

IMPACT OF INTELLECTUAL CAPITAL AND ORGANIZATIONAL
LEARNING ON SMALL AND MEDIUM ENTERPRISES' INNOVATION
CAPABILITY AND PERFORMANCE

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DEDICATION

Firstly, I thank God Almighty for the life and chance to embark on this education endeavour and bring me thus far in this and other pursuits of education. This thesis is dedicated to my father, mother, sisters, and brother. I thank God for these people of great significance in my life.

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ABSTRACT

The present research focused on the performance of Small and Medium Enterprises (SMEs) in the Malaysian manufacturing industry. Poor performance and low GDP of SMEs in the manufacturing industry have negatively impacted the Malaysian economy. Thus, this research is undertaken to address the poor performance of SMEs in the Malaysian manufacturing industry. The present research investigated the relationship between human capital, structural capital, relational capital, and organizational learning with the mediating role of innovation capability and moderating role of manufacturing capability against firm performance. The theoretical framework is grounded based on the Resource-Based View and Dynamic Capability theories. Moreover, a quantitative approach was adopted to examine the research framework. Based on stratified sampling, data were collected from 262 owners/managers of SMEs in the Malaysian manufacturing industry. Statistical Package for the Social Sciences (SPSS) and Partial Least Squares–Structural Equation Modelling (PLS-SEM) were used to analyze the data. Based on fourteen (14) hypotheses that were tested in this study, ten (10) of them were supported, while four (4) were not supported. This study found a positive relationship between human capital, structural capital, relational capital, and organizational learning against innovation capability. In addition, a positive relationship was found between human capital and innovation capability against firm performance. However, the research could not find enough support for a positive relationship between structural capital, relational capital, and organizational learning against firm performance. The present study also found that innovation capability mediates the relationship between human capital, structural capital, relational capital, and organizational learning against firm performance. Furthermore, this research could not find enough evidence that manufacturing capability moderates the relationship between innovation capability and firm performance. This research provided valuable information and created awareness for SMEs' owners/managers in Malaysian manufacturing to improve their firm performance. In addition, the research expanded the current body of knowledge on SMEs in Malaysia. Finally, the research findings will help policymakers formulate or adjust policies that assist SMEs' business growth and boost the national economy.

ABSTRAK

Kajian ini memberi tumpuan kepada prestasi firma Perusahaan Kecil dan Sederhana (PKS) di industri pembuatan di Malaysia. Prestasi yang lemah dan sumbangan Keluaran Dalam Negara Kasar (KDNK) PKS yang rendah dalam industri pembuatan di Malaysia telah menimbulkan beberapa kesan buruk kepada ekonomi Malaysia. Oleh itu, kajian ini dijalankan untuk menangani prestasi PKS dalam industri pembuatan di Malaysia. Penyelidikan ini menyiasat hubungan antara modal manusia, modal struktural, modal relasional, dan pembelajaran organisasi dengan peranan pengantara keupayaan inovasi dan peranan penyederhana keupayaan pembuatan terhadap prestasi firma. Rangka kerja teori adalah berdasarkan teori *Resource-Based View* dan teori *Dynamic Capability*. Selain itu, pendekatan kuantitatif telah digunakan untuk mengkaji kerangka penyelidikan ini. Berdasarkan persampelan berstrata, data telah dikumpul 262 pemilik/pengurus PKS dalam industri pembuatan di Malaysia. Pakej Statistik untuk Sains Sosial (SPSS) dan Pemodelan Persamaan Struktur – Kuasa Dua Terkecil Separa (PLS-SEM) telah digunakan untuk menganalisis data. Berdasarkan empat belas (14) hipotesis yang diuji dalam kajian ini, sepuluh (10) daripadanya adalah di sokong manakala empat (4) daripadanya tidak di sokong. Kajian ini mendapati hubungan positif antara (modal manusia, modal struktural, modal relasional, dan pembelajaran organisasi) dan kemampuan inovatif. Selain itu, penyelidikan ini juga menemui hubungan positif di antara modal manusia dan keupayaan inovasi terhadap prestasi firma. Walau bagaimanapun, penyelidikan ini tidak mempunyai sebarang bukti yang kukuh tentang hubungan yang positif di antara modal struktural, modal relasional, dan pembelajaran organisasi terhadap prestasi firma. Kajian ini juga mendapati bahawa keupayaan inovasi menjadi pengantara hubungan antara modal manusia, modal structural, modal relasional, dan pembelajaran organisasi dengan prestasi firma. Tambahan pula, penyelidikan ini tidak menemui bukti yang mencukupi bahawa keupayaan pembuatan menyerdakan hubungan antara keupayaan inovasi dan prestasi firma. Kajian ini memberikan maklumat yang berharga dan mewujudkan kesedaran kepada pemilik/pengurus PKS di dalam industry pembuatan di Malaysia untuk meningkatkan prestasi firma mereka. Kajian ini juga meluaskan pengetahuan semasa berkenaan PKS di Malaysia. Akhirnya, penemuan penyelidikan ini akan membantu penggubal dasar untuk merangka dan menyesuaikan dasar yang membantu pertumbuhan perniagaan PKS dan meningkatkan ekonomi negara.

