



UNIVERSITI PUTRA MALAYSIA

***SUCCESSFUL FACTORS FOR INNOVATION AND THEIR
IMPACT ON PERFORMANCE OF MALAYSIAN SMALL AND
MEDIUM ENTERPRISES***

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FEP 2018 58



**SUCCESSFUL FACTORS FOR INNOVATION AND THEIR IMPACT ON
PERFORMANCE OF MALAYSIAN SMALL AND MEDIUM ENTREPRISES**

By

MAH WAI LAN

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

May 2018

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

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May 2018

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Innovation among small and medium enterprises (SMEs) has been the popular research topic of many researchers in the past decades due to its significant contribution to economic growth. However, according to the OECD Review of Innovation Policy in 2011, Malaysia has yet to enter a stage of innovation-led growth in the last decade. This phenomenon suggests that some practical gaps should be filled, where sources that improve innovativeness of SMEs should be examined in order to successfully promote innovation-led growth amongst SMEs in Malaysia. Using Resource-Based View (RBV) as underpinning theory, this study examines the relationship between sources of innovation, innovation and firm performance in the context of manufacturing and service sector of Malaysia SMEs. A total of 125 samples were used in data analysis using partial least squares (PLS) techniques for hypothesis testing. The findings of the hypothesis testing showed that R&D strategy, strategic relationship and customer relationship have positive impact on innovation where strategic leadership was the most influencing source of innovation. Meanwhile, government support and supplier also have indirectly impact on innovation through the mediating effect of R&D strategy. The findings also showed that innovation significantly contributed to firm performance, at the same time it plays vital mediator role in the model. It is concluded that all the sources in the framework are important contributors to innovation and firm performance except learning orientation.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

SUMBER INOVASI DAN KESANNYA KE ATAS PRESTASI PKS DI MALAYSIA

Oleh

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Inovasi di kalangan perusahaan kecil dan sederhana (PKS) telah menjadi topik penyelidikan popular sejak dekad yang lalu disebabkan oleh sumbangannya yang penting ke atas pertumbuhan ekonomi. Tetapi, menurut Dasar Inovasi OECD pada tahun 2011, Malaysia masih belum mencapai tahap pertumbuhan yang diterajui inovasi. Fenomena ini menunjukkan bahawa beberapa kekurangan praktikal yang harus diperbaiki, di mana sumber yang meningkatkan inovasi antara PKS perlu diperiksa untuk menggalakkan pertumbuhan inovasi PKS di Malaysia. Berdasarkan kepada teori Sumber-Asas, kajian penyelidikan ini mengkaji hubungan antara sumber inovasi, inovasi dan prestasi firma dalam sektor pembuatan dan perkhidmatan antara PKS di Malaysia. Sejumlah 125 sampel telah digunakan dalam analisis data dengan menggunakan teknik partial least squares (PLS) untuk ujian hipotesis. Penemuan ujian hipotesis menunjukkan bahawa penyelidikan dan pembangunan (R&D), kepimpinan strategik dan hubungan pelanggan mempunyai kesan positif terhadap inovasi. Sementara itu, sokongan kerajaan dan hubungan dengan pembekal juga memberi kesan secara tidak langsung kepada inovasi menerusi kesan pengantara strategi R&D. Keputusan kajian juga menunjukkan bahawa inovasi sangat penting kepada prestasi firma, pada masa yang sama ia memainkan peranan penting sebagai pengantara dalam model. Disimpulkan bahawa kesemua sumber dalam rangka kerja kajian ini adalah penyumbang penting dalam inovasi dan prestasi firma kecuali orientasi pembelajaran.

ACKNOWLEDGEMENTS

First of all, I would like to thank my parent who encourage and support me to further pursue my study.

My sincere appreciation and gratitude dedicated to my supervisor, Associate Prof. Dr. Noor Azman Ali for his precious time, patience guidance and valuable suggestions that contribute to the completion of this research. Besides, I also thank so much to Prof. Dr. Bahaman Abu Samah, Prof. Dr. Mansor H. Ibrahim, Prof. Dr. Law Siong Hook, Associate Prof. Dr. Ho Jo Ann, Associate Prof. Dr. Dahlia Zawawi, and Associate Prof. Dr. Roiah Mohd Rasdi, who taught me and gave me constructive feedback throughout the course of my study.

Last but not least, I would like to express my gratitude to all my research respondents and my friends who help me in writing this research paper.

Declaration by Members of Supervisory Committee

This is to confirm that:

- the research conducted and the writing of this thesis was under our supervision;
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CHAPTER 1

INTRODUCTION

This chapter is mainly to introduce the background of study regarding the importance of innovation and the need to be innovative in the competitive business environment based on the literature review. Some issues related to the growth of SMEs and the gaps in the existing body of knowledge will be address in order to specify some objectives to achieve at the end of this study. Lastly, the significance of the study in practice and theory will be explained, followed by scope and limitation of study.

1.1 Background of Study

The importance of innovation has become significant as more emphasis on innovation and technology to drive the country's growth has taken place. Schumpeter (1983) reveals that innovation stimulates economic growth which includes increase in national income, saving and population. In Malaysia, growth is entrusted with the development of small and medium enterprises (SMEs) in the country. In 2016, the SMEs growth by 5.2% has contributed to 36.6% of the country overall GDP growth (SME Annual Report, 2016/2017). The average annual growth rate of SMEs in the past six years was 6.5% which was higher than the average growth 5.1% of the overall economy. The high growth was mainly contributed by service sector, especially tourism industry.

According to the Global Innovation Index (GII) in 2015, Malaysia ranked 35th out of 127 countries. Malaysia was among the top 10 economies in Asia after Singapore, South Korea, Japan, Hong Kong, New Zealand and Australia. According to the GII report in the past few years, Malaysia is one of the countries that demonstrate improvements made to institutional frameworks, a skilled labour force with expanded tertiary education, better innovation infrastructures, a deeper integration with global credit investment and trade markets, and a sophisticated business community. However in terms of research and development, involvement of Malaysia, the Philipines and Vietnam is still low.

While based on Innovation Cities Index 2016, Kuala Lumpur was ranked 18th in terms of innovation among other Asian cities; country wise, Malaysia was ranked 92nd among 500 cities in the list. The country has been categorized as hub cities (dominance or influence on key economic and social innovation segments e.g. business, cultural exchange, education, information etc.) since 2011. The index score was determined based on three factors: cultural assets, human infrastructure and network markets. Cultural assets are referred to the measureable sources of ideas in few areas such as design, sports, dance, museums etc. Human infrastructure is referred to soft and hard infrastructure to implement innovation e.g. transport, universities, government and

technology. On the other hand, network markets are related to the basic conditions and connections that encourage innovation e.g. location, military and economy.

Various initiatives were implemented in order to promote innovation among SMEs. The SME Innovation Showcase (SMIDEX) is one of the well-known initiatives that hold annually to showcase the capabilities and capacities of Malaysian SMEs in producing products, technologies and services. The 1-InnoCERT (1-Innovation Certification for Enterprise Rating & Transformation) is another initiative that encourages entrepreneurs to venture into high technology and innovation driven industries, which, eventually will lead the nation to achieve high income economy vision and remain competitive. The government has made investments to boost innovation among SMEs via the different communities and agencies. Agensi Inovasi Malaysia (AIM), Malaysia Global Innovation and Creativity Centre (MaGIC) and Cradle Fund Sdn. Bhd. (Cradle), are among the three famous agencies that provide support and fund to entrepreneurs.

Agensi Inovasi Malaysia (AIM) functions as wealth creation body through knowledge, technology and innovation to stimulate and develop the innovation eco-system in Malaysia. The goal is achieved by facilitating collaboration between government, academia and industry in advancing the consolidation and execution of new ideas in innovation. While MaGIC is an agency that brings together the private sector, finance providers, universities and government agencies in order to provide support and business related solutions to entrepreneurs through various training programs. Besides, Cradle is another agency that provides fund, investment assistance, commercialisation support, coaching and other value added services to potential tech start-ups.

Many studies reveal that innovation positively influences production at the same time it is able to improve firm performance. An empirical study on the SMEs' product and process innovativeness in Malaysia has been conducted by Hilmi, Ramayah, Mustapha and Pawanchik (2010). Their findings prove that process innovation positively affects SMEs' performance. By using firm-level data in Malaysia, Lee (2011) found innovation as important determinant for export. Since exports as Malaysia primary growth engine, the results also imply that innovation contributes to the growth of the country. Therefore, it is important to boost innovation in Malaysia due to its important to realize the country's vision of achieving high-income nation in 2020 (Jala, 2013).

Based on recent publications, it is very essential for every economy to enhance innovation capability in order to be competitive and achieve higher growth. Most of the existing studies relevant to innovation have discussed the dimensions or factors related to innovation (Ar & Baki, 2011; Guimaraes, 2011; Lin & Liu, 2012, Raposo, Ferreira & Fernandes, 2014), relationships between innovation and firm performance (Panayides, 2006; Ar & Baki, 2011) as well as country growth (Cameron, 1996; Rosenberg, 2004, Torun & Cicekci, 2007). However, there is lack of studies that include different dimensions of innovation (product, process and market innovation) in their research framework. This study is mainly to fill the gap by investigating the

interactions between factors, innovation (which is measured by product, process and market innovation) and firm performance. At the same time, the mediating role of innovations is also assessed.

1.2 Problem Statement

Malaysia government has been promoting innovation since mid-1990s. On the reason to promote product innovation, the Malaysia government supports the private sectors by imposing fiscal incentives, developing more infrastructures such as Technology Park and encouraging collaborative efforts between private sectors, universities and research institutions (Seventh Malaysia Plan, 1995). The innovating firms in the country reveal that government supports for innovation and technology are important for private sectors (Lee & Lee, 2007). The common support comprise of tax incentives, technical consultancy services, duty-free importation of machinery and commercialization of R&D fund. In the past few years, Malaysia government has allocated billions worth of resources for various programs in order to improve innovativeness among local SMEs. Total allocation in 2013 amounting RM9.9billion was the highest in the past few years, followed by RM7.95billion in 2016, RM5.1billion in 2014 and RM4.84billion in 2015 (SME Annual Report, various year).

