources also improve firm's strategy to exploit opportunities and neutralize threats. Rare resources imply to the resource that makes firm enjoy competitive advantage not simultaneously implemented by other firms in large number. If a large number of firms able to implement the same strategy, those strategies are not rare and will not be a source of competitiveness. On the other hand, rare resources mean when it delivers unique advantages and strategy for the firm as compared to the rival firms. Inimitable refers to the valuable source, if the firm does not possess, these resources cannot be obtained or at least difficult to imitate. Where a resource is valuable and rare, but easily copied, such resources cannot be ruled. Though competing firm cannot possibly imitate another firm's resources, that firm may be able to substitute with

similar resources. In the end, those firm enable to implement exactly the similar strategy. Then, such resources are not a source of sustained competitive advantage where it is substitutable. In another word, non-substitutable means that resources cannot be functional substitutes with any and unable to be replaced, whether by other strategically equivalent valuable resources (Barney, 1991).

Later, Barney amends the VRIN framework to include organization (VRIO) with an explanation that resources alone are insufficient to generate a competitive advantage. Resources then must be deployed to generate sustained competitive advantage, suggesting that an organization of each company is crucial to exploit and deploy those resources. Barney (2001), further explained that a firm competitive advantage was defined in two ways. Firstly, a firm has a competitive advantage when it engages in activities that increase its efficiency or effectiveness. At the same time, competing firms have not applied those activities in the same way. Secondly, competitive advantages can be defined with respect to return expectations where stockholders favour firms which can generate higher returns than their expectation. The latest study of competitive advantage continuously agreed that making firm resources more difficult for competitors to substitute, duplicate, and simultaneously implement can aid a firm in acquiring sustained competitive advantages. These types of resources are too amorphous to define, to create or definitively acquire (Chen & Chen, 2013).

Despite RBV contribution in strategic management research, the theory has been criticized for being tautological and make the relationship between resources and performance difficult to assess. Thus, to overcoming the tautological flaws of RBV, scholars urge researchers to study the relationship between the resources and the

performance of firms in more detail covering other dimension (Andersén, 2011) like innovation. Similarly, study also needs to understand on how firm's resources success to develop barriers for a competitor (Chen & Chen, 2013). Finally, J. Barney, Ketchen Jr. and Wright (2011) reviewed that the empirical of RBV have been remarkable and hoping the progress will continue and further innovate to avoid decline.

RBV perhaps is the most proper way to explain SME practices regard to innovation since RBV stressed on internal firm sources that readily available. Considering SME were small and struggle with financial constraint, manipulating available sources within firm is more practical rather than acquiring external resources. In conclusion, firm resources are very important sources of firm's competitive advantage that can be sustained over the time. A firm with such competitive advantage has been found to be more successful and performed well over their competitors. This study thus recognized five dimensions of firm resources, namely innovation practices, formal structure, customer and supplier relationship, innovation culture as well as technological capabilities as innovation practices that able to influence and drive SMEs performance. As stipulated, managing resources efficiently towards innovation can create a firm advantage over the other rivals.

2.5 SMEs Innovation Practices and Performance

Literature review has found numerous benefits of innovation and its contribution to firm performance, as a new generation of innovation is an outcome of firms involving the cooperation of many different actors (Śledzik, 2013). The definition of successful innovation given by Balk, Kwant and Neudecker (2014) implied when it adds value to

the delivery of an organization -- better products, more profit or larger market share. However, the success of innovation is hard to measure as definite number. Simpson, Padmore and Newman (2012), stated that there is no absolute formula or how critical success factors contributing to innovation performance should be measured. The authors argued that innovation research is complex, indeed, the definition of success are vague and poses extremely large ranges of factors contribute to the performance and survival. On the other part, business uniqueness, business environments and the aspirations of the owner-managers adding to the difficulty to come out a definite answer in this research area.

Anyway, of all instruments used to measure innovation and its implications or firm performance, recent study find that measuring performance using financial and non-financial measures combined as the most effective measure (Sethibe & Steyn, 2016a; Simpson et al., 2012). Financial performance is more well-known which comprises of return on investment, return on sales and net profit margin (Sidik, 2012). Besides financial performance, innovation was measured by non-financial achievements, including employee's growth, customer satisfaction, market share, sales growth as well as share growth. But, when it comes to innovation, performance usually defined as how success firms able to introduce their innovations so as to gain market preferences (Sidik, 2012). Innovation also often associated with increases in productivity (Andries & Czarnitzki, 2014; Audretsch, Coad, & Segarra, 2014) but, at the same time, lowering the number of employees required for the production, whether to produce goods or deliver services. The effects align with the technology adopted by a firm such as robotic mechanism that lead to less human labour. Study suggested that whenever firms practice innovation, they found it as an activity to

enhance product or services value thus transforming the benefits of formal strategic innovation planning to increased financial return (Dibrell et al., 2014; Sok, O’Cass, & Sok, 2013). These statement supported by Saunila (2014), where the financial performance was most influenced by firms’ innovation capability rather than operational performance. However (Varis & Littunen, 2010) has a different argument where their analysis revealed that there is no relationship between innovation investigated (i.e., process, product, market, and organizational) and the profitability of firms. The explanation may not be difficult since innovation often linked with heavy investments by a firm, including costly R&D, costlier equipment and technological capabilities thus require time to realize. As technological innovation and market innovation are two critical factors on both financial and non-financial performance, technological capability driven innovation emerge as the most influences factor for financial performance (Islam Mohamed Salim & Mohamed Sulaiman, 2011) to support technology investment towards innovation within firm. In anyway, SME is known to have financial constraint to support costly R&D, thus researcher suggested firm with financial constraint to focus on organizational innovation instead of product innovation to overcome their lack of R&D (Laforet, 2011).

In developing a sustainable competitive advantage, capacity of each firm to innovative has been put forward as one of the most important factors (Andries & Czarnitzki, 2014), SME survival (Ahmedova, 2015; Subrahmanya, 2015) and source of firm growth (Audretsch et al., 2014; Subrahmanya, 2015; Varis & Littunen, 2010). SMEs in turn, are urged to offer innovative products or services that are superior relative to its competitors to win the battle. Negative financial commonly due to failure to achieve this relative competitiveness over their rivals. Competition no

longer happens at national or international level; instead today competition is recognized as having a global dimension (Ahmedova, 2015) since internet phenomenal. The introduction of e-commerce and online technology eliminate geographic boundaries to do a business, thus put SME to increase their level of technological capability. As today, firm may find resources for distance as well as meet customers around the globe. The globalization however, puts a firm in highly intensive competition and unpredictable external forces. In modern knowledge-based economy, the capabilities of the companies to adapt to the external environment and to remain competitive is closely related to their capacity on strategizing innovation. For that matters, Ahmedova (2015) listed innovation activities within firm as key factors for sustainable development and competitiveness beside access to finance, internationalization, implementation of best practices and intellectual property-related activities. Researchers have deepened the construct of innovation activities or practices within the firm that influence performance, namely formulating innovation strategy, organizational formal structure, culture, customer and supplier relationship; and technological capabilities as listed by Terziovski (2010), Kamasak (2015) and Kalay and Lynn (2015).

The most significant innovation's non-financial outcome stated in the literature was on organizational learning and knowledge gain. As innovation usually took time and passed certain processed, an organization can benefit by obtaining some experienced, new competencies, therefore, acquiring the intangible assets for future growth (Laforet, 2011; Maletič et al., 2014). Study also showed that innovative SMEs were significantly more committed to learning or poses learning orientation quality, including the personal learning of leaders as well as employees. In the analysis by

Saunders, Gray and Goregaokar (2014), result revealed that innovated SMEs were agreed that employee learning is not an expense but a future investment. Firms also agreed that their ability to learn new knowledge concern with the latest technology was their competitive advantage. Their business value learning as a key culture for innovation and improvement. Learning as well, was seen as a necessary key for business survival.

Literature also found that new established SME plays a great role in innovation. Younger SMEs were known to be more innovative than older SME. It can be caused by pressure faced by younger firms to establish in the market. For this reason, to stay survive and growth younger SMEs are forced to innovate (Subrahmanya, 2015). There are arguments that older SMEs failed because of obsolete technology capability thus lead to lack of innovation (Franco & Haase, 2010). Meaning to say, the authors revealed that failed SME does not have a formal system of producing, packaging, and delivering system. The failed company also does not display positive relationship with the customer where it hasn't renovated its product development by investing in the development of products according to customer preferences. Nevertheless, such firm does not entertain specific customer requirement or trend.

To end this topic, innovation implication is often associated with increases in productivity, better financial performance as well as gains tacit knowledge. For such, innovation implication measurement is important to confirm the role of moderating link between innovation and overall firm performance (Saunila, Pekkola, & Ukko, 2014).

2.6 Innovation Practices

Innovation perhaps is the most proven way of rearranging life. Though, R&D and production of technology are a means of innovation activities (Bozkurt & Kalkan, 2014). Besides that, innovation also touted as the main factors for performance under high market turbulence and high competitive intensity, where innovation reported most positive (Tsai & Yang, 2013). Schumpeter (cited in Śledzik, 2013) explained development as a process of structural changes which was divided into five types which are 1) new product launch or a new species of already known product, 2) opening of a new market, 3) application of new methods of production or sales, 4) acquiring of new sources of supply of material and 5) new industry structure such as the creation or destruction of a monopoly position which driven by innovation.