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LIST OF ABBREVIATIONS

FP	-	Firm Performance
HC	-	Human Capital
SC	-	Structural Capital
RC	-	Relational Capital
OL	-	Organisational Learning
IC	-	Innovation Capability
MC	-	Manufacturing Capability
SMEs	-	Small and Medium Enterprises
GDP	-	Gross Domestic Product
RBV	-	Resource-based View
DCT	-	Dynamic Capability
FMM	-	Federal of Malaysian Manufacturers
AVE	-	Average Variance Extracted
CR	-	Composite Reliability
PLS	-	Partial Least Square
SEM	-	Structural Equation Model
CB	-	Covariance-Based
SPSS	-	Statistical Package for the Social Sciences
H	-	Hypothesis
R ²	-	R Square
Q ²	-	Predictive Relevance
F ²	-	Effect Size

LIST OF SYMBOLS

α	-	Alpha
β	-	Beta Value
$<$	-	Less than
$>$	-	More than

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Chapter one (1) presented a brief description of the present research. The present research focused on the Manufacturing small and medium enterprises (SMEs) performance in Malaysia. Henceforth, the chapter started with the research background, focusing on the importance of the nation's GDP. In addition, the research investigated the problem of the SME manufacturing performance with the impact of four (4) independent variables with one (1) mediating role and one (1) moderating role toward the dependent variable, which is firm performance. Present research is focused on Malaysian SMEs' contribution as its GDP performance has declined tremendously over the past years, especially in the manufacturing industry. As a result, the present research addressed this issue, followed by the discussion on; research objectives and questions, the significance of the study, scope of the study, definition of key terms, and chapter summary.

1.2 Research Background

SMEs are an important component in the national economies; SMEs significantly contribute to the economic growth and reduce poverty worldwide (Gërguri-Rashiti et al., 2017; Gupta & Barua, 2018). SMEs are identified as the engine of sustainable growth in many countries (Madanchian et al., 2016; Satiman et al., 2015). SMEs can contribute to the country's growth by performing as a critical source to stimulate innovation and new ideas, create jobs, provide opportunities in the future, and intensify the competition. These potentials have efficiently endorsed governments to enterprises and acknowledge the right supportive environment for SMEs' improvement (Cisneros & Hernandez-Perlines, 2018; McDowell et al., 2018).

Furthermore, SMEs accounted for 99% of all corporations throughout the Organization for Economic Cooperation and Development (OECD) countries and contributed to 50%-60% of the value introduced.