However, according to the OECD Review of Innovation Policy in 2011, Malaysia has yet to enter a stage of innovation-led growth and the country research performance has not significantly improved in the last decade. Zeufack and Lim (2013) also reveal that Malaysia is still not ready to adopt innovation-driven growth as compared to its developed peers such as Hong Kong, Singapore and South Korea. The GII ranking of Malaysia in 2017 was 37th, two places lower than its 2016 ranking which was 35th (The Start Online, 2017 Jun 15). This phenomenon suggests that some practical gaps should be filled, where sources that improve innovativeness should be examined in order to successfully promote innovation-led growth amongst SMEs in Malaysia. This is to make sure firms remain competitive, sustainable and grow in rapid changing economy conditions.

Though there were so many studies (e.g. Gunday, Ulusoy, Kilic & Alpan, 2011; Filippetti, 2011; Inauen & Schenker-Wicki, 2011; Doh & Kim, 2014; Itturioz, Arojan & Narvaiza, 2015; Kahkonen, Lingtukangas, Ritala & Hallikas, 2016; Mahmoud, Blankson, Owusu-Frimpong, Nwankwo & Trang, 2016; Patrucco, Luzzini & Ronchi, 2017) relevant to sources of innovations and firm performance were conducted in the past, however, there are still some research gaps in sources of innovation, innovation and firm performance that need further investigation. Problem statements below highlight some issues as basis of this study, at the same time highlight the main gaps in the existing body of knowledge.

First, the total share of contribution of SMEs GDP to overall GDP was still low even though the share was accounted more than 30% in the past decade (see Figure 1). As

compared with some other Asia countries e.g. Singapore (45%), the Philippines (36%), Indonesia (58%) and Thailand (37%) in 2013, the contribution was considered low (ERIA SME Research Working Group, 2014). The five-year Malaysia SMEs average growth rate for year 2012 to 2016 was about 35%. Based on the slow growth rate, the 41% of growth target in 2020 by Malaysia SME Masterplan is very difficult to be achieved (SME Corp. Malaysia, n.d.). It is believed that more effective development programs are needed in order to achieve the country's 2020 vision to be a high income country.

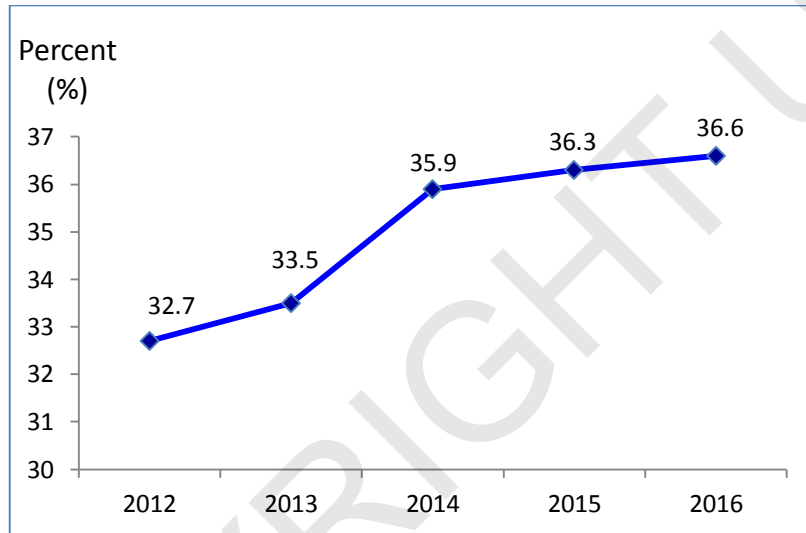


Figure 1 : SME contribution to GDP in Malaysia
(Source: Annual Report, 2013-2017)

In terms of GDP contribution by key economic activities in Figure 2, service sector contributed highest share, followed by manufacturing sector. The total change of service sector in 2016 as compared with 2012 was 7.9%, much higher than the change of manufacturing sector which was -2.4%.

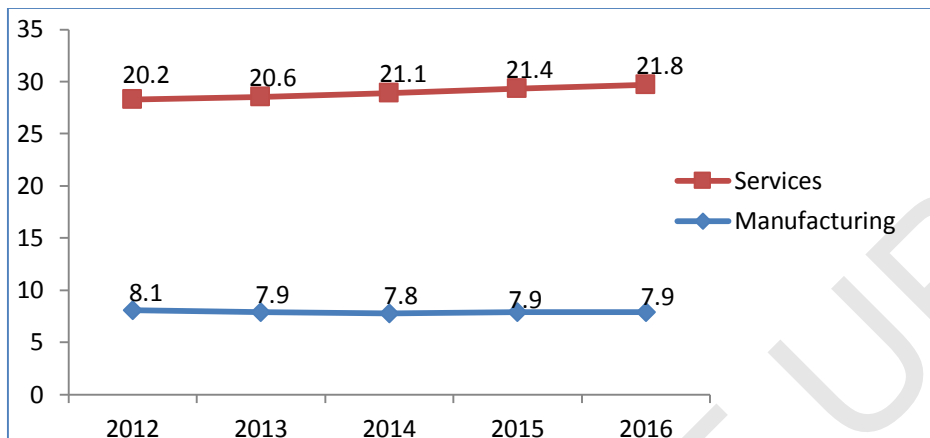


Figure 2 : SME GDP Share by Key Economic Activity
(Source: Annual Report, 2013-2017)

Second, there is small number of SMEs experienced growth in sales, average selling price, production and exports. Though large amount of funds have been injected to local SMEs since the implementation of SME Master Plan in 2012, less than 40% of the SMEs were experiencing better performance in profit margin, average selling price, production and exports in 1st quarter of 2015 as compared to the percentage in first quarter of 2014, according to the findings of a survey conducted by Small and Medium Enterprise Corporation Malaysia (SME Corp. Malaysia). Most of the respondents in the survey revealed that their performance was about the same (see Figure 3). This implies that many of the SMEs in Malaysia are still not competitive in drastic change business environment. Efforts fostering innovation among SMEs are essential if they wish to achieve higher growth in the competitive world. It is believed that product innovation helps to boost sales of the firms, while process innovation is expected to increase production efficiency, and lastly market innovation may contribute to greater exports.

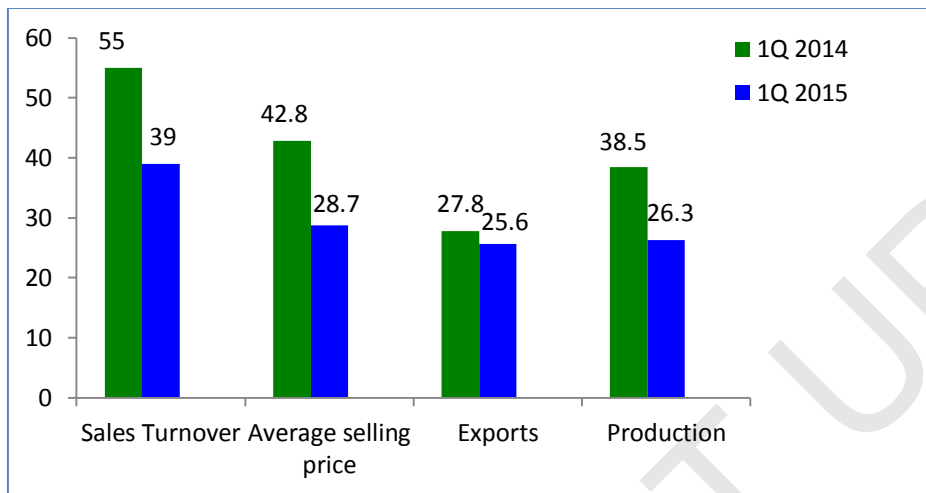


Figure 3 : Findings of 1Q 2014 and 1Q 2015 SME survey on SME growth

Third, there is very few research that incorporate external sources affecting different types of innovation. Pertaining to the importance to promote innovation-led growth among SMEs, the important sources of innovation need to be further examined. However, many past studies relevant to innovation in SMEs stress mostly the importance of internal factors influencing innovation; only few studies emphasize support from the government/public sector (see Table 1). Inauen and Schenker-Wicki (2011) assert that the internal knowledge or sources in an organization are not sufficient in this rapid changing environment where firms should source knowledge and technology outside a firm's boundaries. There was a study revealed that internal competencies of firms are found not associated with innovation, in contrast, external information found to be positively influence different types of innovation (Varis & Littunen, 2010).

More studies that incorporate external influences on innovation especially in the case of SMEs need to be conducted. The main dimensions of external sources are always relevant to vertical or interval cooperation in supply chain, collaboration with research institutions, universities or even competitors. According to Schroll and Mild (2011), the adoption of open innovation which focuses on the internalization of external knowledge through interactions with customers, suppliers, universities, competitors etc. will gain more attention in the future. However, other than all these external parties, government influence are also important to be included in research to make sure innovation is successfully managed (Trott, 2005).

Table 1 : External Sources Affecting Innovation

Recent Studies	Gaps
Different kinds of collaboration with external parties are proved to have significant impact on innovativeness amongst SMEs e.g. local and cross-border cooperation (Raposo, Ferreira & Fernandes, 2014; Inauen & Schenker-Wicki, 2011), collaboration among SMEs (Ceci & Lubatti, 2012), external stakeholders (Ar & Baki, 2011; Schroll & Mild, 2011). However, there is also little research that reveals the important of government support to SMEs innovativeness (Radas, Anic, Tafro & Wagner, 2015; Doh & Kim, 2014; Varis & Littunen, 2010).	The need to examine the impact of government support on innovation.

Fourth, there are not many studies that look into the effect of market innovation on firm performance. As compared to other researches that mainly concentrate on product and process innovation, market innovation is also study in depth in this study. Firms producing new products and services and then entering new market are expected to achieve higher growth relative to others (Tucker, 2008). Geldes and Felzensztein (2012) stress that the market innovation which has not much studied in the past, also has important effect on firm performance. They found there are differences in determinants affecting different types of innovation. Therefore, there is a need to further study the different determinants for different types on innovation. On the other hand, Gunday et al. (2011) attest that different types of innovations contribute significantly to different aspect of firm performance. They suggest firms to improve their innovation capabilities in order to realize improvement in their production and market performance. Recent studies focus on different types of innovation was exhibited in Table 2.

Table 2 : Types of Innovation Affecting Firm Performance

Recent Studies	Gaps
Product and process innovation are among the famous types of innovation attract attention of many researchers (Lee, 2011; Ar & Baki, 2011; Hilmi, Ramayah, Mustapha and Pawanchik, 2010; McAdam, Moffet, Hazlett & Shevlin, 2010). However, in some studies that include other types of innovation, some researchers also found market innovation helps to improve firm performance especially in manufacturing sector (Varis & Littunen, 2010; Gunday et al., 2011).	There need to investigate the contribution of market innovation on firm performance, in different sector.