Literature brings that innovation capability has been categorised into multi-faceted construct. Certain types of innovation, namely 1) services innovation, 2) product innovation, 3) process innovation or 4) marketing innovation has been adopted. Product innovation can be defined as improvement and add beneficial changes to physical products. Product innovation normally is a result of a new production function, while at the same time, it operates to differentiate an existing product (Eiriz, Faria, & Barbosa, 2013) and likely when a firm try to enter the market and needs to differentiate its offer from other competitors, especially from a firm operates in the market at a long time. Andries and Czarnitzki (2014) study shows that firms having a diverse product portfolio, bigger in size and employed knowledgeable R&D manager are relevant to product innovation and innovate more than others.

On the other hand, process innovation related to changes that bring benefits to the working processes. This type of innovation can be viewed as an outward shift of an existing supply function, which corresponds to lowering the costs of the production or service and usually high when firm entering mature to exit stages (Eiriz et al., 2013). As experienced workers are firm's resources, firms that succeed in the process innovation able to utilized ideas generated from their employees. Studies confirmed that the ranges of employees contribute to the new work process, regards their position in technical or managerial. The uses of employee's ideas help firm to introduce process innovations as employees prone to accept their own ideas that lead to voluntarily act. Within managerial level, production manager's suggestions contribute heavily to process innovation (Andries & Czarnitzki, 2014). Interestingly, among SMEs, there were proven that internal process improvements were affected sales growth rates more than when firm introduce new products or services in the market. It can be concluded that process innovation has an advantage over product innovation to accelerate SME's future growth although it is hard to measure due to its tacit nature (Uhlaner, Stel, Duplat, & Zhou, 2013).

Innovation in marketing is referring to the new marketing approach, including changes involving pricing, packaging, product design, branding, product distribution and promotion. The objective aims to satisfy user's needs, open new markets, position new products, and improve business sales (OECD, 2005). Overall, innovation in marketing has brought positive effect on firm performance in their own way. Product innovation and process innovation reported to have impacts on the customer, financial, internal business processes and growth performance in a positive way.

Meanwhile, innovation in marketing has great impacts on internal business processes, financial and customer performance in a positive way (Karabulut, 2015b).

Innovation in another way can be categorized by the capability that it makes. They were between 1) radical innovation, 2) incremental innovation, or 3) disruptive innovation. Where radical innovation happened, it is a new thing that never offered or breakthroughs technology (Kuratko et al., 2014) such as computers. Radical innovation in the past has been less frequent. However, its effects are long lasting and often it changes the traditional business model of the firm. At some point, radical innovation can change the entire shape of industries and it could make the difference between survival and exit for many firms (Uhlener et al., 2013). Incremental innovation refers to the evolution of a product or service enhancement. Incremental innovations are more likely to happen than radical. Since change is always happening, some kind of innovation occurs every day in incremental capacity. Incumbent firms reported tend to strengthen their market positions by adopting incremental innovations (Uhlener et al., 2013). On the other hand, disruptive innovation goes beyond radical innovation and transforms business practice until it's able to re-write the rules of an industry. It will disrupt other business entity in the same industry. Disruptive innovation usually linking to the introduction of the latest technologies that surpass current offers (Kuratko et al., 2014).

According to RBV theory, firm's internal resources which have value to implement strategy, rareness compared to other firm resources, cannot be imitated and non-substitutable. This internal resources must be able to employ and organize within the firm to accelerate innovation and gaining competitive advantage. The following

literature will discuss comprehensively five internal resources-innovation practices which include innovation strategy, formal organizational structure, innovation culture, customer and supplier relationship; and technological capabilities.

2.6.1 Innovation Strategy

Whether stated or not, almost all firms pose a business strategy before running a business. The business strategy then can be stated as the outcome of management decisions. Those strategies made to guide a firm with respect to environment, structure and processes that influence its organizational performance. An effective strategy maximizes the efforts of people and brings together employees within the organization. The latter is more important as it will increase employee's efforts as they are able to apply it (Bozkurt & Kalkan, 2014). Karabulut (2015a) propose six dimensions of innovation strategy include aggressiveness, analysis, defensiveness, futurity, pro-activeness and riskiness, and how what strategy adopted by a firm clearly influences the characteristic of its internal innovation system and how firm implement its innovation practices (Nagano, Stefanovitz, & Vick, 2014). Nevertheless innovation-oriented strategies undoubtedly make important contributions to sustain the competitiveness of SMEs (Bozkurt & Kalkan, 2014). Bos-Brouwers (2010), in investigating evidence of innovation practices, has interviewed 26 SMEs and found that smaller companies were absent of a formal, well-written innovation strategy. Further investigation in the medium-sized companies has found refine formulated formal strategy that mentioned innovation goals. The target includes reduction of energy use, reduction in cost and innovative outcomes.

In regards to strategy and innovation, Kalay and Lynn (2015) and Kamasak (2015) confirmed that innovation strategy had a positive impact on firm innovation performance. It was determined that innovative and successful enterprises possessing an embedded innovation strategy. Hence, there are an increase recognition towards the innovative imperatives by managers due to current competitive business environment (Kuratko et al., 2014). Innovation strategy, when stated clearly as firm's objective and well communicate to employees, become forces to drive innovativeness. Without proper innovation strategic planning, firm that only "acts" or "reacts" may not fully enhance its innovativeness competitive behaviours and may lack the vision and direction (Dibrell et al., 2014) resulted from poor strategic planning. The significant of strategy also highlighted by Franco and Haase (2010), where lack of management strategy combining with poor vision as a determinant of SME low performance. Commonly, SME facing a problem with lack of middle managers due to financial constraint whose has a major role in developing and implementing strategies in large firms.

Studies suggest that, firm's innovation strategy has to operate deep and embedded within the organization daily operation. It must be understood and carried out by every level of management. Thus, managers must put a focus to coordinate activity and competent in specific roles designed for them (Kuratko et al., 2014). Nevertheless, middle managers play an important role to refine innovative opportunity for the organization given the organization's strategy and resource structure. For such task, firm need to hire middle managers with technical competence to understand the initial development, subsequent shaping, and continuous

applications of the firm's core competencies in order to interact effectively (Kuratko et al., 2014).

Researcher even claimed further that SMEs has significantly received benefits from a strategic innovation orientation more than other dimension (Rosenbusch, Brinckmann, & Bausch, 2011) rather than focusing only on product development. The claimed bring an argument that innovation potential might not be fully discovered if only focus on introducing goods into the market. This urge SME to embrace an innovation strategy in their mission as to create an innovation orientation firm. The action will guide SME to develop specific goals, and then able to allocate certain needed resources in specific areas. Final outcomes would lead to firm's innovation culture such risk taking as well as proactivity where more value created. On the other side, SMEs with well-known innovation tradition, gain benefit in term of positive perception. Consequently, SME able to lead the market, recognized brand, attract skilled employee and business partner (Rosenbusch et al., 2011).

2.6.2 Formal Structure

Since effects of organizational structure towards innovation in large firms have been well explored, Prajogo and McDermott (2014) raise the issue of whether structure in SMEs has different effects on innovation. Organizational structure can be classified into organic and mechanic (Kalay & Lynn, 2015). Commonly, high degree of uncertainty task requires an organic structure against low uncertainty task where it requires mechanic approaches.

In a study by Marín-idárraga and Cuartas (2016), using three types of organizational structure (i.e., hierarchical, decentralization and formalization), they observed that division of organization does not influence innovation whereas formalization and decentralization have impacted innovation. Formalization enables technical innovation through the clear definition of labour standards and protocols that are generally well documented and recorded. Additionally, the importance of formal structure which provides a mechanism to capture lessons and disseminate innovation revealed a moderately strong, positive relationship between lessons learned and the innovation scores (Gambatese & Hallowell, 2011). Other study mentioned formal structure improved functional coordination thus increase new product development (Kalay & Lynn, 2015) align with findings by Terziovski (2010), that formal structure were positive and significant. It is concluded that formalization therefore is an important factor to improve innovation performance.

Although SMEs facing constraint in talented employees and mainly rely on the chief executive officer's (CEO) or the owner's knowledge for developing innovations structure, with concern to process innovation, it is suggested that SMEs utilize their employees' ideas through the formal structure. It is agreed that an organization's capability towards innovation is depending on its intellectual capital, like the ability to utilize its individual employee knowledge (Andries & Czarnitzki, 2014). Enhancing labour resources, create group activities and enhancing cooperation efforts resulted in significant sustainable innovations (Bos-Brouwers, 2010). Hence, small firms whose encouraged the involvement of non-managerial employees combined together with ideas of managers, has a positive impact on the innovation performance (Andries & Czarnitzki, 2014). Other study by Prajogo and McDermott (2014) found that

formalization and connectedness within firm show a positive relationship with exploitative innovation. This relates to the natures of exploitative innovation, which requires a certain degree of formalization such adherence to procedure to accomplish certain experiment or process.