Several Asian countries are major global competitors, and their impact on the global economy has grown recently (Budhwar et al., 2016). During the past twenty years, SMEs have expanded exponentially in Asia. Since this region is noteworthy for its economic diversity, these SMEs occur at various levels of development and vary in their contributions to the country's economic development (De Sousa-Jabbour et al., 2020). According to the (OECD) report, SMEs are the primary source of organization which forms about 99% of all companies (McAloone & Pigosso, 2017). Moreover, SMEs play an essential role in developing Asian countries, thereby contributing to the development of employment, distribution of income, reducing poverty, growth of manufactured exports, and economic development through manufacturing industry (Bahari et al., 2018).

According to Asian Pacific Economic Cooperation (APEC), 98% of business establishments are SMEs, and over 50% of employment in the workforce is provided by SMEs (SME Corp, 2018/19). SMEs also generate employment and enhance accessibility to the world markets (Bahari et al., 2018; Halim et al., 2017). In other words, SMEs contributed significantly to a nation's GDP in the Asian region, and in low-income economies, they contributed to around 17% including India which was about 40%-50%. Malaysian and Singapore categories as classified high-income economies. Based on the Asian economies in general, it is noticeable that various employee's opportunities have been introduced by SMEs (SME Corp, 2018/19). In comparison with SMEs, large firms are the most important contributor to Asian economic growth. However, in advanced Asian countries, like Japan, Korea, and Taiwan, the SME sector is the most critical contributor to their GDP. Consequently, a necessity arises to examine the possible implication of this phenomenon to enhance the growth of SME's GDP contribution and the overall performance in Malaysia (Osman & Ngah, 2016; Satiman et al., 2015).

Since the 2008/2009 monetary crisis, steady improvement has been made, especially on global investments (SME Corp, 2018/19). Moreover, beginning of the 1990s, SMEs have been considered as the centre of the Malaysian economic change to a high-income country and a significant driver of development and employment opportunities. SMEs constitute a critical portion of the industrial sector; therefore, their commitments to the economy generate continuous research. SMEs are distinguished as the most significant contributors to the financial development in creating nations, such as Malaysia (Abd Aziz & Samad, 2016). SMEs are also vital in countrywide economies, considerably contributing to the economic advantages and lowering poverty in countries around the globe (Abdullah & Rosli, 2015; Auzzir et al., 2018; Gupta & Barua, 2018; Halim et al., 2017; Singh & Mahmood, 2014; Tahir et al., 2018; Verdolini et al., 2018). More specifically, SMEs are the Malaysian economy's driving forces (Zulkiffli et al., 2017), with an important role in developing opportunities for the country's public and private sectors to earn economic scale with the aid of increasing marketplace, stocks, productivity, enhancing economies, and solving poverty issues (Mokhtar & Ashhari, 2015).

SMEs are critical for most economies around the world, particularly in emerging and developing economies. In this regard, the World Bank stated that SMEs officially contributed around 60% of the employment rate and close to 40% of the national income (GDP). These statistics would be considerably higher if informal SMEs were considered (Ndiaye et al., 2018). The World Bank predicted that 600 million employees will join the workforce in the next 15 years in developing countries, mainly Asia and Sub-Saharan Africa. Furthermore, a survey by the World Bank Group estimated that about 400 million SMEs are established in developing economies (Ndiaye et al., 2018). This highlights the importance of SMEs in influencing the economic condition of developing countries. Given the importance of SMEs in the future of both developed and developing economies, these countries' policymakers are looking for ways to improve and boost the productivity of SMEs businesses (Wang, 2016).

In the Malaysian context, the performance of SMEs is critical since it supports Malaysia's continuing transformation into a high-income-based economic

system. However, SMEs' overall performance and long-term sustainability remain significantly unknown. Thus, to survive in today's global economy, businesses must be innovative (Khalique et al., 2018). Moreover, the government acknowledged that SMEs are critical sectors in the economy and continue to catalysed investment in Malaysia (Shamsuddin et al., 2017). In addition, SMEs businesses constitute a significant share of the Malaysian economic system stability. Recently, SMEs have played a critical function in the economic improvement and contribution, social uplifting, and global political stability (Khalique et al., 2018). Furthermore, SMEs have contributed drastically to the profits, output, and employment opportunities, as well as the financial system, and offered a strong basis to the growth of recent industries, and strengthened the prevailing SMEs for future improvement (Kamaluddin et al., 2016).