Fifth, there is dearth of research that investigates the effect of innovation on non-financial performance of SMEs. The studies measuring firm performance in the form of firms' financial growth (Varis & Littunen, 2010; Ar & Baki, 2011; Chen & Huang, 2012; Daiya, Kohei & Heroshi, 2012) are relatively gaining more attention as compared to the effect of innovation on non-financial performance e.g. market performance and production performance. In this research, non-financial performance is integrated with financial performance for firm performance measurement. The former is mainly about the increase in sales turnover and profit based on the managers' perception while the main focus of the latter concerns about the improvement in

production efficiency, customer value, market performance, employee performance as well as innovation performance. Some studies focus on SME innovation and firm performance are showed in Table 3.

Table 3 : Effects of Innovation on Financial and Non-financial Performance

Recent Studies	Gaps
There are many different kinds of firm performance in practice. Sales turnover in the form of financial performance is common used (Raposo, Ferreira & Fernandes, 2014; Filippetti, 2011). Radas et al. (2015) used increase in number of innovation and growth in sales as non-financial performance. Very little research integrated both financial and non-financial performance in a single framework (Gunday et al., 2011)	Both the financial and non-financial performance are important to measure in order to meet expectations of different stakeholders for a firm. The relationship between different types of innovation on firm performance need in depth study.

Sixth, there is still lack of study related to the mediating role of innovation between its sources and firm performance in the context of SMEs. Dorrach (2005) finds firm's resources may not affect performance directly. Dorrach attests that some resources in terms of knowledge management have indirect impact on firm performance. Panayides also (2006) reveals that firm performance is indirectly influenced by some firm sources. His finding shows that relationship management and innovativeness contribute to better service quality before a firm can experience greater firm performance.

Many researches in the past (e.g. Ar & Baki, 2011; Raposo, Ferreira & Fernandes, 2014) explore separately the impact of firm sources on innovation and the impact of firm sources on firm performance; there was very limited research to date which integrate innovation in a framework and explore the mediating effect of innovation on the relationship between firm sources and its performance. If the mediating relationship occurs, it implies that innovation plays important role to bridge the relationship between firm sources and firm performance. In other words, some sources can bring significant effect to firm performance only in the presence of innovation.

1.3 Research Questions

Based on the problems discussed in the previous section, a total of five research questions are formed in order to identify the specific objectives that need to be achieved in this study at the same time to determine the kind of research to be conducted.

- i. What are the important sources affect innovation?
- ii. To what extend does the sources of innovation affect innovation?
- iii. Do sources of innovation contribute to better firm performance?
- iv. To what extend does innovation influence firm performance?

- v. Does innovation mediate the relationship between sources of innovation and firm performance?

1.4 Objectives

In this research, the relationships between sources affecting innovation, innovation and firm performance are studied. Specifically, the objectives of this research are mainly to:

- i. determine the sources affecting innovation in the context of SMEs,
- ii. examine the relationships between sources of innovation and innovation,
- iii. examine the relationships between the sources of innovation and firm performance,
- iv. examine the relationship between innovation and firm performance, and
- iv. assess the mediation effect of innovation between sources of innovation and firm performance.

1.5 Significance of Research

Since innovation becomes global game, it has been the popular research topic of many researchers in the past. There are so many studies prove that innovation contribute to better firms' performance and higher economic growth but many scholars study innovation as a whole, there is still lack of study that include various types of innovation into consideration especially market innovation. This study is expected to fill the research gap by measuring innovation by using three types of innovation which are very essential to the growth of SMEs. The three types on innovation are product innovation, process innovation and market innovation. The constructive feedbacks from SMEs in Malaysia were collected and it is expected to help managers to design the sound strategies in order to cultivate innovative climate in the organization. This is believed to be very essential in improving the performance and competitiveness of firms.

The Global Innovation Index report which established annually since 2007 stresses that innovation plays important role to drive economic growth and prosperity. According to the GII 2015 Report, Singapore, the only one economy from Southeast Asia was labelled as one of the GII leaders that invest in human capital and strong innovation infrastructures to achieve high level of creativity. The other economies in the region are having difficulty keeping up with the level of innovations of higher-ranking economies. Hence, it is very important for the lower-ranking innovative economies to learn from some of the "innovation learners" in order to keep pace with other countries which outperformed them in term of innovation capabilities.

Malaysia, Thailand and Vietnam are the learners from the same region demonstrate rising level of innovation. These economies perform at least 10 percent higher than their peers in gross domestic product. Since Malaysia is one of the second generation of Asian Tigers (Thailand, Malaysia and Indonesia), the findings of this study for the case of Malaysia are expected to provide some implications to some other developing economies in the ASEAN region. The findings and suggestions at the end of this study are expected to provide those economies the idea to achieve product, process and market innovation which contribute to greater competitiveness and higher growth among SMEs in their country.

This study also aims at filling the gaps in the existing body of knowledge where it is important for SMEs to acquire some essential sources affecting different innovation especially the networking with people outside the organization, before they can experience better firm performance. Therefore, managers must identify the sources that need to be focused more, at the same time design appropriate policies to improve the performance of some of those sources in order to promote innovation which eventually lead to better firm performance. The empirical evidence that show significant relationships between innovation and firm performance may provide insight to managers that their efforts to encourage different types of innovation are equally important in promoting better firm performance.

Last but not least, this study is expected to provide enhancement of theoretical framework by integrating the diffusion theory of innovation and resource-based approach that show how firm performance can be achieved by the effective use of firms' resources and capabilities such as leadership, R&D, networking and innovation. The integration of both frameworks suggests the mediating role of innovation between its sources and firm performance. This implies that with the absence of innovation, better firm performance is very difficult to achieve. Therefore, it is important for SMEs that experience no growth or poor performance in the past to examine whether innovation is successfully nurtured in their organization.

1.6 Limitations and Scope of Study

This study is limited to the perceptions of managers from SMEs with (1) sales turnover not exceeding RM50 million or fulltime employees not exceeding 200 workers in manufacturing sector, and (2) sales turnover not exceeding RM20 million or fulltime employees not exceeding 75 workers in service sector. Therefore, the findings of this research cannot be generalized to big firms with annual sales turnover more than RM50 millions or full-time employees exceeding 200 workers (<http://www.smecorp.gov.my/index.php/en/>).

The respondents selected were those owners, managers and senior executives from service and manufacturing sector. The reason to select only respondents from senior executive level and above is mainly due to their good understanding of their

organization's products or services, operations and performance. A total of six different industries from manufacturing sector and six industries from service sector will be selected based on SME Corp directory (<http://www.smecorp.gov.my/index.php/en/guides/2015-12-21-10-49-38/list-of-companies>).

1.7 The Development and Challenges of Malaysia SMEs

SMEs in Malaysia play critical roles in fostering growth and employment. The Malaysia SME GDP is considered as one of the important shares of overall GDP; it contributed more than 30% to overall GDP since year 2007. As revealed in Figure 4, in the past few years, the service sector (about 20%) has been the most important sector contributes the highest share of SMEs GDP, followed by manufacturing (about 7%) and agriculture (about 4%). The expansion in service sector was mainly due to the growth in domestic-oriented industries such as the telecommunications and real estate sub-sectors. While the improvement in global growth that drives the growth in export-oriented industries was the main factor lead to increase in manufacturing sector.

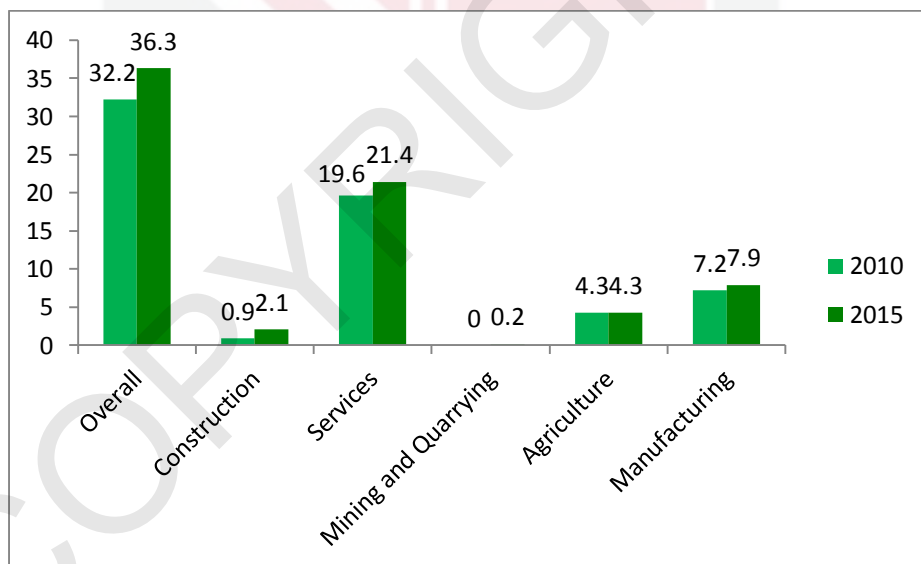


Figure 4 : SME GDP share by key economic activity
(Source: SME Annual Report, 2016/17)

The key economic activities of the two most important sectors related to the SME growth are in Table 4. Service sector is the main contributor to SMEs export as compared manufacturing and agriculture; it is mainly supported by tourism activity. Based SME annual report 2015/216, the service sector was mainly supported by wholesale and retail trade, food and beverages and accommodation, which account for

60.0% of SME value-added in the services sector, followed by finance, insurance, real estate and business services (20.4%). While value-added in manufacturing sector was highly supported by other manufacturing (35.9%), followed by petroleum, chemical, rubber and plastic products (24.4%) and food, beverages and tobacco (21.3%).