Although formal structure enhances organizational capability, organization's structure should not be overly restrictive. Informality supporter argues that complicated structure with multilayer decision decrease opportunities to develop new ideas (Gambatese & Hallowell, 2011). In Terziovski (2010), the author also mentioned that supporters of informality does not practice formal structure and systems due to the limited range of products that SME develop commonly for a special customer and niche markets.

Interestingly, Kamasak (2015) reported formal structure was significantly but negatively related to innovation performance. Finding however, may only reflect uncertain and dynamism environment like in Turkey as in his study. The author suggested that flat and informal organizational structures enable firms to practices open and flexible communication with important for fast decision making. As SMEs is popular with its flexibility and less bureaucracy, flexible and organic structure provide more advantages for SMEs in innovation than large enterprises in adopting technology, production methods and marketing (Bozkurt & Kalkan, 2014).

2.6.3 Customer and Supplier Relationship

Firm innovation and its relation with customer or supplier have been one of the research subjects. Unfortunately, Tomlinson and Fai (2013), argued that the majority of studies unable to capture the existence of customer and supplier collaboration. Previous studies also have not investigated the intensity of supplier cooperation and their impact on innovation although studies have mentioned the benefits of those cooperation. Anyway, among suggestion to strengthen the innovative capacity, SMEs was urge to remodel their innovation process to interact more frequently with external actors (Klewitz & Hansen, 2014) as external input benefits and determined innovation capacity (Forsman, 2011) by engaging and collaborating with customers and suppliers. Research confirmed that customers represent an important source of ideas and innovations (Ehrenberger et al., 2015; Yenyurt, Henke Jr., & Yalcinkaya, 2014). This stems from the fact that customers made a request for new and advance requirement that put forces over firm innovation. Since customers able to steer innovation in SMEs (Tomlinson & Fai, 2013), most of the successful companies have a customer relationship team in working with their customers. There even form a team to handle specific projects with the customer on a contractual basis. As a result, innovation cooperation often develops new product meeting their requirements (Ehrenberger et al., 2015; Laforet, 2011; Tomlinson & Fai, 2013) and to prevent potential after-sales problems emerge. Cui and Wu (2016), categorized customer involvement in innovation into three types (i.e., customer involvement as an information source, customer involvement as innovators and customer involvement as co-developers). The classification thus suggesting SMEs to apply different approaches of customer involvement, access the nature of customer needs and plan ahead to equip

themselves with sufficient support due to different customer involvement approaches towards innovation.

As far as the relationship between SMEs and customers, Bos-Brouwers (2010) stated that most companies were clearly customer oriented when innovating. The practices realize through discussions with customers regarding product specifications and problem solving. Because of difficulty in attracting external funding, SMEs have given more attention to enhance cooperative efforts with suppliers and customers. SME also are urge to give more attention on the flexibility of innovation since the preferences of customers are changing over trend (Dibrell et al., 2014). The study also showed that planning flexibility is strongly positively associated with innovativeness in response to shifts in customer preferences. At some point, SMEs often gathers technological information from their customers and suppliers. This due to the fact that the supplier is a party that introduces new technology and acts as a main vendor to most SMEs. Besides that, clients as a user keep seeking for latest offering that makes them updated in term of technological information. Indeed, suppliers have active role by trying to dictate small firm's decision (Nieto & Santamaría, 2010) such in term of technological procurement.

SMEs in manufacturing industries facing a limited range of capabilities. Commonly SMEs does not have all necessary resources to develop all components and parts that comprise their end products. Consequently, manufacturing firms look to outsource part of the task to external party concern with parts out of their core competencies (Yeniyurt et al., 2014) which resulted into sub-contract manufacturer. Where supplier involvement innovation occurs in SME, it may increase innovation outcomes that lead

to greater numbers of new product introductions over time, supported the relationship between SME and supplier's involvement in product development in a longitudinal process. Greatest driver for supplier involvement in product development related with supplier trust towards buyer and returns forecast for long term relationship (Yeniyurt et al., 2014). The author also stressed that supplier co-operation need more attention from SMEs than customer co-operation probably due to the SME dependent over supplier on technology supply and equipment training in the innovation process. With regards to product innovation, SMEs gain information and key inputs, meanwhile, through process innovation relationship, SMEs boosted over technological inputs, times of delivery and training of employees.

Most important issue in SME-supplier relationship is concerned with attitudes toward co-innovation over time, communication, acceptable long-term returns, and trust especially in sharing proprietary technologies (Kamasak, 2015). Results also indicated that over some time, positive supplier's responds increased that lead to better working relationship surrounding environments of co-innovation activity (Yeniyurt et al., 2014). On the other hand, SMEs should increase purchase quantities from the supplier in order to account for a greater share of that supplier's business. The latter however, made SME become dependent on certain supplier where at high dependency, study found that supplier involvement and supplier voluntarily investment in new technologies were decreased significantly (Forsman, 2011). This may have happened when supplier feel that they have power and control over their buyer. In contrast, when a supplier's dependence on a buyer increases, suppliers voluntarily investment and technology sharing with the buyer increased significantly to make up a reputation.

Literature also found some study showed no significant relationship between customer-supplier relationship and firm innovation performance (i.e., Kalay & Lynn, 2015; Terziovski, 2010). The claimed resulted in study within emerging market, where customer purchasing power was higher. Such situation forces vendors competing over a group of similar customer requirements. The final outcome would result into a redundant product or services that almost identical. In that situation, it is non-beneficial for firms to possess this unique relationship (Batra et al., 2015).

2.6.4 Innovation Culture

Wolf, Kaudela-Baum, and Meissner (2011), argue that knowledge about innovating culture and the role of culture in SME innovation holistically are rare and understudy supporting by Prajogo and McDermott (2014) whose urged researchers to examine internal factors such as organizational culture towards SME innovation. Only recent study claimed that innovation process influenced by context within social and organization culture (Nagano et al., 2014) and has a positive impact on innovation performance (Jenatabadi, 2014; Kalay & Lynn, 2015; Kamasak, 2015). It is due to the complex innovation's nature that requires creating new ideas beyond current technology need creativity to generate ideas, experience, evaluate proposals, intuition to take risks as well as insisting on new attempts after failing. Hence, innovation related scenario has a strong tie with intrinsically human dimension and its working culture (Nagano et al., 2014). Innovation capacity also refers to skilled workforce as main resources in SME (Castro et al., 2013; Laforet, 2011). Recent studies suggested that CEO were not the only employee contributed to the innovation. The non-managerial employees idea contribution were practically significant to innovation

performance base on their area of expertise (Andries & Czarnitzki, 2014). The importance of human skills shared by Demirbas, Hussain and Matlay (2011) where study among Turkey's SME confirmed the success of smaller manufacturing SMEs innovation depends on access to experienced, skilled and qualified employees.

Cameron and Quinn (cited in Naranjo-Valencia, Valle, & Jimenez, 2010) defined four cultures within firm namely adhocracy, clan, market and hierarchy organizational culture. Among all, hierarchy culture able to foster product innovation through formalization but it also can inhibit it since it emphasizes internal control as well as adherence to regulations and specific rules. Whereas adhocracy culture enhances product innovation by fostering creativity, entrepreneurship, openness and risk taking (Naranjo-Valencia et al., 2016, 2010).

Innovation culture brings success to the environment where innovation is rewarded. Prior to that, behaviour of risk taking and entrepreneurship are recognized and supported (Jenatabadi, 2014; Kalay & Lynn, 2015; Kamasak, 2015). The practices also able to drive managers in the product management sectors to be more proactive. On the contrary, previous study by Terziovski (2010), suggested an insignificant relationship between innovation culture and SME performance although its construct consisted of rewards, informal meetings, and knowledge which are crucial to motivate employees.

2.6.5 Technological Capabilities

There are numbers of technology that has been designed to increase efficiency in manufacturing. Raymond and St-Pierre (2010), classified technological intensity adopted by SMEs into two types namely product development process technologies (i.e., computer-aided drawing, computer-aided design, computer-aided manufacturing) and production process technologies (i.e., programmable logic controller, computer numerical control, robotized operations, flexible manufacturing systems and automated handling). Overall, these technological adoptions bring new ways of doing things and enhance process innovation. Therefore, researchers found rapid technological change impacted business environment competitively (Ahmedova, 2015).

Literature found strong evidence mentioned technological-capabilities based innovation was frequently cited in innovation performance studies. Hence, the technological capability has become an important factor to be investigated (Andries & Czarnitzki, 2014). Instead, technological capabilities impacted on innovation performance emerge as the most influential factor (Kamasak, 2015). The capability to adapt technology become more crucial than before in turbulent, fluctuating and customer-oriented business environments where it induces a high variety of market segments and preferences. Higher capability to adapt technology, combining with dynamic environment, SME then able to averse the effect of environmental changes. Such capability facilitated SMEs to use resources in multiple ways. As technology always associated with R&D whether technology use to induce R&D or R&D

activities brought new technology, it is undeniable that greatest source of innovations is to owning a dedicated R&D department (Ehrenberger et al., 2015).