SMEs sectors in Malaysia are categorized into service, manufacturing, agriculture, mining and quarrying, and construction. Malaysia has a total range of 907,065 SMEs representing 98.5 % of all businesses established in Malaysia (SME Corp, 2018/19). According to the SME Corp annual report (2018/19), SMEs composition in Malaysia are mainly represented by the service sector at 89.2%, the manufacturing sector at 5.3%, the construction sector at 4.3%, the agriculture sector at 1.1%, and the mining and quarry sector at only 0.1% (Abu et al., 2018). Despite the significant contribution of the SMEs towards Malaysian GDP, SMEs faced numerous challenges. In other words, although SMEs in Malaysia have played crucial roles in the economic improvement, SME's contribution to the GDP is marginal compared to SMEs in other developing and developed countries (Satiman et al., 2015). SMEs in Malaysia are not attaining beneficial performance and that was driven by the fact that SMEs' contribution toward GDP formed merely 32.7% (SME Corp, 2018/19). Likewise, in comparison to other emerging countries, the SMEs' contribution towards the nation's GDP is low (Satiman et al., 2015).

Moreover, SMEs owner/managers faced massive global challenges (Bhatti et al., 2016). Similarly, SMEs in Malaysia are having troubles in accessing the advanced expertise, technologies, and accountability. Malaysia's emerging economy faced real pressures and challenges in the 21st century (Halim et al., 2017; Satiman

et al., 2015). Therefore, more research is needed to examine the possible means to address the downward trend to increase SMEs' GDP contribution in Malaysia (Osman & Ngah, 2016). Therefore, it is critical to investigate the possible influencers to address the declining issues of SME contribution to GDP. Figure 1.1 depicts that SME's contribution towards GDP had declined drastically from 13.5% in 2014 to 6.2 % in 2018/19.