Table 4 : Key Economic Activities for Service and Manufacturing Industries

Service Sectors	Manufacturing
<ul style="list-style-type: none"> Wholesale and retail trade, accommodation and restaurants Finance, insurance, real estate and business services Transport, storage and communication Other services (private health services, private education services and other private services) 	<ul style="list-style-type: none"> Petroleum, chemical, rubber and plastic products Food, beverages and tobacco Non-metallic mineral products, basic metal & fabricated metal products Others (textiles and wearing apparel, leather and footwear, wood products, paper and paper products, publishing, printing and reproduction of recorded media, furniture, machinery and equipment)

The total employment of SME in the past few years accounted for more than 50% of total employment in Malaysia. Figure 5 shows SMEs as important source of employment. However, the drastic increase in total employment in 2014 was due to the new definition of SME implemented in Jan 2014; where about 8000 of previous large firms have been reclassified as medium size SMEs. The new definition of SME makes the 62% target of SME share of employment by 2020 (stated in SME Masterplan) achieved earlier before the deadline. In terms of SME employment by economic sector, services sector contribution to SME employment was highest with a percentage share of 63.0% followed by manufacturing (16.5%), construction (10.4%), agriculture (9.8%) and mining & quarrying (0.3%).

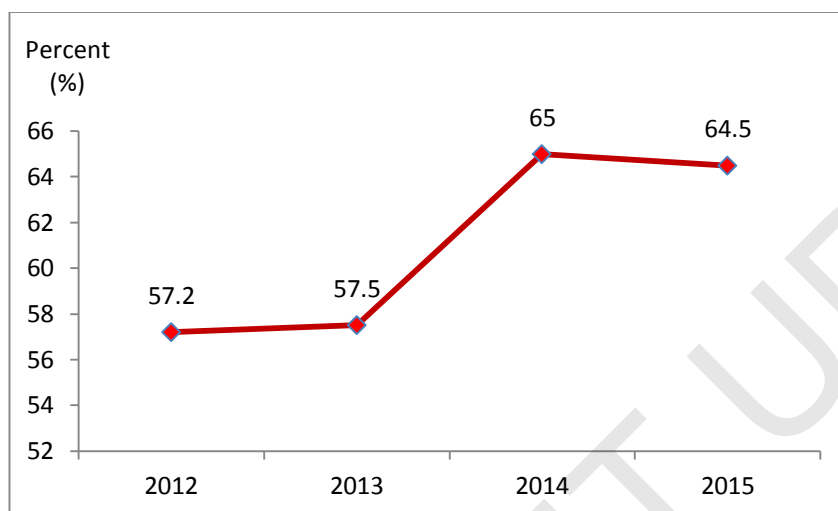


Figure 5 : Employment share of SMEs to total employment
(Source: SME Annual Report, 2015/16)

The Malaysia SMEs also is important to the country export. Despite economic condition was challenging in 2016, SMEs export still recorded 6.6% of growth; it is accounted for 18.6% of total exports of the country. The share consists of 9.4 percentage points from services sector while the 9.2 percentage was from manufacturing and agriculture sectors. The exports of SMEs in services sector were mainly supported by strong growth in tourism. The tourist arrivals growth rebounded to 4.0% in 2016 as the country received 26.8 million tourists compared to 25.7 million tourists in 2015.

To enhance the local SMEs competitiveness in the dynamic business environment, the Malaysia government has launched a program, Go Global Malaysia that aims to equip local SMEs with the necessary knowledge and tools to build their business capabilities, expand their network in the digital business environment and promote exports and growth. It is achieved by the public-private partnership, the collaboration between some industry partners e.g. Google, Alliance Bank, Mastercard and Maxis with public institutions such as MITI, MATRADE and SME Corp.

To stimulate the growth of SMEs, the Malaysia government has designed a lot of policies and initiatives to boost the capacity and competitiveness of SMEs. The SME Masterplan (2012-2020) was created in order to implement some development programs in five main focus areas which include human capital development, access to financing, the adoption of technology and innovation, market access and infrastructure. The SME Corp. Malaysia is assigned by the government to ensure the implementation of the plan and to make sure the objectives of the plan are achieved. It runs various programs to assist local SMEs and provides them support in financial and non-financial incentives. Many of the innovation relevant programs are believed helpful to

increase the number of new products/services (product innovation), exploitation of new markets (market innovation) as well as the adoption of new methods/process (process innovation). The programs are grouped into three as exhibited in Table 5.

Table 5 : SME Development Programs

Product Innovation	<ul style="list-style-type: none"> • The implementation of commercialization of R&D and technology acquisition funding programs to encourage commercialization of products and processes. • The Incubator Program encompasses various activities such as coaching, training, mentoring and consulting, is developed to nurture technopreneurs to realize their innovative products/services ideas.
Process Innovation	<ul style="list-style-type: none"> • The pre-commercialization funding program that assists entrepreneurs in process improvement, technology development and technologies commercialization. • The Incubator Program is also supporting the development of products and processes by providing quality testing and development facilities for industries in the form of product analysis, enhancement and quality assurance. • Technology Commercialisation Platform that aims to link all existing innovation initiatives under one platform to ensure that SMEs move seamlessly from one stage to another in the entire innovation process.
Market Innovation	<ul style="list-style-type: none"> • The Bumiputera Exporters Development Program aimed at helping local SMEs to acquire necessary skills and knowledge to penetrate new markets and expand export market place. • The Malaysia Business Online Program that provides local SMEs incentive in internet usage which facilitates the marketing of their products to global market. • The Market Development Grant encourages SMEs to participate in the export promotional activities to export their products and services to new markets. • The eTrade program is planned to facilitate the participation of SMEs in leading international e-marketplaces.

In Malaysia, 76.5% of the businesses are categorized as microenterprises (SME Annual Report 2016/2017). Microenterprises which operate with very small amount of capital always need government support in their access to finance, resources and expertise. Therefore, it is important to train more high-impact entrepreneurs which can help to fulfil local needs at the same time serve as role models for small and new entrepreneurs. High impact entrepreneurs is referred to the firms that build transformative businesses in both rapid-growth and mature markets at the same time they also help to create new industries or industry segments.

The Malaysia central bank (BNM) continuously conducts various activities that enhance awareness and of SMEs, especially microenterprises and new businesses, on the various financial schemes available. In 2016, BNM has participated in 414 events

and distributed about 1.8 million flyers, brochures and booklets to more than 270,000 SMEs nationwide. Since its launch in 2011, BNM's MobileLINK services has reached 70,000 individuals in rural areas and provided them advisory services on banking, insurance and takaful and matters related to SME financing.

The rising operation cost is the main challenge facing the Malaysia SMEs. Based on the findings of recent SME Corp. Malaysia surveys, most of the respondents pointed out that they were facing rising cost of doing business due to the implementation of GST and minimum wages, high fuel cost, increase in raw material costs and electricity tariff (SME Annual Report 2013/2014; SME Annual Report 2014/2015). To overcome the rising cost challenge, respondents indicated that some measures will be taken: (1) reduce operating cost, (2) maintain prices but transfer the GST charge to their consumers, (3) raise prices inclusive of GST charges, (4) increase profit margin, (5) increase productivity through technology adoption and (6) introduce new products and services.

Ironically, many of the measures are actually not feasible for some SMEs in current economic conditions. First, the operating costs reduction itself will be another challenge for SMEs. About 60% of the operating costs are attributed by the purchase of raw materials and labor costs (SME Annual Report 2014/15). When the SMEs are expected to increase production, those rising cost of doing business will be inevitable. Second, increase in price on the reasons to absorb GST and raised profit margin is hard to be implemented. This is because unlike large firms, the bargaining power of local SMEs is still low (SME Annual Report 2014/15). Therefore, innovation in products/services, process and market are important for SMEs.

It is expected that the negative impact of rising operating cost can be mitigated by increase in the sales of new products/services through product innovation, while efficiency in production can be achieved via process innovation and bigger customer base can be created through of market innovation.

1.8 Definitions of Terms

The common use definitions of innovation and the operational definition of few important terms in this study are as follow:

- (i) **Innovation**
Innovation is defined as the introduction of new or improved features of products, services, process, organization and methods of marketing of a business firm or workplace organization.
- (ii) **Product Innovation**
Product innovation is referred to the newness or changes and improvements in products/services which an organization offers. Products and services apply

similar concepts of product planning, product strategy and product positioning; all those concepts are critical to both manufacturing and service sectors (Barrell, Herriot & Mitchell, 1992). Therefore, in this study, the concept of product innovation in manufacturing sector equates the concept of service innovation in service sector.

- (iii) **Process Innovation**
Process innovation is referred to the introduction of new methods in production, management approaches and the adoption of technology which can improve production and management processes.
- (iv) **Market Innovation**
Market innovation is defined as the introduction of new approaches, strategies or methods adopted by a firm to enter a new market.
- (v) **R&D Strategy**
R&D strategy is referred to a firm's goals, planning and budget allocation for R&D related activities.
- (vi) **Strategic leadership**
Strategic leadership is referred to the ability of the leaders in a firm to effectively manage and use its resources at the same time actively look for knowledge in order to achieve better firm performance.
- (vii) **Learning Orientation**
Learning orientation is referred to the creation and the use of knowledge which enables firms to understand the environment well and subsequently contribute to the implementation of new ideas, products and processes.

1.9 Organization of Thesis

This thesis is organized as follows: Chapter 1 presents the background of this research, problem statement, objectives, scope of study, significance of study and some important terms of definition. Chapter 2 discusses review of literature and theoretical perspective related to the important variables in the conceptual framework. Chapter 3 explains the hypothesis development, methods used for data collection and data analysis. Chapter 4 discusses the results. Chapter 5 presents discussion and findings. Finally, chapter 6 provides conclusions, recommendations and limitations of study.

1.10 Summary

As discussed in the previous sections, there are some issues facing local SMEs that need to be solved. A total of four specific objectives that derived from the six problem statements are highlighted in order to help firms to realize better firm performance in the future. The importance to study innovation-led growth in the context of Malaysia SMEs is explained in significance of study. Some challenges in the dynamic business environment and development programs by the government that support local SMEs growth are also provided. Lastly, some important terms of definition and organization of thesis are included.