On the contrary, Terziovski (2010) reported an insignificant negative correlation between technological capabilities and SME performance. The author explained that SMEs view technological capability as an enabler or supporting tool rather than a driver of their performance. Similarly, aged equipment is negatively correlated to innovations. Latest equipment normally has updated technology, software or capabilities that allow more innovative usage and implementation (Ehrenberger et al., 2015). There was also argued that technology alone does not promote innovation. Correspondingly, technology problems were the highest issue reported in the technology sector firms where technology adoption is a routine and commonly practice (Ehrenberger et al., 2015).

2.7 Summary of the Chapter

This chapter presents the literature on SME and the concepts of innovation practices on SMEs performance. The review of the literature suggested that RBV theory were focused on the literature as a source to describe innovation practices within internal form. Although previous studies showed mixed results between innovation practices and SMEs performance, evidence showed that studies mostly indicate positive relationship and the ability of innovation practices to influence SMEs performance. The following chapter will describe the research methodology used for this study.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

The purpose of this chapter is to present the methodology used to test the hypotheses. Thus, this chapter elaborates on a theoretical model, hypotheses, research design, data sampling, research instrument as well as analysis of data.

3.2 Theoretical Model

This study focuses on examining the influence of independent variables, namely innovation strategy, formal structure, customer and supplier relationship, innovation culture and technological capabilities towards firm performance as the dependent variable. To examine the relationship between these variables, a theoretical framework model is formed as shown in Figure 3.1 below. Figure 3.1 below illustrates how the SME's internal resources influence and exert impacts on SME's performance.

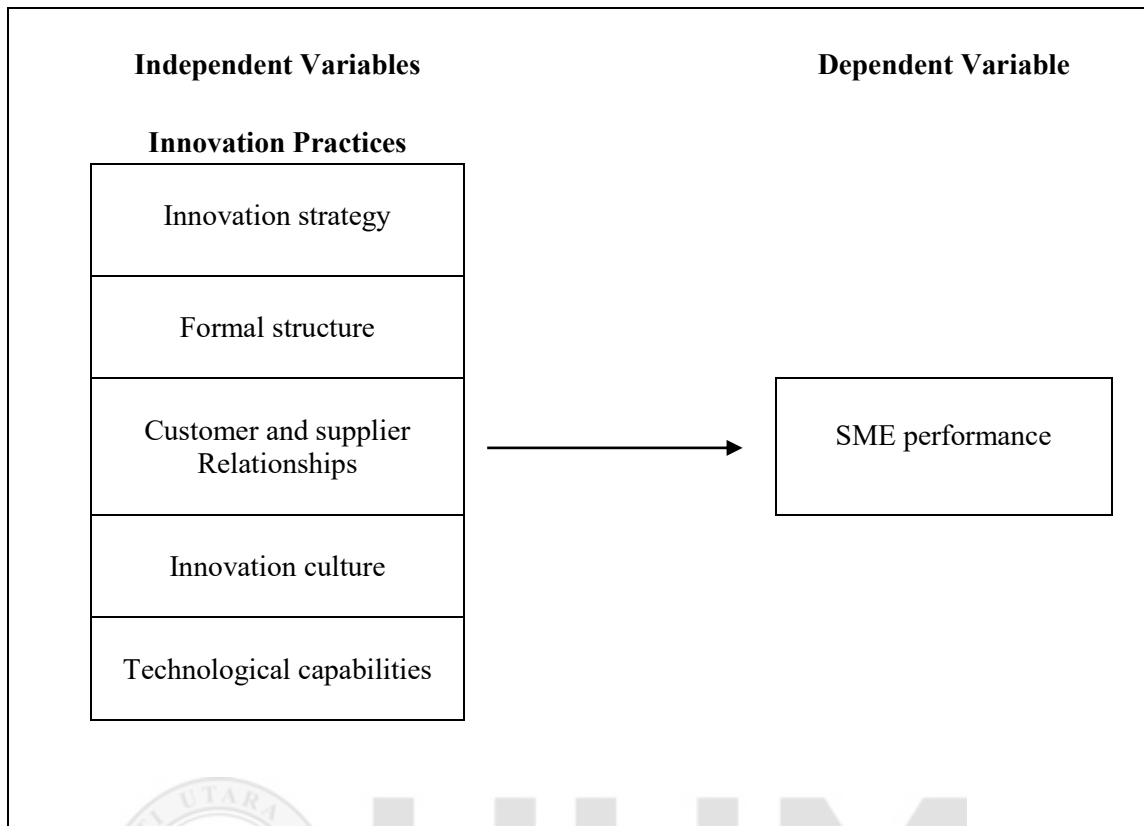


Figure 3.1
Relationship Between Independent Variables and Dependent Variable

3.3 Hypotheses

Given the discussion of a firm's performance and innovation practices, thus, the hypotheses will be as follows:

H1: The innovation practices have a positive significant influence on SMEs manufacturing firm performance

H1a: The innovation strategy has a positive significant influence on SMEs manufacturing firm performance

H1b: The formal structure has a positive significant influence on SMEs manufacturing firm performance

H1c: The customer and supplier relationship has a positive significant influence on SMEs manufacturing firm performance

H1d: The innovation culture has a positive significant influence on SMEs manufacturing firm performance

H1e: The technological capabilities have a positive significant influence on SMEs manufacturing firm performance

3.4 Research Design

The research design is a blueprint for the collection, measurement, and analysis of data (Sekaran & Bougie, 2013). Thus, it is very useful to structure the study properly and plan ahead to overcome the problem rose effectively in the research. The study conducted is a descriptive study where the researcher collects data in an attempt to describe systematically about a situation, problem, phenomenon, programme, or provide information towards the issue. The descriptive study intends to explain situation or phenomenon occurs and allow the researcher to understand the characteristics of the variables involved. This study also used quantitative approach and correlational research in nature to describe the relationship between independent variables towards dependent variable. By strategy, study applied survey research using questionnaires and data was gathered from cross-sectional studies or one-shot.

3.5 Sampling Procedure

Research sampling is a significant methodology where it is the process of selecting the right subjects that represent the entire population (Sekaran & Bougie, 2013). For the purpose of this study, the population covers the SMEs firms in manufacturing located in Kedah. According to statistic released in 2011 economic census, Kedah is considered as emerging manufacturing region after Selangor, Kuala Lumpur, Johor and Perak (Jabatan Perangkaan Malaysia, 2011). This state provided several industrial parks like Kulim High-Technology Park, Sungai Petani Industrial Estate, Kedah Halal Park and Gurun Industrial Area. The target element or sampling unit within the population for this study is the owner or managers of the SME firms. The reason is because the owner or manager of the company is the most reasonable person who knows the company very well in term of its internal resources and firm performance. On the other hand, this study obtained the directory of SMEs manufacturing firms in Kedah from SME Corporation Malaysia website as the sampling frame. According to information obtained from the website, the total number of SMEs manufacturing firms in Kedah is 2809 firms. Therefore, to determine the sample size for a finite population, the study follows Krejcie and Morgan (1970) table. According to the table, when population size, $N = 2800$ and above, sample size, $s = 338$ is sufficient to get an accurate result. This study then used simple random sampling because of its convenience to select any elements or respondents in the population to be a subject.

3.6 Research Instrument

One of the most integral parts in research is data collection. The generation of data for this study is solely obtained from primary data collection. There are various methods to attain data whether through observations, interviews or questionnaire in survey research. This study then applied questionnaire method as it is known to have the advantage of obtaining data efficiently in terms of cost, time and energy (Sekaran & Bougie, 2013). By using questionnaire, respondents were asked questions which relate to the tested variables.

The questionnaire consists of three sections altogether. Section A consists of 6 items that are geared towards respondent demographic information such as employment position, gender, age, educational background, total employee at the company and years of establishment. Section B of the questionnaire are divided into five major parts which investigated independent variables of the research, namely innovation strategy which consisted of eight items, formal structure which consisted of six items, customer and supplier relationship which consisted of five items, innovation culture which consisted of five items and technological capabilities with six items. Section C asked on dependent variables which are regarded to firm performance with eight items. The performance measurement combined both financial and non-financial aspects. The summary of items is shown as in Table 3.1 below.