REFERENCES

- Alberty, S. & Mihalik, B. J. (1989). Technique in adult education: The use of important-performance analysis as evaluative. *Evaluation Review*, 13(1), 33-44. doi: 10.1177/0193841X8901300103
- Ar, I. M. & Baki, B. (2011). Andecedents and performance impacts of product versus process innovation: empirical evidence from SMEs located in Turkish science and technology parks. *European Journal of Innovation Management*, 14(2), 172-206. doi: 10.1108/14601061111124885
- Astrachan, C. B., Patel, V. K. & Wanzenried, G. (2014). A comparative study of CB-SEM and PLS-SEM for theory development in family firm research. *Journal of Family Business Strategy*, 5(1), 116-128. doi: 10.1016/j.jfbs.2013.12.002
- Avkiran, N. K. (2017). An in-depth discussion and illustration of partial least squares structural equation modeling in health care. *Health Care Management Science*. doi: 10.1007/s10729-017-9393-7. Retrieved from file:///C:/Users/Toshiba%20User/Desktop/PLS%20Guides/Advanced%20PLS%202017/4.%20REFERENCE%20ARTICLES/188.%20Avkiran%202017%20-%20PLS-SEM%20HealthCare.pdf
- Bagozzi, R. P. & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74-94. doi:10.1007/BF02723327
- Bagozzi, R. P., Yi, Y. & Phillips, L. W. (1991). Assessing construct validity in organizational research. *Administrative Science Quarterly*, 36(3), 421-458. Retrieved from https://www.researchgate.net/profile/Youjae_Yi/publication/234021313_Assessing_Construct_Validity_in_Organization_Research/links/00b4952e499bcb182600000/Assessing-Construct-Validity-in-Organization-Research.pdf
- Baker, W. E. & Sinkula, J. M. (2005). Market orientation and the new product paradox. *Journal of Product Innovation Management*, 22(6), 483-502. doi: 10.1111/j.1540-5885.2005.00145.x
- Barczak, G., Griffin, A. & Kahn, K. B. (2009). Perspective: Trends and drivers of success in NPD practices: Results of the 2003 PDMA best practices study. *Journal of Product Innovation Management*, 26(1), 3-23. doi: 10.1111/j.1540-5885.2009.00331.x
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Barrell, A., Herriot, W. & Mitchell, R. (1992). *How to profit from innovation*. England: Director Books.

- Bateman, T. S. & Snell, S. A. (2008). *Management: Leading and collaborating in a competitive world* (8th ed.). New York: McGraw-Hill.
- Beaver, G. & Prince, C. (2002). Innovation, entrepreneurship and competitive advantage in the entrepreneurial venture. *Journal of Small Business and Enterprise Development*, 9(1), 28-37. doi: org/10.1108/14626000210419464
- Bessant, J. & Tidd, J. (2011). *Innovation and entrepreneurship* (2nd ed.). West Sussex: John Wiley & Sons.
- Biggs, T., & Shah, M. K. (2006). *African small and medium enterprises, networks, and manufacturing performance*. The World Bank. Retrieved from <https://openknowledge.worldbank.org/bitstream/handle/10986/8752/wps3855.pdf?sequence=1>
- Bilton, C. (2007). *Management and creativity: From creative industries to creative management*. Malden, MA: Blackwell Publishing.
- Birgitta Sandberg, B. (2007). Customer-related proactiveness in the radical innovation development process. *European Journal of Innovation Management*, 10(2), 252-267. doi: 10.1108/14601060710745288
- Brown, S., Bessant, J. & Lamming, R. (2013). *Strategic Operations Management* (3rd ed.). New York: Routledge.
- Btimes. (2011, Jan 10). *Recognizing Innovative SMEs*. Retrieved from the Btimes website:
http://www.btimes.com.my/Current_News/BTIMES/articles/sme2012/Article/
- Byrd, M. J. & Megginson, L. C. (2009). *Small business management: An entrepreneur's guidebook* (6th ed.). New York: McGraw-Hill.
- Calantone, R. J., Cavusgil, S. T. & Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance. *Industrial Marketing Management*, 31(6), 515– 524. doi:10.1016/S0019-8501(01)00203-6
- Carmeli, A., Gelbard, R. & Gefen, D. (2010). The importance of innovation leadership in cultivating strategic fit and enhancing firm performance. *The Leadership Quarterly*, 21, 339-349. doi:10.1016/j.leaqua.2010.03.001
- Carneiro, A. (2008). When leadership means more innovation and development. *Business Strategies Series*, 9(4), 176-184. doi: 10.1108/17515630810891843
- Carpenter, M. A. & Sanders, W. G. (2009). *Strategic management: A dynamic perspective* (2nd edi.). New Jersey: Pearson Prentice Hall.
- Castellacci, F. (2008). Innovation and the competitiveness of industries: Comparing the mainstream and evolutionary approaches. *Technological Forecasting & Social Change*, 75, 984-100. doi:10.1016/j.techfore.2007.09.002

- Ceci, F. & Lubatti, D. (2012). Personal relationships and innovation diffusion in SME networks: A content analysis approach. *Research Policy*, 41(3), 565-579. doi: 10.1016/j.respol.2011.10.003
- Chen, Y. S. & Huang, I. C. (2012). Product innovations and performance of audit firms in Taiwan: Consideration of life cycles and market segments. *Asia-Pacific Journal of Management Research and Innovation*, 8(4), 365-387. doi: 10.1177/2319510X13477781
- Christensen, P. R., Munksgaard, K. B. & Bang, A. L. (2017). The wicked problems of supplier-driven innovation. *Journal of Business and Industrial Marketing*, 32(6), 836-847. doi: 10.1108/JBIM-06-2015-0110
- Chu, R. K. S. & Choi, T. (2000). An importance-performance analysis of hotel selection factors in the Hong Kong hotel industry: a comparison of business and leisure travelers. *Tourism Management*, 21, 363-377. doi:10.1016/S0261-5177(99)00070-9
- Cintio, M. D., Ghosh, S. & Grassi, E. (2017). Firm growth, R&D expenditures and exports: An empirical analysis of Italian SMEs. *Research Policy*, 46, 836-852. doi: 10.1016/j.respol.2017.02.006
- Cobbenhagen, J. (2000). *Successful innovation: Towards a new theory for the management of small and medium-sized enterprises*. Cheltenham: Edward Elgar.
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155- 15.
- Collis, D. J. & Montgomery, C. A. (1997). *Corporate strategy: Resources and the scope of the firm*. Chicago: Irwin.
- Cooper, D. R. & Schindler, P. S. (2014). *Business research methods* (12th ed.). New York: McGraw-Hill.
- Daiya, I., Kohei, N. & Hiroshi, O. (2012). New-to-market product innovation and firm performance: Evidence from a firm level innovation survey in Japan. *RIETI Discussion Paper Series 12-E-077*. Retrieved from <http://svr3001.rieti.go.jp/publications/dp/12e077.pdf>
- Darabi, F. & Clark, M. (2012). Developing business school/SMEs collaboration: The role of trust. *International Journal of Entrepreneurial Behaviour and Research*, 18(4), 477- 493. doi: 10.1108/13552551211239500
- David, F. R. (2009). *Strategic Management: Concepts and cases* (12th ed.). New Jersey: Prentice Hall.
- David, F. R. (2011). *Strategic management: Concepts and cases* (13th ed.). New Jersey: Prentice Hall.

- Doh, S. & Kim, B. (2014). Government support for SME innovations in the regional industries: The case of government financial support program in South Korea. *Research Policy*, 43(9), 1557-1569.
- Dorrach, J. (2005). Knowledge management, innovation and firm performance. *Journal of Knowledge Management*, 9(3), 101-115. doi: 10.1108/13673270510602809
- Duarte, V. & Sarkar, S. (2011). Separating the wheat from the chaf – a taxonomy of open innovation. *European Journal of Innovation Management*, 14(4), 435-459. doi: 10.1108/14601061111174907
- Eggers, F., Kraus, S., Hughes, M., Laraway, S. & Snyckerski, S. (2013). Implications of customer and entrepreneurial orientations for SME growth. *Management Decision*, 51(3), 524-546. doi: 10.1108/00251741311309643
- Elenkov, D. S., Judge, W. & Wright, P. (2005). Strategic leadership and executive innovation influence: An international multi-cluster comparative study. *Strategic Management Journal*, 26, 665-682. doi: 10.1002/smj.469
- ERIA SME Research Working Group. (2014). *ASEAN SME policy index: Towards competitive and innovative ASEAN SMEs*. Retrieved from <http://www.eria.org/RPR-FY2012-8.pdf>
- Evans, M. R. & Chon, K. S. (1989). Formulating and evaluating tourism policy using importance-performance analysis. *Journal of Hospitality & Tourism Research*, 13(3), 203-213. doi: 10.1177/109634808901300320
- Feder, G. & Savastano, S. (2006). The role of opinion leaders in the diffusion of new knowledge: The case of integrated pest management (Working Paper No. 3916). Retrieved from IDEAS website: http://www-wds.worldbank.org/servlet/WDSCContentServer/WDSP/IB/2006/05/05/000016406_20060505155436/Rendered/PDF/wps3916.pdf
- Filippetti, A. (2011). Innovation modes and design as a source of innovation: a firm-level analysis. *European Journal of Innovation Management*, 14(1), 5-26. doi: 10.1108/14601061111104670
- Fitzroy, P., Hulbert, J. M. & Ghobadian, A. (2012). *Strategic management: The challenge of creating value* (2nd edi.). New York: Routledge.
- Fossas-Olalla, M., Minguela-Rata, B., Lopez-Sanchez, J. & Fernandez-Menendez, J. (2015). Product innovation: When should suppliers begin to collaborate? *Journal of Business Research*, 68, 1404–1406. doi: 10.1016/j.jbusres.2015.01.022
- Freel, M. S. & Robson, P. J. A. (2004). Small firm innovation, growth and performance: Evidence from Scotland and Northern England, *International Small Business Journal*, 22(6), 561-575. doi: 10.1177/0266242604047410

- Gao, Y., & Hafsi, T. (2015). R & D spending among Chinese SMEs: The role of business owners' characteristics. *Management Decision*, 53(8), 1714-1735. doi: 10.1108/MD-04-2014-0208
- Garcia-Morales, V. J., Llorens-Montes, F. J. & Verdu-Jover, A. J. (2007). Influence of personal mastery on organizational performance through organizational learning and innovations in large firms and SMEs. *Technovation*, 27(9), 300-311. doi:10.1016/j.technovation.2007.02.013
- Gault, F. (2016, September). *Defining and measuring innovation in all sectors of the economy: Policy relevance*. OECD Blue Sky Forum III. Retrieved from <https://www.oecd.org/sti/008%20-%20BS3%202016%20GAULT%20Extending%20the%20measurement%20of%20innovation%20.pdf>
- Geldes, C. & Felzensztein, C. (2013). Marketing innovations in the agribusiness sector. *Academia Revista Latinoamericana de Administracion*, 26(1), 108-138. doi: 10.1108/ARLA-05-2013-0042
- Global Innovation Agency. *The Innovative Cities Index Report* (various years). Retrieved from the Global Innovation Agency website: <http://www.innovation-cities.com/innovation-cities-index-2014-global/8889>
- Global Innovation Index. *The Global Innovation Index Report* (various years). Retrieved from the Global Innovation Index website: <https://www.globalinnovationindex.org/content.aspx?page=GII-Home>
- Guimaraes, T. (2011). Industry clockspeed's impact on business innovation success factors. *European Journal of Innovation Management*, 14(4), 322-44. doi: 10.1108/14601061111148825
- Gumusluoglu, L. & Ilsev, A. (2009). Transformational leadership, creativity and organizational innovation. *Journal of Business Research*, 62(4), 461-473. doi:10.1016/j.jbusres.2007.07.032
- Gunday, G., Ulusoy, G., Kilic, K. & Alpkan, L. (2011). Effect of innovation of firm performance. *International Journal of Production Economics*, 133(2), 662-676. doi:10.1016/j.ijpe.2011.05.014
- Gupta, S. L. & Gupta, H. (2012). *Business research methods*. New Delhi: Tata McGraw-Hill Education.
- Hair, J. F., Anderson, R. E., Tatham, R. L. & Black, W. C. (1998). *Multivariate data analysis*, (5th edi). New Jersey: Prentice Hall.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014a). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Thousand Oaks: Sage.

- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139–151. doi: 10.2753/MTP1069-6679190202
- Hair, J. F., Sarstedt, M., Hopkins, L. & Kuppelwieser, V. G. (2014b). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26(2), 106-121. doi: 10.1108/EBR-10-2013-0128
- Hamdani, J., & Wirawan, C. (2012). Open innovation implementation to sustain Indonesian SMEs. *Procedia Economics and Finance*, 4, 223-233. doi: 10.1016/S2212-5671(12)00337-1
- Hayes, A. F. & Scharkow, M. (2013). The relative trustworthiness of inferential tests of the indirect effect in statistical mediation analysis: Does method really matter? *Psychological Science*, 1-10. doi: 10.1177/0956797613480187
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the New Millennium. *Communication Monographs*, 76(4), 408-420. doi: 10.1080/03637750903310360
- Helm, R., Mauroner, O., & Dowling, M. (2010). Innovation as mediator between entrepreneurial orientation and spin-off venture performance. *International Journal of Entrepreneurship and Small Business*, 11(4), 472-491. Retrieved from https://ink.library.smu.edu.sg/cgi/viewcontent.cgi?article=5133&context=lkcsb_research
- Hendrickson, L. U. & Psarouthakis, J. (1992). *Managing the growing firm*. New Jersey: Prentice Hall.
- Henseler, J., Ringle, C. M. & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academic Marketing Science*, 43, 115-135. doi: 10.1007/s11747-014-0403-8
- Hilmi, M. F., Ramayah, T., Mustapha, Y. & Pawanchik, S. (2010). Product and process innovativeness: evidence from Malaysian SMEs. *European Journal of Social Sciences*, 16(4), 547-55.
- Hoe, S.L. (2008). Issues and procedures in adopting structural equation modelling technique. *Journal of Applied Quantitative Methods*, 3(1), 76-83.
- Hoelter, J. W. (1983). The analysis of covariance structures: Goodness-of-fit indices. *Sociological Methods and Research*, 11(3), 325-344. doi: 10.1177/0049124183011003003
- Holland, S. J., Shore, D. B. & Cortina, J. M. (2016). Review and recommendations for integrating mediation and moderation. *Organizational Research Methods*, 1-35. doi: 10.1177/1094428116658958

- Hollos, D., Blome, C., & Foerstl, K. (2012). Does sustainable supplier co-operation affect performance? Examining implications for the triple bottom line. *International Journal of Production Research*, 50(11), 2968-2986. Retrieved from <https://hal.archives-ouvertes.fr/hal-00724177/document>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1-55. doi: 10.1080/10705519909540118
- Hudson, P. & Miller, G. A. (2004). The measurement of service quality in the tour operating sector: A methodological comparison. *Journal of Travel Research*, 42, 305-312. doi: 10.1177/0047287503258839
- Humphreys, P., McAdam, R., Leckey, J. & Nicholas, J. (2005). Longitudinal evaluation of innovation implementation in SMEs. *European Journal of Innovation Management*, 8(2), 283-304. doi: 10.1108/14601060510610162
- Inauen, M. & Schenker-Wicki, A. (2011). The impact of outside-in open innovation on innovation performance. *European Journal of Innovation Management*, 14(4), 496-520.
- Ismail, K., Omar, W. Z. W., Soehod, K., Senin, A. A. & Akhtar, S. H. (2014). Role of innovation in SMEs performance: A case of Malaysian SMEs. *Mathematical Methods in Engineering and Economics*, 145-149.
- Iturrioz, C., Aragon, C. & Narvaiza, L. (2015). How to foster shared innovation within SMEs' networks: Social capital and the role of intermediaries. *European Management Journal*, 33, 104-115. doi: 10.1016/j.emj.2014.09.003
- Jala, I. (2013). Innovation is not dead in Malaysia. Retrieved from The Star Online website: <http://www.thestar.com.my/Business/Business-News/2013/08/19/Innovation-is-not-dead-in-Malaysia/?style=biz>
- Jayaram, J. (2008). Supplier involvement in new product development projects: Dimensionality and contingency effects. *International Journal of Production Research*, 46(3), 3717-3735.
- Joppe, M., Martin, D. W. & Waalen, J. (2001). Toronto's image as a destination: A comparative importance-satisfaction analysis by origin of visitor. *Journal of Travel Research*, 39, 252-260. doi: 10.1177/004728750103900302
- Joseph, F. H., Rolph, E. A., Ronald, L. T. & William, C. B. *Multivariate Data Analysis* (5th edi.). New Jersey: Prentice Hall.
- Jung, K. & Andrew, S. (2014). Building R&D collaboration between university-research institutes and small medium-sized enterprises. *International Journal of Social Economics*, 41(12), 1174-1193. doi: 10.1108/IJSE-07-2013-0171

- Junge, M., Severgnini, B. & Sorensen, A. (2015). Product-marketing innovation, skills, and firm productivity growth. *Review of Income and Wealth*. doi: 10.1111/roiw.12192
- Kahkonen, A., Lintukangas, K., Ritala, P. & Hallikas, J. (2017). Supplier collaboration practices: Implications for focal firm innovation performance. *European Business Review*, 29(4), 402-418. doi: 10.1108/EBR-04-2016-0058
- Katz, J. A. & Green, R. P. (2014). *Entrepreneurial small business* (4th edi.). New York: McGraw-Hill.
- Keskin, H. (2006). Market orientation, learning orientation, and innovation capabilities in SMEs: An extended model. *European Journal of Innovation Management*, 9(4), 396-417. doi: 10.1108/14601060610707849
- Keyt, J. C., Yavas, U. & Riecken, G. (1994). Importance-performance analysis: A case study in restaurant positioning. *International Journal of Retail & Distribution Management*, 22(5), 35-40. doi: 10.1108/09590559410067325
- Khan, R., Rehman, A. U., & Fatima, A. (2009). Transformational leadership and organizational innovation: Moderated by organizational size. *African Journal of Business Management*, 3(11), 678-684. doi: 10.5897/AJBM09.203
- Konsti-Laakso, S., Pihkala, T., & Kraus, S. (2012). Facilitating SME innovation capability through business networking. *Creativity and Innovation Management*, 21(1), 93-105. doi: 10.1111/j.1467-8691.2011.00623.x
- Lawson, B. Krause, D. & Potter, A. (2014). Improving supplier new product development performance: The role of supplier development. *Journal of Product Innovation Management*, doi: 10.1111/jpim.12231.
- Lee, C. (2011). Trade, productivity and innovation: Firm-level evidence from Malaysia manufacturing. *Journal of Asian Economics*, 22, 284-294.
- Lee, K., Rho, S. Kim, S. & Jun, G. J. (2007). Creativity-innovation cycle for organizational exploration and exploitations: Lessons from Neowiz – a Korea internet company. *Long Range Planning*, 40(4), 505-523. doi:10.1016/j.lrp.2007.06.009
- Lee, S., Park, G., Yoon, B. & Park, J. (2010). Open innovation in SMEs: An intermediated network model. *Research Policy*, 39, 290-300. doi: 10.1016/j.respol.2009.12.009
- Lin, C. Y. & Liu, F. C. (2012). A cross-level analysis of organizational creativity climate and perceived innovation: the mediating effect of work motivation. *European Journal of Innovation Management*, 15(1), 55-76. doi: 10.1108/14601061211192834

- Lin, R., Chen, C. & Chiu, K. K. (2010). Customer relationship management and innovation capability: An empirical study. *Industrial Management & Data Systems Information*, 110(1), 111-133. doi: 10.1108/02635571011008434
- Lome, O., Heggseth, A. G. & Moen, O. (2016). The effect of R&D on performance: Do R&D-intensive firms handle a financial crisis better? *Journal of High Technology Management Research*, 27, 65-77. doi: 10.1016/j.hitech.2016.04.006
- Longenecker, J. G., Moore, C., Petty, J. W. & Palich, L. E. (2006). *Small business management: An entrepreneurial emphasis* (13th edi.). Ohio: South-Western.
- MacKinnon, D. P., Fairchild, A. J. & Fritz, M. S. (2007). Mediation analysis. *Annual Review of Psychology*, 58, 593-614. doi:10.1146/annurev.psych.58.110405.085542.
- Mahmoud, M. A., Blankson, C., Owusu-Frimpong, N., Nwankwo, S. & Trang, T. P. (2016). Market orientation, learning orientation and business performance: The mediating role of innovation. *International Journal of Bank Marketing*, 34(5), 623-648. doi: 10.1108/IJBM-04-2015-0057
- Maital, S. & Seshadri, D. V. R. (2007). *Innovation management: Strategies, concepts and tools for growth and profit*. California: Sage Publication Inc.
- Malaysia Science and Technology information Center. *National Survey of Innovation*. Retrived from the Malaysia Science and Technnnology Information Center website: <http://www.mastic.gov.my/en/web/guest/national-innovation-survey>
- Maranto-Vargas, D. & Rangel, R. G. (2007). Development of internal resources and capabilities as sources of differentiation of SME under increased global competition: A field study in Mexico. *Technological Forecasting and Social Change*, 74(1), 90-99. doi: 10.1016/j.techfore.2005.09.007
- Marta, F. -O., Beatriz, M. -R., Jose-Ignacio, L. -S. & Jose, F. -M. (2015). Product innovation: When should suppliers begin to collaborate? *Journal of Business Research*, 68, 1404-1406. doi:10.1016/j.jbusres.2015.01.022
- Martilla, J. & James, J. (1977). Importance-performance analysis. *Journal of Marketing*, 41(1), 77-79.
- McAdam, R., Moffett, S., Hazlett, S. A. & Shevlin, M. (2010). Developing a model of innovation implementation for UK SMEs: A path analysis and explanatory case analysis. *International Small Business Journal*, 28(3), 195-214. doi: 10.1177/0266242609360610
- Memon, M. A., Cheah, J., Ramayah, T., Ting, H. & Chuah, F. (2018). Mediation analysis: Issues and recommendations. *Journal of Applied Structural Equation Modelling*, 2(1), 1-9.

- Mosey, S. (2005). Understanding new-to-market product development in SMEs. *International Journal of Operations and Production Management*, 25(2), 114-130. doi: 10.1108/01443570510576994
- Nicholas, J. & Ledwith, A. (2011). New product development best practice in SME and large organizations: theory vs practice. *European Journal of Innovation Management*, 14(2), 227-51. doi: 10.1108/14601061111124902
- North, D., & Smallbone, D. (2000). The innovativeness and growth of rural SMEs during the 1990s. *Regional studies*, 34(2), 145-157. doi: 10.1080/00343400050006069
- Okwiet, B., & Grabara, J. K. (2013). Innovations' influence on SME's enterprises activities. *Procedia Economics and Finance*, 6, 194-204. doi: 10.1016/S2212-5671(13)00132-9
- O'Neill, M. A. & Palmer, A. (2004). Importance-performance analysis: A useful tool for directing continuous quality improvement in higher education. *Quality Assurance in Education*, 12(1), 39-52. doi: 10.1108/09684880410517423
- OECD. (2013). Figure illustration the SMEs' contribution to GDP, employment and exports in Asia. *Economic Outlook for Southeast Asia, China and India 2014*. Retrieved from http://www.keepeek.com/Digital-Asset-Management/oecd/development/economic-outlook-for-southeast-asia-china-and-india-2014/smes-contribution-to-gdp-employment-and-exports-in-asia-2011-or-latest-year-available_saeo-2014-graph105-en#page1
- OECD. (2017). *Economic outlook for Southeast Asia, China and India 2017: Addressing Energy Challenges*. Retrieved from https://www.oecd.org/dev/asia-pacific/SAEO2017_Overview_11-01-2017_PDF_HD_web.pdf
- Oke, A., Burke, G. & Myers, A. (2007). Innovation types and performance in growing UK SMEs. *International Journal of Operations and Production Management*, 27(7), 735-753. doi: 10.1108/01443570710756974
- Ozer, F. & Tinaztepe, C. (2014). Effect of strategic leadership styles on firm performance: A study in a Turkish SME. *Social and Behavioral Sciences*, 150, 778-784. doi: 10.1016/j.sbspro.2014.09.059
- Panayides, P. (2006). Enhancing innovation capability through relationship management and implications for performance. *European Journal of Innovation Management*, 9(4), 466-483. doi: 10.1108/14601060610707876
- Pangarkar, N. (2012). *High performance companies: Successful strategies from the world's top achievers*. Singapore: John Wiley & Sons.

- Patrucco, A. S., Luzzini, D. & Ronchi, S. (2017). Achieving innovation through supplier collaboration: The role of the purchasing interface. *Business Process Management Journal*, 23(6), 1270-1289. doi: 10.1108/BPMJ-10-2016-0202
- Peng, D. X. & Lai, F. (2012). Using partial least squares in operations management research: A practical guideline and summary of past research. *Journal of Operations Management*, 30, 467-480. doi: 10.1016/j.jom.2012.06.002
- Piatkowski, M. (2012). Factors strengthening the competitive position of SME Sector Enterprises: An example for Poland. *Social and Behavioral Sciences*, 58, 269-278. doi: 10.1016/j.sbspro.2012.09.100
- Porter, M. E. (1985). *Competitive advantage: Creating and sustaining superior performance*. New York: Free Press.
- Preacher, K. J. & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40(3), 879-891. doi: 10.3758/BRM.40.3.879
- Radas, S., Anic, I. D., Tafro, A. & anger, V. (2015). The effects of public support schemes on small and medium enterprises. *Technovation*, 38, 15-30. doi: 10.1016/j.technovation.2014.08.002
- Ramayah, T. (2014). *SmartPLS 2.0 manual guides*. Retrived from file:///C:/Users/Toshiba%20User/Desktop/PLS%20Guides/Advanced%20PLS%202017/2.%20SLIDES/SMART%20PLS%202%20MANUAL.pdf
- Ramayah, T., Yeap, J. A. L., & Ignatius, J. (2013). An empirical inquiry on knowledge sharing among academicians in higher learning institutions. *Minerva*, 51(2), 131-154. doi: 10.1007/s11024-013-9229-7
- Rammer, C., Czarnitzki, D., & Spielkamp, A. (2009). Innovation success of non-R&D-performers: substituting technology by management in SMEs. *Small Business Economics*, 33(1), 35-58. Retrieved from ftp://ftp.zew.de/pub/zew-docs/dp/dp08092.pdf
- Raposo, M. L., Ferreira, J. J. M. & Fernandes, C. I. (2014). Local and cross-border SME cooperation: Effect on innovation and performance. *European Journal of Management and Business Economics*, 23(4), 157-165. doi: 10.1016/j.redee.2014.08.001
- Raymond, L. & St-Pierre, J. (2004). Customer dependency in manufacturing SMEs: Implications for R&D and performance. *Journal of Small Business and Enterprise Development*, 11(1), 23-33. doi: 10.1108/1462600041051904
- Real, J. C., Roldan, J. L. & Leal, A. (2014). From entrepreneurial orientation and learning orientation to business performance: Analysing the mediating role of organizational learning and the moderating effects of organizational size. *British Journal of Management*, 25, 186-208. doi: 10.1111/j.1467-8551.2012.00848.x

- Reinartz, W., Krafft, M., & Hoyer, W. D. (2004). The customer relationship management process: Its measurement and impact on performance. *Journal of marketing research*, 41(3), 293-305.
- Rigby, D. K. (2015). *Management tools 2015: An executive's guide*. Retrieved from the Bain & Company website: <http://www.bain.com/publications/articles/management-tools-balanced-scorecard.aspx>
- Rogers, E. M. (1962). *Diffusion of innovations*. New York: Free Press.
- Rogers, E. M. (2003). *Diffusion of innovations*, (5th edi.). New York: Free Press.
- Rosell, D. T., Lakemond, N. & Wasti, S. N. (2014). Integrating knowledge with suppliers at the R&D-manufacturing interface. *Journal of Manufacturing Technology Management*, 25(2), 240-257. doi: 10.1108/JMTM-12-2013-0171
- Rucker, D. D., Preacher, K. J., Tormala, Z. L. & Petty, R. E. (2011). Mediation analysis in social psychology: Current practices and new recommendations. *Social and Personality Psychology Compass*, 5(6), 359-371. doi: 10.1111/j.1751-9004.2011.00355.x
- Russell, R. S. & Taylor, B. W. (2009). *Operations management: Along the supply chain*. New Jersey: Wiley.
- Saad, M., Shamsuri, M., & Mazzarol, T. (2010). *The Impact of leadership on organisational innovation performance among Malaysia's multimedia super corridor (MSC) SME*. Retrieved from https://www.researchgate.net/profile/Tim_Mazzarol/publication/256029786_The_Impact_of_Leadership_on_Organisational_Innovation_Performance_Among_Malaysia's_Multimedia_Super_Corridor_MSC_SME/
- Salim, I. M. & Sulaiman, M. (2011). Organizational learning, innovation and performance: A study of Malaysian small and medium sized enterprises. *International Journal of Business and Management*, 6(12), 118-125. doi: 10.5539/ijbm.v6n12p118
- Salimi, N. & Rezaei, J. (2018). Evaluating firms' R&D performance using best worst method. *Evaluation and Program Planning*, 66, 147-155. doi: 10.106/j.evalprogplan.201.10.002
- Saunders, M. N., Gray, D. E., & Goregaokar, H. (2014). SME innovation and learning: the role of networks and crisis events. *European Journal of Training and Development*, 38(1/2), 136-149. Retrieved from http://gala.gre.ac.uk/19691/3/19691%20GRAY_SME_Innovation_and_Learnin_g_2014.pdf

- Sawhney, M., Verona, G., & Prandelli, E. (2005). Collaborating to create: The Internet as a platform for customer engagement in product innovation. *Journal of interactive marketing*, 19(4), 4-17. doi: 10.1002/dir.20046
- Schroll, A. & Mild, A. (2011). Open innovation modes and the role of internal R&D: An empirical study on open innovation adoption in Europe. *European Journal of Innovation Management*, 14(4), 475-495. doi: 10.1108/14601061111174925
- Schumpeter, J. A. (1983). *The theory of economic development: An inquiry into profits, capital, credit, interest and business cycle*. New Brunswick: Transaction Books.
- Sharma, P., Davcik, N. S., & Pillai, K. G. (2016). Product innovation as a mediator in the impact of R&D expenditure and brand equity on marketing performance. *Journal of Business Research*, 69(12), 5662-5669. doi: 10.1016/j.jbusres.2016.03.074
- Shepherd, D. A. & Wiklund, J. (2005). *Entrepreneurial small business: A resource-based perspective*. Cheltenham: Edward Elgar.
- Simon Fraser University. (n.d.). Citation guide for business sources (APA 6th edi.). Retrieved from <http://www.lib.sfu.ca/help/cite-write/citation-style-guides/apa/apabusiness>
- Singh, S., Olugu, E. U., Musa, S. N. & Mahat, A. B. (2015). Fuzzy-based sustainability evaluation method for manufacturing SMEs using balanced scorecard framework. *Journal of Intelligent Manufacturing*, 1-18. doi: 10.1007/s10845-015-1081-1
- SMEcorp Malaysia. *SME Annual Report 2012/13*. Retrieved from the SMEcorp Malaysia website: <http://www.smecorp.gov.my/vn2/node/717>
- SMEcorp Malaysia. *SME Definition*. Retrieved from the SMEcorp Malaysia website: <http://www.smecorp.gov.my/index.php/en/>
- SMEcorp Malaysia. *SME Directory*. Retrieved from the SMEcorp Malaysia website: <http://www.smecorp.gov.my/index.php/en/guides/2015-12-21-10-49-38/list-of-companies>
- SMEcorp Malaysia. *SME Masterplan*. Retrieved from the SMEcorp Malaysia website: <http://www.smecorp.gov.my/index.php/en/resources/2015-12-21-11-07-06/sme-masterplan/category/3>
- Smith, S. & Costello, C. (2008). Culinary tourism: Satisfaction with a culinary event utilizing importance-performance grid analysis. *Journal of Vacation Marketing*, 15(2), 99-110. doi: 10.1177/1356766708100818
- Sok, P., O'cass, A. & Sok, K. M. (2013). Achieving superior SME performance: Overarching role of marketing, innovation and learning capabilities. *Australasia Marketing Journal*, 21, 161-167. doi: 10.106/j.ausmj.2013.04.001