Table 3.1
Variables Constructs

Independent variables			
Variable	Operational definition	Item	Source
Innovation strategy	Lendel and Varmus (2011) stated innovation strategy as the innovative direction of company approach to the choice of objectives, methods and ways to fully utilize and develop the innovative potential. Thus, innovation strategy is a plan to give the direction and encourage innovation within the firm.	<ol style="list-style-type: none"> 1. Our organization's vision or mission includes a reference to innovation 2. Innovation strategy has helped our organization to achieve its goal 3. Increasing our production volume is an important measure of our process innovation 4. Improving administration routine is part of our innovation strategy 5. Internal cooperation is an important part of innovation strategy implementation 6. Customer satisfaction is part of our innovation strategy 7. Formulating innovation strategy increases employee skills 8. Improving employee commitment or morale is part of our innovation strategy monitoring 	Adapted from Terziovski (2010)

Table 3.1 (Continued)

<p>Formal structure</p>	<p>Miller, 1987 (cited in Kalay & Lynn, 2015) defines formal organizational structure as formal distribution of work roles and administrative mechanisms to enable an organization to perform, coordinate and control its business activities and resource flows. The formal structure thus is a well-defined, fixed of rules, roles and structure within the firm that enable innovation.</p>	<ol style="list-style-type: none"> 1. Our organization formally allocates resources to the use of cross-functional team 2. Managers provide systems to facilitate formal communication 3. Action plans or timetables and procedures are used to monitor progress in our organization 4. Managers encourage all employees to challenge the status quo 5. Our flat structure facilitates searching and incorporating diverse point of view 6. Our employees formally document and use failures as an opportunity to learn 	<p>Adapted from Terziovski (2010)</p>
<p>Customer and supplier relationship</p>	<p>Kalay and Lynn (2015) mentioned customer and supplier relationship as a strategic tendency towards both parties. Close working relationships with customers, suppliers will enhance innovation.</p>	<ol style="list-style-type: none"> 1. Our firm's reputation is important to its competitive advantage 2. Our customers have the similar technologies to the organization's 3. Customer satisfaction is important for competitive advantage 4. Product supply is important for competitive advantage 5. Suppliers have similar technologies to our organization's 	<p>Adapted from Terziovski (2010)</p>

Table 3.1 (Continued)

<p>Innovation culture</p>	<p>Castro et al. (2013), defined innovation culture as the shared common values of organizational members. Hence, innovation culture is a value and belief that being practices to facilitate innovation within the firm.</p>	<ol style="list-style-type: none"> 1. Our culture rewards behaviours that relate to creativity and innovation 2. Our organization’s culture encourages informal meetings and interactions 3. Employees continuously experimenting with new ways of doing things 4. Our culture encourages employees to share knowledge 5. Our culture focuses on teamwork long term performance 	<p>Adapted from Terziovski (2010)</p>
<p>Technological capabilities</p>	<p>According to Cerulli, 2014 (cited in Kalay & Lynn, 2015), technological capability related with acquiring, harmonizing and improving information and capabilities. In this sense of study, technology capability is firm ability to gain knowledge and process it in providing firms with innovative capacity.</p>	<ol style="list-style-type: none"> 1. Our organization allocates resources to share technology 2. Top management considers the use of technology as a driver of business growth 3. Technological objectives guide the evaluation of new ideas 4. Employees search for information and new technologies 5. Employees are working towards specific technological goals 	<p>Adapted from Terziovski (2010)</p>

Table 3.1 (Continued)

Dependent variable			
Variable	Operational definition	Item	Source
Performance	<p>Performance is an outcome and usually measured by financial and nonfinancial measures (Simpson, Padmore, & Newman, 2012) while Balk, Kwant and Neudecker (2014) refer innovation performance when it adds value for better products, process, more profit or larger market share for example.</p> <p>Thus, this study accepted performance as financial and non-financial measures</p>	<ol style="list-style-type: none"> 1. Numbers of product 2. Success of new product launch 3. Reduction in waste 4. Improved product innovations 5. Improved work methods and processes 6. Increased overall quality 7. Sales growth 8. Net profit 	<p>Adapted from Terziovski (2010), Sok et al. (2013) and Uhlaner et al. (2013)</p>

3.7 Data Collection Procedure

In order to accomplish this research, a total of 340 questionnaire form was submitted to the SMEs owner or manager to obtain required responses. A questionnaire has been distributed randomly from 2nd April 2017 until 30th April 2017 through emails and personal administrated. The questionnaire forms were delivered in several events, considering geographical distribution of SMEs in Kedah. The researcher brought along a letter to describe the purpose of this survey.

3.8 Data Analysis

Data analysis has been carried out to obtain meaning from the collected data. Analysis was done through a number of data analysis techniques including descriptive statistics, correlation analysis and regression analysis. A statistical package (SPSS version 24.0 for Windows) used to analyse the data for this study.

3.8.1 Descriptive Analysis

This study used descriptive analyses to determine the basic characteristics of respondents. The descriptive analyses of profile comprised of respondent's position, gender, age, educational background and number of employees in that particular firm. The descriptive analyses involved were a statistical test for frequency.

3.8.2 Correlation Analysis

A correlation analysis is used to evaluate the strength and direction of the linear relationships between two variables (Field, 2009). It means that it tests the relationship and direction between the dependent variable and independent variable. The analysis serves as an early stage of hypotheses investigation. The strength of correlation can be checked between the range of -1 to +1, while the direction can be confirmed based on (1) positive value which indicates positive relationship and (2) negative value which indicates a negative relationship.

3.8.3 Multiple Regression Analysis

Multiple regression analysis adopted to test hypotheses in examining the direct association between several predictors (independent variables) and the dependent variable (Field, 2009). The multiple regression then able to analyse whether the independent variable (innovation practices) influences the dependent variables (firm performance). The analyses also able to determine which variable in a set of independent variables greatly influences firm performance.

3.9 Summary of the Chapter

This chapter has explained on the method of this research which covered research design, sampling process and instrument, data collection method as well as how data will be analysed. The development and operationalization of the questionnaire also have been presented to show its alignment with the research objectives. The next chapter will present the findings and discussions of results.

CHAPTER 4

FINDINGS AND DISCUSSION

4.1 Introduction

This chapter will discuss the findings of this study, which based on the research objectives as described in Chapter 1. Researcher will explain the findings of the statistical analysis and the results of hypotheses testing. The surveyed data obtained were analysed by the software of SPSS version 24. The presentation of the findings will be explained in the following categories, 1) Descriptive Analysis, 2) Pearson's Correlation Analysis and 3) Multiple Regression analysis. Furthermore, the researcher elaborates and discusses the results in order to enhance the researcher's knowledge.

4.2 Descriptive Analysis

A total of 340 questionnaires was distributed to the respective respondents who are whether the owner, the top management or at least the manager of the SME manufacturing firms. After the process, the researcher gained back a total of 119 responses or 35 percent response rate of completed questionnaire. The response rate was acceptable according to Baruch and Holtom (2008) findings, where study which utilized data from organization resulted in an average response rate of 35.7 percent. Then, the data collected was entered in SPSS to complete the analysis processes. Frequency analysis was conducted to analyse and describe respondent demographic as regard to section A of the questionnaire. There were seven questions asked on the

information related to the respondent's background which includes position, gender, age, the highest level of education as well as years of company establishment, total employees and type of industry that the SME firms involved.

Table 4.1 below shows the details of a descriptive analysis by frequency and percentage. Firstly, most of the respondents were titled as manager with 58 percent, while the lowest being a senior manager with a total of 3.5 percent. Other position includes owner with 38.6 percent. Secondly, the male dominated response rate with 82.4 percent compared to a female with 17.6 percent. Thirdly, the highest group of respondents' age is from 36-40 years, which is at 39.5 percent, followed by the 41 – 45 years with 24.4 percent and 31 – 35 years with 16.8 percent. While the lowest group of age is under 30 years, which only make up to 3.4 percent respectively. Afterward, the largest number of respondent's highest level education is the bachelor degree level, which is accumulated at 40.3 percent. At second place is the diploma with 30.3 percent and followed by a master degree at 23.5 percent. The least respondent education was the doctorate degree with only 2 persons.

In terms of firm demographic, the study asked two questions which relate to years of company establishment and total employees. By referring to table 4.1, company that has been established between 6 – 10 years was of the highest rank with 49.6 percent. Meanwhile, the company which more than 20 years being the least response at 5.0 percent. Then, the largest group of type of SME's manufacturing in this study is from food, beverages and tobacco industry, which accumulated a percentage of 22.7 percent, followed closely by manufacturers of electric and electronic product consisted of 20.2 percent. Iron and steel product manufacturer comes at last with a

total of 2.5 percent responses. Lastly, most of the respondents' organizations possess 5-49 workers with 68.1 percent of total while the lowest figure of the total employee is 151 - 200 employees at 9.2 percent.

Table 4.1
Descriptive Analysis

	Frequency	Percentage (%)
Composition of Respondents by Position		
Owner / CEO	46	38.6
Senior Manager	4	3.4
Manager	69	58.0
Composition of Respondents by Gender		
Male	98	82.4
Female	21	17.6
Composition of Respondent's by Age		
26-30	4	3.4
31-35	20	16.8
36-40	47	39.5
41-45	29	24.4
46-50	14	11.8
> 50	5	4.2
Composition of Respondents by Level of Education		
SKM / Polytechnic certificate	5	4.2
Diploma or equivalent	36	30.3
Bachelor degree	48	40.3
Master degree	28	23.5
Doctorate degree	2	1.7

Table 4.1 (Continued)

Composition of Company Establishment Years		
Less than 5	12	10.1
5-10	59	49.6
11-15	29	24.4
16-20	13	10.9
>20	6	5.0
Composition of Types of Industry		
Building Materials and Related Products	8	6.7
Chemical, Chemical and Plastic Product	9	7.6
Electric and Electronic Products	24	20.2
Food, Beverages and Tobacco	27	22.7
Furniture and Wood Related Products	11	9.2
Industrial and Engineering Products	13	10.9
Iron and Steel Products	3	2.5
Pharmaceutical, Medical Equipment, Cosmetics, Toiletries, and Household	7	5.9
Textiles and Wearing Apparel	13	10.9
Others	4	3.4
Composition of Total Employees at Firm		
5 - 49	81	68.1
50 - 100	17	14.3
101 - 150	10	8.4
151 - 200	11	9.2

4.3 Correlation Analysis

The researcher used Pearson's Correlation Analysis to predict whether the innovation practices has a relationship with SMEs performance or not. Correlation analysis able to predict the relationship between two variables only. Result shows that innovation strategy ($r = .799$, $p = .000$) has a strong positive relationship with SMEs performance, technological capabilities ($r = .541$, $p = .000$) has a moderate positive relationship with SMEs performance and innovation culture ($r = .243$, $p = < .01$) has a weak positive relationship with SMEs performance. On the other hand, two variables show insignificant relationship with SMEs performance, which formal structure ($r = -.096$, $p > .05$) and; customer and supplier relationship ($r = .132$, $p > .05$). Table 4.2 below shows the detailed result of correlation analysis of this study.

Table 4.2
Correlation Analysis

		Innovation strategy	Formal structure	Customer supplier	Innovation culture	Tech capabilities
Innovation_strategy	Pearson Correlation	1				
	Sig. (2-tailed)					
Formal_structure	Pearson Correlation	.046	1			
	Sig. (2-tailed)	.618				
Customer_supplier	Pearson Correlation	.225*	.022	1		
	Sig. (2-tailed)	.014	.816			
Innovation_culture	Pearson Correlation	.259**	.070	.061	1	
	Sig. (2-tailed)	.004	.447	.510		
Tech_capabilities	Pearson Correlation	.548**	-.069	.067	.121	1
	Sig. (2-tailed)	.000	.454	.471	.190	
Performance	Pearson Correlation	.799**	-.096	.132	.243**	.541**
	Sig. (2-tailed)	.000	.300	.153	.008	.000

*. Correlation is significant at the 0.05 level (2-tailed)

** . Correlation is significant at the 0.01 level (2-tailed)

4.4 Multiple Regression Analysis

Where more than two variables used to make a prediction towards dependent variable, the multiple regression analysis is appropriate to analyse the data. The purpose of using multiple regression analysis was to analyse whether the independent variables (i.e., innovation strategy, formal structure, customer and supplier relationship, innovation culture and technological capabilities) influence the dependent variables (performance of SMEs manufacturing firms).

As shown in Table 4.3, criterion validity was checked by examining the R-square value (0.672). These values suggested that the model used in this study has an acceptable degree of criterion validity where it can explain 67.2 percent of the variance in manufacturing SMEs performance. Where the F value = 46.392 ($p = 0.000$), it means that the innovation practices model is able to influence the overall performance of the SMEs manufacturing firms accepting hypotheses 1.

However, the individual results of analysis vary between independent variables. The dimension of innovation strategy demonstrates that $\beta = 6.838$, $t = 10.743$ ($p = 0.000$) means that the innovation strategy has a significant relationship with SME performance. Secondly, the dimension of formal structure gave a result of $\beta = -1.476$, $t = -2.269$ ($p < 0.05$) shows that it has a significant relationship with SME performance in a negative direction. Thirdly, the dimension of technological capabilities also has a significant relationship with SME performance with $\beta = 1.062$, $t = 1.977$ ($p < 0.1$). While three dimensions above show significant relationship, the other two dimensions gave insignificant result in regression analysis with customer

and supplier relationship obtained $\beta = -0.490$, $t = -0.753$ ($p > 0.1$) and innovation culture dimension scored $\beta = 0.476$, $t = 0.877$ ($p > 0.1$).

Table 4.3
Analysis of Multiple Regression

Model Summary			
R	R Square	Adjusted R Square	Std. Error of the Estimate
.820	.672	.658	2.49361

ANOVA ^a					
	Sum of Squares	df	Mean Square	F	Sig.
Regression	1442.347	5	288.469	46.392	.000 ^b
Residual	702.645	113	6.218		
Total	2144.992	118			

Coefficients ^a					
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	Beta	Std. Error	Beta		
(Constant)	7.758	3.949		1.964	.052
Innovation_strategy	6.838	.637	.731	10.743	.000
Formal_structure	-1.476	.650	-.123	-2.269	.025
Customer_supplier	-.490	.651	-.042	-.753	.453
Innovation_culture	.476	.543	.049	.877	.382
Tech_capabilities	1.062	.537	.128	1.977	.050

a. Dependent Variable: Performance

b. Predictors: (Constant), Tech_capabilities, Customer_supplier, Formal_structure, Innovation_culture, Innovation_strategy

4.5 Hypotheses Testing

Multiple regression analysis gave variations of the hypotheses results in this study. An analysis accepting hypotheses 1 where 67.2 percent of the variance in SMEs performance is explained by innovation practices model. However, the individual analysis shows variation in result where two hypotheses (H1a and H1e) were accepted which means the dimensions have positive significant relationships and the ability to influence SME performance (dependent variable). Meanwhile, the other two hypotheses (H1c and H1d) were rejected due to insignificant relationships thus unable to influence the dependent variable. Interestingly, one result refuted hypotheses where the formal structure (H1b) has a negatively significant influence on SMEs performance. Table 4.4 indicates about the hypotheses results of this study.

Table 4.4
Summary of Hypotheses testing

Hypotheses		Result
H1	The innovation practices have a positive significant influence on SMEs manufacturing firm performance	Accepted
H1a	The innovation strategy has a positive significant influence on SMEs manufacturing firm performance	Accepted
H1b	The formal structure has a positive significant influence on SMEs manufacturing firm performance	Refuted

Table 4.4 (Continued)

H1c	The customer and supplier relationship has a positive significant influence on SMEs manufacturing firm performance	Rejected
H1d	The innovation culture has a positive significant influence on SMEs manufacturing firm performance	Rejected
H1e	The technological capabilities have positive significant influence on SMEs manufacturing firm performance	Accepted

4.6 Discussions of Result

Innovation generally has been agreed to bring numerous contributions to firm performance. In fact, studies have related several actors and dimension to predict innovation practices and its performance to understand the phenomenon. Lately, innovations have become crucial when it came to delighting customers in term of better products or better services. So thus, this study also examining a few dimensions of innovation practices within the scope of the SMEs manufacturing firm. Five hypotheses have been formulated and will be discussed concern to its analysis outcome further.

H1: The innovation practices have a positive significant influence on SMEs manufacturing firm performance.

The model scored R-square value of 0.672 with F value = 46.392 ($p = .000$). These results suggested that the model used in this study has an acceptable degree of criterion validity where it can explain 67.2 percent of the variance in manufacturing SME performance. Therefore, the model is reliable and valid to explain levels of variance in SMEs performance. It is stressed again that the innovation practices model is able to influence overall SMEs performance of manufacturing firms. Individual results will be explained in the following discussion.

H1a: The innovation strategy has a positive significant influence on SMEs manufacturing firm performance.

Innovation strategy dimension has demonstrated positive and significant result towards SME performance with correlation $r = .799$ ($p = .000$) and regression $\beta = 6.838$ ($p = .000$) that supporting hypotheses H1a where it aligned with a study by Kalay and Lynn (2015). In fact, innovation strategy has the strongest correlation and most influential factor for SME performance within this study. This brings highlight to the understanding that the successful firm always embraces innovation strategy. Embedding innovation in their mission able to create an innovative orientation firm which then helps firm and employees put innovation as their goal. The actions help firm to make a decision regarding the type of resources and its allocation in their focus areas. Proper management of resources, including human capital increase value of products or services.

Innovation has become the driver of change, whether by firm, competitors or its suppliers and causes the evolution of existing products, services and business models. In turn, change is the most basic fundamental in any driver of business strategy in shifting firm from current state to another level. Indeed, innovation itself is the means to achieve the strategy. SME is also known to be owned by an individual or small group of owner normally called as an entrepreneur. The study found that, one of the dominant characteristics of the entrepreneur is the creative abilities and innovative insights to combine and coordinate resources (Schumpeter & Joseph, 2000) that synonym with the innovation term. Considering the relation of SME to entrepreneur, innovation was a basic strategy for the entrepreneur in offering new products, new services or new work processes.

H1b: The formal structure has a positive significant influence on SMEs manufacturing firm performance.

Formal structure dimension has demonstrated insignificant correlation result towards SME performance with $r = -.096$ ($p > .05$) but negative significant regression with $\beta = -1.476$ ($p < .05$) thus refuting hypotheses H1b. The result refuted hypotheses due to β indicates a negative value contradicted against hypotheses. Interestingly, the negative effects of formal structure in term of innovation practices towards SME performance align with supporters of informality. Those scholars argued that formal structure may inhibit the flexibility of SME. Considering SME operation, flexible as well as organic structure provide advantages for SMEs against larger firm innovation in adopting the technology, production methods and marketing (Bozkurt & Kalkan, 2014) as well as reacting to business uncertainty environment. Formality as well as high bureaucracy

also criticized to delayed decision making which in turn may leave firm behind its competitors. The complex structure, rigid controls and high formality knew as a barrier and an inhibitor to innovation that holds companies worldwide.