- Soosay, C. A. (2005). An empirical study of individual competencies in distribution centers to enable continuous innovation. *Creativity and Innovation Management*, 14(3), 299-309. doi: 10.1108/13598540810860994
- Sternberg, R. & Arndt, O. (2001). The firm or the region: What determines the innovation behavior of European firms? *Economic Geography*, 77(4), 364-382. doi: 10.1111/j.1944-8287.2001.tb00170.x
- Suliyanto & Rahab (2012). The role of market orientation and learning orientation in improving innovativeness and performance of small and medium enterprises. *Asian Social Science*, 8(1), 134-145. doi: 10.5539/ass.v8n1p134
- Tambunan, T. (2008). SME development, economic growth, and government intervention in a developing country: The Indonesian story. *Journal of international entrepreneurship*, 6(4), 147-167. doi: 10.1007/s10843-008-0025-7
- Tang, J. (2006). Competition and innovation behavior. *Research Policy*, 35(1), 68-82. doi:10.1016/j.respol.2005.08.004
- Teece, D. J. (2010). Business models, business strategy and innovation. *Long Range Planning*, 43, 172-194. doi: 10.1016/j.lrp.2009.07.003
- Tether, B. S. (2002). Who co-operates for innovation, and why: An empirical analysis. *Research Policy*, 31(6), 947-967.
- Terziovski, M. (2010). Innovation practice and its performance implications in small and medium enterprises (SMEs) in the manufacturing sector: a resource-based view. *Strategic Management Journal*, 31(8), 892-902. doi: 10.1002/smj.841
- The Star Online. (2017, Jun 15). *Malaysia Ranks 37th in Global Innovation Index*. Retrieved from The Star Online website: <http://www.thestar.com.my/buisness/business-news/2017/06/15/malaysia-ranks-37th-in-global-innovation-index/>
- Thien, L. M., Razak, N. A. & Ramayah, T. (2014). Validating teacher commitment scale using a Malaysian sample. *Sage Open*, 2014(4), 1-9. doi: 10.1177/2158244014536744
- Torun, H., Cicekci, C. (2007). Innovation: is the engine for the economic growth. Retrieved from http://zanran_storage.s3.amazonaws.com/www.tcmb.gov.tr/ContentPages/53339333.pdf
- Trott, P. (2005). *Innovation management and new product development* (3rd ed.). Harlow: Prentice Hall.
- Tucker, R. B. (2008). *Driving growth through innovation: How leading firms are transforming their futures*. San Francisco: Berrett-Koehler Publishers, Inc.

- Tudor, A. T., Zaharie, M. & Osoian, C. (2014). Innovation development needs in manufacturing companies. *Procedia Technology*, 12, 505-510. doi: 10.1016/j.ptotcy.2013.12.522
- Tzokas, N., Kim, Y. A., Akbar, H., & Al-Dajani, H. (2015). Absorptive capacity and performance: The role of customer relationship and technological capabilities in high-tech SMEs. *Industrial Marketing Management*, 47, 134-142. doi: 10.1016/j.indmarman.2015.02.033
- Ulrich, D. & Lake, D. (1990). *Organizational capability: Competing from the inside out*. Canada: John Wiley & Sons.
- Van de Vrande, V., De Jong, J. P., Vanhaverbeke, W., & De Rochemont, M. (2009). Open innovation in SMEs: Trends, motives and management challenges. *Technovation*, 29(6-7), 423-437. doi:10.1016/j.technovation.2008.10.001
- Varis, M. & Littunen, H. (2010). Types of innovation, sources of information and performance in entrepreneurial SMEs. *European Journal of Innovation Management*, 13(2), 128-154. doi: 10.1108/14601061011040221
- Vincent, L. H., Bharadwaj, S. G., & Challagalla, G. N. (2004). Does innovation mediate firm performance?: a meta-analysis of determinants and consequences of organizational innovation. Retrieved from https://smartech.gatech.edu/bitstream/handle/1853/10731/gt_tiger_does_innovation.pdf;sequence=1
- Wai Yee, L., Hassan, S. H., & Ramayah, T. (2016). Sustainability and philanthropic awareness in clothing disposal behavior among young Malaysian consumers. *Sage Open*, 6(1), 2158244015625327. doi: 10.1177/2158244015625327
- Wang, C. L. & Ahmed, P. K. (2004). The development and validation of the organizational innovativeness construct using confirmatory factor analysis. *European Journal of Innovation Management*, 7(4), 303-313. doi: 10.1108/14601060410565056
- Wang, J. & Wang X. (2012). *Structural equation modelling: Applications using Mplus*. West Sussex: Wiley.
- Wang, C. L. (2008). Entrepreneurial orientation, learning orientation, and firm performance. *Entrepreneurship theory and practice*, 32(4), 635-657. Retrieved from <https://repository.royalholloway.ac.uk/file/5cd9d4e7-3552-94e8-046a-fbd8d992f79f/1/Wang%20C%20ET&P%20final.pdf>
- Wang, K. Y., Li-Hu, R. & Xu, E. (2009). Acquisition of tacit marketing knowledge: A role of human capital and social capital of entrepreneurs in China. *Journal of Chinese Entrepreneurship*, 1(2), 103-120. doi: 10.1108/17561390910956279

- Wang, Z., Huo, B., Qi, Y. & Zhao, X. (2016). A resource-based view on enablers of supplier integration: Evidence from China. *Industrial Management & Data Systems*, 116(3), 416-444. doi: 10.1108/IMDS-04-2015-0146
- Wei, J. & Liu, Y. (2015). Government support and firm innovation performance: Empirical analysis of 343 innovative enterprises in China. *Chinese Management Studies*, 9 (1), 38-55, doi: 10.1108/CMS-01-2015-0018
- West, A. (1992). *Innovation strategy*. New York: Prentice Hall.
- Winter, S. & Lasch, R. (2016). Recommendations for supplier innovation evaluation from literature and practice. *International Journal of Operations & Production Management*, 36(6), 643-664. doi: 10.1108/IJOPM-07-2014-0341
- Wolf, E. J., Harrington, K. M., Clark, S. L. & Miller, M. (2013). Sample size requirements for structural equation models: An evaluation of power, bias, and solution propriety. *Educational and Psychological Measurement*, 73(6), 913–934. doi: 10.1177/0013164413495237
- Yang, Y. S., Kull, T. J., Nahm, A. Y. & Li, B. (2017). Attitudes toward supplier integration: The USA vs China. *International Journal of Operations & Production Management*, 37(8), 1094-1116. doi: 10.1108/IJOPM-08-2015-0504
- Yeap, J. A., Ramayah, T., & Soto-Acosta, P. (2016). Factors propelling the adoption of m-learning among students in higher education. *Electronic Markets*, 26(4), 323-338. doi: 10.1007/s12525-015-0214-x
- Yee, L. W., Hassan, S. H. & Ramayah, T. (2016). Sustainability and philanthropic awareness in clothing disposal behavior among young Malaysian consumers. *Sage Open*, 1-10. doi: 10.1177/2158244015625327
- Zeufack, A. G. & Lim, K. Y. (2013). *Can Malaysia achieve innovation-led growth?* Kuala Lumpur: Khazanah National. Retrived from <https://ssrn.com/abstract=2630131>.
- Zhang, G. & Tang, C. (2017). How could firm's internal R&D collaboration bring more innovation? *Technological Forecasting & Social Change*, 125, 299-308. doi: 10.1016/j.techfore.2017.07.007
- Zhao, X., Lynch, J. G. & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, 37(2), 197-206. doi: 10.1086/651257
- Zindiye, S., Chiliya, N., & Masocha, R. (2012). The impact of Government and other Institutions' support on the Performance of Small and Medium Enterprises in the Manufacturing Sector in Harare, Zimbabwe. *International Journal of Business Management & Economic Research*, 3(6). Retrieved from <http://www.ijbmer.com/docs/volumes/vol3issue6/ijbmer2012030604.pdf>

BIODATA OF STUDENT

I am Mah Wai Lan, who currently work in private sector specialize in branch operation and agency support. I received my Bachelor of International Business at Universiti Utara Malaysia in 2005. One year later, I continued my Master degree at University Malaya and graduated in 2008. I started my Phd. study in 2014 and managed to complete the study in 2018.

I have a total of five years' experience teaching degree and diploma at UCSI University. During the tenure, I had chances to participate in various research works such as writing a chapter in a book, proceeding publications, pilot study in consumer confident index and conference papers guest reviewer. After leaving UCSI University, I continue my new career path in various industries such as property, social medial marketing and business management.

I feel grateful as work experiences in different industries equip me with the valuable knowledge and skills that contribute to my personal growth and development. Learning is a continuous process; I will continue researching and exploring more so that more positive impacts can be brought not only to organizations but society as well.

LIST OF PUBLICATIONS

Journal Publication Mah, W. L., Ali, N. A. & Zawawi, D. (2018). Assessing validity of sources of innovation, innovation and firm performance for variance-based structural equation modelling. *International Journal of Accounting, Finance and Business*, 3(13), 71-87.

Journal Publication Mah, W. L., Ali, N. A. & Zawawi, D. (2016). Sources of innovation and its impacts on firm performance: A framework exploring innovation as mediator for the case of Malaysia SMEs. *Journal of Global Business and Social Entrepreneurship*, 2(5), 183-192.





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STATUS CONFIRMATION FOR THESIS / PROJECT REPORT AND COPYRIGHT

ACADEMIC SESSION : _____

TITLE OF THESIS / PROJECT REPORT :

SUCCESSFUL FACTORS FOR INNOVATION AND THEIR IMPACT ON PERFORMANCE
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