H1c: The customer and supplier relationship has a positive significant influence on SMEs manufacturing firm performance.

Customer and supplier relationship dimension has demonstrated an insignificant relationship towards SME performance with correlation $r = .132$ ($p > .05$) and regression $\beta = -0.490$ ($p > .1$) rejecting hypotheses H1c where it aligned with a study by Kalay and Lynn (2015) and Terziovski (2010). The situation may be explained following Batra et al. (2015) where small market like Malaysia forced SME to compete for the same customer and requirements. Thus, gaining information or customer preferences were not a priority as well as creating a unique relationship with customers less useful. The same situation may apply to suppliers where they also compete for few SMEs as their customers, thus willing to share knowledge and technology available.

Firm poses limited capabilities in term of customer preferences knowledge, where the manufacturing firms need to look for various external sources such as customers and suppliers for the development of new products (Yeniyurt et al., 2014). Although researchers (e.g., Yeniyurt et al., 2014) suggested such action, the study revealed that not all customer relationship management activities contribute to innovation programs. The study suggested that ad-hoc customer relationship management abilities to increase firm's informative input and innovation capability. Besides that,

customer involvement in process innovation, administrative innovation, and partnership in marketing innovation are not significant or contributed to innovation performance (Lin, Chen & Kuan-Shun Chiu, 2010).

H1d: The innovation culture has a positive significant influence on SMEs manufacturing firm performance.

The dimension of innovation culture has demonstrated significant correlation towards SME performance with $r = .243$ ($p = < .05$). However, regression analysis shows insignificant influence with $\beta = 0.476$ with ($p > 0.1$) therefore rejecting hypotheses H1d. This finding rather surprising since innovation-oriented firm practicing innovation culture where risk taking and entrepreneurship behaviour are supported. Such firm was found more successful compared to their competitors (Jenatabadi, 2014; Kalay & Lynn, 2015; Kamasak, 2015). The innovation culture constructs also selecting soft items such as rewards and acknowledgement which is related to enhance motivation.

However, the so-called innovation culture with rewards, compensation or acknowledgement mostly designed for completed projects and programs. Traditionally, firm normally recognized and only rewards success, but none to the unsuccessful project. The illustration may be the reason why innovation was not depending on reward or acknowledgement culture within the firm. The finding also explained in term of smaller and infant SME was not embedding rewards culture as important aspect due to financial constraint (Yeniyurt et al., 2014). It is contradicted

with a large firm where they are generally respected to recognized and embedded innovation culture within (Terziovski, 2010).

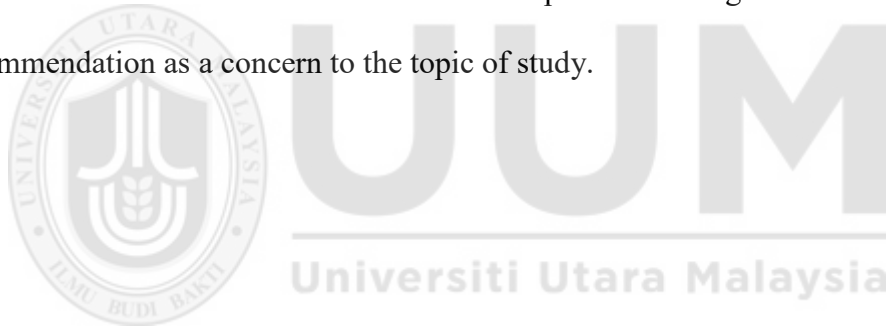
H1e: The technological capabilities have a positive significant influence on SMEs manufacturing firm performance.

Lastly, dimension of technological capabilities has demonstrated positive and significant result towards SME performance with correlation $r = .541$ ($p = .000$) and regression $\beta = 1.062$ ($p < 0.1$) supporting hypotheses H1e. The finding is similar to research by Kamasak (2015), where author reported that technological capabilities have the greatest impact on innovation performance than any other factors. SMEs also recognized that adapting technology capabilities become more crucial in turbulent business environments where it can induce quick respond by committing resources to new courses of action or producing new products.

SMEs in developing country like Malaysia deal with a high variety of customer trend, consumer preferences and market segments. As developing country affected by globalization, rapid shifts in consumer preferences emerge from external influences. Malaysia market also deals with different ethnic cultures, and social differences as well as lifestyles. Therefore, SMEs need to embrace flexibility through capability to manipulate knowledge and technology. These capabilities allow SME to respond quickly towards the dynamic environment. Technological capabilities such as enterprise resource planning and information technology facilitate SME to forecast future business insight and enable instant response towards market demands (Kamasak, 2015).

4.7 Summary of the Chapter

In this chapter, the researcher discussed the findings to answer formulated hypotheses. This study has found a significant influence of the innovation practices model towards the overall performance of manufacturing SMEs. Two independent variables, namely innovation strategy and technological capabilities were able to influence SME performance while, customer and supplier relationship as well as innovation culture were found unable to influence SMEs performance. The dimension of formal structure surprisingly, was negatively influenced SMEs performance. To conclude, two hypotheses (H1a and H1e) were accepted, two hypotheses (H1c, H1d) were rejected and H1b was refuted. The next chapter will bring to the conclusion and recommendation as a concern to the topic of study.



CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter presents a conclusion on all key components in the study while at the same time, stresses on innovation and RBV. The presentation starts with the contribution of this study, practical implications, limitations, as well as a recommendation for future research.

5.2 Contribution to Body of Knowledge

In the field of strategic management, RBV has gained popularity to understand firm's performance and its competitive advantage. However, the field of SME and innovation is an emerging subject in strategic management studies. Ehrenberger, Koudelková and Strielkowski (2015) stressed the importance of innovation in every business activity due to its ability that they can create a new space for future growth. Nevertheless, innovation in SME has received only scant attention rather than in large enterprises (Forsman, 2011). As SMEs plays the biggest contributor to the most economic, understanding innovation within SMEs seems to be the crucial knowledge that needs an attention. This research focused on SME internal resources or practices and its contribution to SMEs performance in term of innovation, particularly in Malaysian SMEs of the manufacturing sector, an area where research is particularly scarce.

This research contributes to the research in innovation and progression of RBV by providing further supportive evidence to substantiate the significant practice of innovation found in past research. Moreover, this study related to firms' internal resources and performance, where literature found contradicted result reported by previous studies. Specifically, this study contributes to advancing the body of knowledge pertaining to the relationship between SME resources and innovation. In this research, innovation strategy and technological capabilities found as important determinants of innovation performance. Innovation strategy has long been stressed as an important factor for innovation as it drives firm to react instantly towards current competitive landscapes by successfully create new invention (Kuratko et al., 2014).

5.3 Practical Implication

The findings relating to SMEs resource performance confirmed that strategy and technological capabilities as influential determinants that drive better innovation performance as well as overall firm performance. Due to the fact, this study urges that every SME should include innovation related strategy in their vision and mission. Good strategies able to re-align and coordinate diverse groups within an organization. The strategy also clarifies objectives and priorities, helping management team and employees to focus. Without an innovation strategy, innovation efforts may become less productive, which finally only dividing R&D with other functions. Thus, innovation strategy actually stands as stems for an innovative system. Manager in the organization also depends on specific strategy articulated to make trade-offs and decisions (Pisano, 2015). SMEs also able to increase their innovation by improving their adoption of technology, whether in term of systems or equipment. Technology

undeniable as one of the main sources in building creativity and innovative individual. Technology capabilities such forecasting software able to enhance product development stages as well as production process (Raymond & St-Pierre, 2010).

5.4 Limitations of the Study

Research has limitations and it is important to be recognized and acknowledged. There are several limitations of the study where firstly, the study is only focused on manufacturing types of SME and only limited to a firm established in Kedah. Therefore, the finding and the result of this study was unable to be generalized to all populations of the SMEs firm in Malaysia particularly.

Secondly, the limitation applies to the variability of SME size, whereby the size of SME ranges from five employees up to two hundred employees, SME size may have interfered the scope of findings. By definition, there are differences between small and medium-sized enterprises in term of their number of employees and annual sales turnover. Probably, medium size manufacturers in this study have more employees and ability in implementing innovation practices than small SMEs (Lee & Ging, 2007).

Thirdly, the responses were based on SME's owners and managers self-reporting in a questionnaire. This procedure has constraints in term of positive response bias. Therefore, it is recommended to investigate the relationships by obtaining multiple data within each firm. A survey using questionnaire also puts the respondents struggle with time constraints, then are less likely to respond correctly because of overworked

feeling. Survey questionnaire also often forcing respondents into particular response categories, thereby, limiting the ranges of response. Unlike interview, where the respondent can ask to clarify questions, the response is limited to the text in survey's questions. The survey also cannot capture emotional feelings, unlike the interview method.

Fourthly, this study only includes five independent variables which form limitation with respect to the generality of the findings. The presence of other unmeasured variables puts limits to the inference. Thus, again, the researcher was unable to generalize the result from this study.

5.6 Directions for Future Research

The researcher proposes that future research would extend the study into another industry of SMEs in order to increase the results consistency of the findings. Researcher only focused on manufacturing firms of SMEs, but in fact, there are many types of SMEs in Malaysia such as agriculture and the services sector. Future research also may examine other dimensions of innovation practices like learning capabilities, so that will improve the understanding of this topic from different lenses.

The researcher also interested to examine SME innovation in open networks. The topic of open innovation has attracted much attention in innovation management research where most of the existing literature still relies on case studies and conceptual frameworks, with little empirical research in the specific context like SME (Popa, Soto-Acosta, & Martinez-Conesa, 2017).

5.7 Concluding Remarks

This study encompassed on the dimension of innovation practices applied in the SMEs manufacturing firm. First, it identifies five practices, namely innovation strategy, formal structure, innovation culture and technological capabilities within the SME to achieve superior innovation performance as well as SMEs performance generally. Second, it explored the direct relationship between those innovation practices with SMEs performance through correlation analysis. Then, it also investigated whether those practices able to influence SMEs performance in a positive way through regression analysis.

The findings of the research discovered that innovation practices have an influence on SMEs performance of the manufacturing sector. Individual results, however, show that only dimension of innovation strategy and technological capabilities able to influence SMEs performance. Interestingly, the formal structure shows negative significant results, thus, this study agrees with informality supporter that formality would inhibit the innovation process within SMEs.

The knowledge of resources-based innovation practices and performance of SMEs are crucial since it facilitates SMEs in resource deployment towards innovation. Differences in strategic resources are mostly driven primarily by a firm uniqueness that becomes a source of innovation. Then, a capability to innovate will be a competitive advantage over its competitors due to imitation resistant. Through this study, the researcher found that strategy towards innovation is the most fundamental internal resources firm should instill, before gearing towards other steps.

Nevertheless, acquiring or developing technology able to accelerate innovation process. In a highly-competitive environment, an SME is considered as a collection of evolving capabilities that is managed vigorously in search of profits and reputation, with the aims to become a larger player in the future. Considering that SMEs as an essential element in most economies, it is appropriate for future research to emphasize SMEs capabilities and resources in expanding academic knowledge.



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APPENDICES



Dear Sir/Madam

Ref: Innovation Practices and SME's Performance in Manufacturing Sector

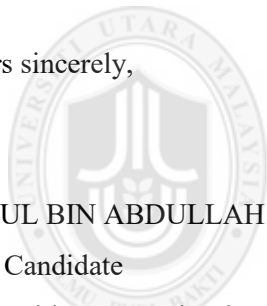
I am pleased to inform you of the aforementioned study aim to assess the innovation practices in SME. The study covers SME's innovation strategy, organizational formal structure, customer and supplier relationships, innovation culture as well as technological capabilities. For this purpose, we are approaching a number of organizations to participate in a survey relating to their experiences in implementing innovation practices.

We would very much appreciate your participation, since the success of the research is dependent upon receiving the maximum number of responses. Your answer will of course be treated confidentially and the information will only be used for the purpose of this study.

We look forward to receive your completed questionnaire as soon as possible and many thanks for your kind support and co-operation.

Yours sincerely,

AZRUL BIN ABDULLAH
MSc Candidate
Universiti Utara Malaysia



Section A: Demographic

Demographic	
Please tick (√) in appreciate box	
a.	Your position: <input type="checkbox"/> Owner <input type="checkbox"/> CEO <input type="checkbox"/> Senior manager <input type="checkbox"/> Manager <input type="checkbox"/> Other (please specify):
b.	Gender <input type="checkbox"/> Male <input type="checkbox"/> Female
c.	Your Age <input type="checkbox"/> 21 - 25 <input type="checkbox"/> 26 - 30 <input type="checkbox"/> 31 - 35 <input type="checkbox"/> 36 - 40 <input type="checkbox"/> 41 - 45 <input type="checkbox"/> 46 - 50 <input type="checkbox"/> More than 50
d.	How long has your company been established? <input type="checkbox"/> Less than 5 years <input type="checkbox"/> 5 - 10 years <input type="checkbox"/> 11 – 15 years <input type="checkbox"/> 16 – 20 years <input type="checkbox"/> More than 20 years
e.	How many permanent employees does your company hire? <input type="checkbox"/> 5 - 49 employees <input type="checkbox"/> 50 - 100 employees <input type="checkbox"/> 101 - 150 employees <input type="checkbox"/> 151 - 200 employees

f.	<p>Please select the type of industry which most closely represents your company</p> <p><input type="checkbox"/> Automotive & Component Parts</p> <p><input type="checkbox"/> Building Materials & Related Products</p> <p><input type="checkbox"/> Chemicals, Chemical & Plastic Products</p> <p><input type="checkbox"/> Electrical & Electronics Products</p> <p><input type="checkbox"/> Food, Beverages and Tobacco</p> <p><input type="checkbox"/> Furniture & Wood Related Products</p> <p><input type="checkbox"/> Household Appliances</p> <p><input type="checkbox"/> Industrial & Engineering Products</p> <p><input type="checkbox"/> Iron & Steel Products</p> <p><input type="checkbox"/> Packaging, Labeling & Printing</p> <p><input type="checkbox"/> Pharmaceutical, Medical Equipment, Cosmetics, Toiletries & Household</p> <p><input type="checkbox"/> Rubber Products</p> <p><input type="checkbox"/> Textiles & Wearing Apparel</p> <p><input type="checkbox"/> Others: _____</p>
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Section B: Innovation Practices

Please circle 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree

1. Innovation strategy		
The following statements describe the innovation strategy takes place in your organization		
a.	Our organization’s vision or mission includes a reference to innovation	1 2 3 4 5
b.	Innovation strategy has helped our organization to achieve its goal	1 2 3 4 5
c.	Increasing our production volume is an important measure of our process innovation	1 2 3 4 5
d.	Improving administration routine is part of our innovation strategy	1 2 3 4 5
e.	Internal cooperation is an important part of innovation strategy implementation	1 2 3 4 5
f.	Customer satisfaction is part of our innovation strategy	1 2 3 4 5
g.	Formulating innovation strategy increases employee skills	1 2 3 4 5
h.	Improving employee commitment or morale is part of our innovation strategy monitoring	1 2 3 4 5

2. Formal structure						
The following statements describe the formal structure takes place in your organization						
a.	Our organization formally allocates resources to the use of cross-functional team	1	2	3	4	5
b.	Managers provide systems to facilitate formal communication	1	2	3	4	5
c.	Action plans or timetables and procedures are used to monitor progress in our organization	1	2	3	4	5
d.	Managers encourage all employees to challenge the status quo	1	2	3	4	5
e.	Our flat structure facilitates searching and incorporating diverse point of view	1	2	3	4	5
f.	Our employees formally document and use failures as an opportunity to learn	1	2	3	4	5

3. Customer and supplier relationships						
The following statements describe the customer and supplier relationship takes place in your organization						
a.	Our firm's reputation is important to its competitive advantage	1	2	3	4	5
b.	Our customers have the similar technologies to the organization's	1	2	3	4	5
c.	Customer satisfaction is important for competitive advantage	1	2	3	4	5
d.	Product supply is important for competitive advantage	1	2	3	4	5
e.	Suppliers have similar technologies to our organization's	1	2	3	4	5

4. Innovation culture						
The following statements describe the innovation culture takes place in your organization						
a.	Our culture rewards behaviours that relate to creativity and innovation	1	2	3	4	5
b.	Our organization's culture encourages informal meetings and interactions	1	2	3	4	5
c.	Employees continuously experimenting with new ways of doing things	1	2	3	4	5
d.	Our culture encourages employees to share knowledge	1	2	3	4	5
e.	Our culture focuses on teamwork long term performance	1	2	3	4	5

5. Technological capabilities						
The following statements describe the technological capabilities takes place in your organization						
a.	Our organization allocates resources to share technology	1	2	3	4	5
b.	Top management considers the use of technology as a driver of business growth	1	2	3	4	5
c.	Technological objectives guide the evaluation of new ideas	1	2	3	4	5
d.	Employees search for information and new technologies	1	2	3	4	5
e.	Employees are working towards specific technological goals	1	2	3	4	5

Section C: Performance measures

Please score the following performance measures in term of your satisfaction with your business performance, 1 = least satisfied to 5 = most satisfied.

Performance		Satisfaction				
a.	Numbers of product	1	2	3	4	5
b.	Success of new product launch	1	2	3	4	5
c.	Reduction in waste	1	2	3	4	5
d.	Improved product innovations	1	2	3	4	5
e.	Improved work methods and processes	1	2	3	4	5
f.	Increased overall quality	1	2	3	4	5
g.	Sales growth	1	2	3	4	5
h.	Net profit	1	2	3	4	5



Thank you for your co-operation

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Name :

Organization :

Address :

Phone :

E-mail :