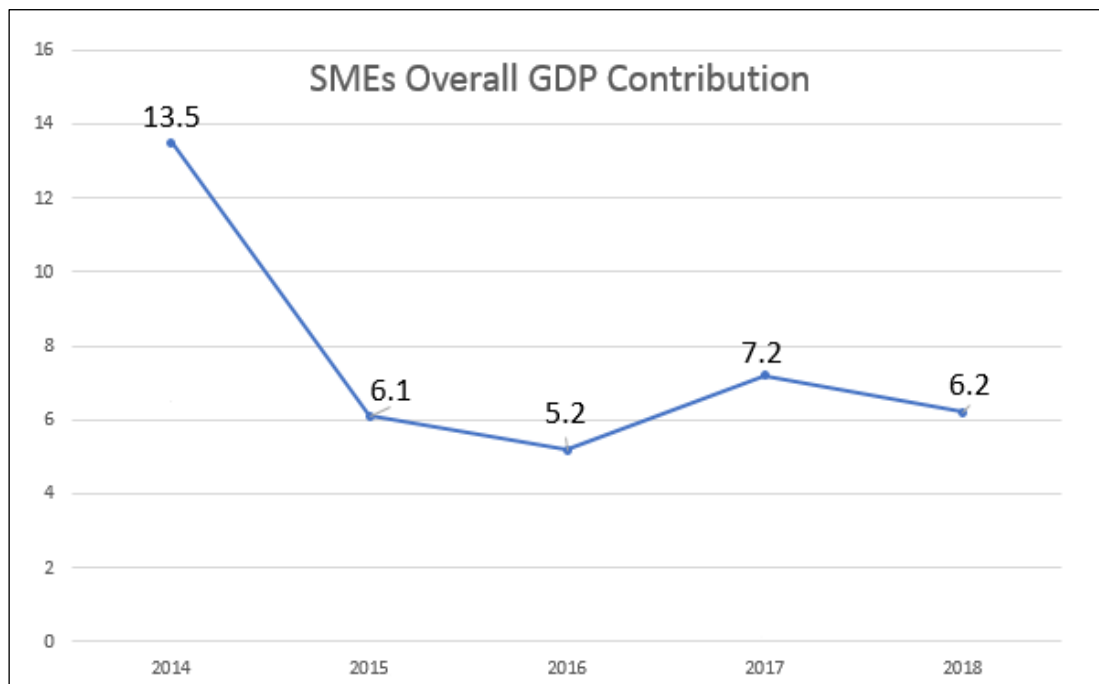


Figure 1.1 SMEs GDP contribution 2014-2018/19 (Source: SME Corp, 2018/19)

Service and SMEs manufacturing sectors are the backbone of the Malaysian financial system growth. These sectors represent more than 70% of Malaysian economy (Department of Statistic Malaysia, 2018). SMEs manufacturing in Malaysia rank as the second-largest contributor to the nation's GDP with 20.1% (SME Corp, 2018/19). The manufacturing sector's GDP contribution was made mainly from petroleum, chemical, rubber, plastic products, food, beverages, tobacco products, non-metallic mineral products, basic metal, and fabricated metal products (SME Corp, 2018/19). Most of these SMEs are on the West Coast of Malaysia located in significant industrialized regions, where there are port facilities, along with Selangor, Johor, Penang, and Perak. Even though the Malaysian manufacturing sector is important to the economy, it faced enormous challenges (Abd Aziz & Samad, 2016). Based on previous studies, the manufacturing sector's overall performance has been

commonly encouraging with profitable growth in GDP (Muda & Rahman, 2019). Therefore, present research was focused on improving SMEs manufacturing firm performance.

1.3 Problem Statement

Governments across the globe aspired to be inclusive in the economic growth, where SMEs are the fundamental solution to economic challenges throughout the emphasis on intangible resources (Musa & Chinniah, 2016; Sarigül, 2021). Though SMEs form large parts of the Malaysian economy, SMEs' contribution to the country's GDP remained low compared to high-income economies (Fard et al., 2011). In this regard, various researchers have been using GDP as an indicator for firm performance (Muda & Rahman, 2019; Shaari et al., 2018; Singh & Mahmood, 2014). Hence, the present research used the manufacturing sector's contribution to the nation's GDP as an indicator of performance. GDP estimates by firms are positively related to employment, investment, and output growth in the next year (Tanaka et al., 2020). Even after year-round regulation and company fixed effects, firms' GDP estimates are positively and significantly connected to their subsequent input decisions, such as investment, jobs, and revenue growth. Furthermore, the accuracy of GDP forecasts appears to be linked to profitability and productivity (Tanaka et al., 2020). Thus, GDP can be an indicator for firm performance. Based on literature review, when firms are doing well in terms of their profits or sales, it would reflect their contribution towards the nation's GDP (Muda & Rahman, 2019). Moreover, when firms face issues regarding their performance, their income, profits, and tax-paying decline. As a result, this would impact their contribution to the country's GDP. On the contrary, if firms are enjoying increasing in their performance, their contribution to the GDP will increase.

However, Malaysian SMEs are not performing at their best, and their survival rates have dropped dramatically (Ahmad & Seet, 2009). The failure rate of SMEs has reportedly reached 60%. Lack of entrepreneurial skills, financing, and administrative skills are some of the causes that have contributed to the failure of SMEs in Malaysia

(Lussier & Halabi, 2010; Zizi et al., 2020). In this regard, the majority of studies have concluded that SMEs in Malaysia can improve their performance by obtaining the necessary intellectual capital (Musteen et al., 2017). Table 1.1 shows that, except for the manufacturing sector; most SME sectors in Malaysia show consistent GDP growth from 2014 to 2018. More specifically, the SMEs manufacturing faced a major problem in terms of GDP contribution when compared to other SME sectors, such as service or construction, which declined from 21.7% in 2014 to 20.1% in 2018 (SME Corp, 2018/19). Since the SMEs manufacturing are the second-largest contributor towards the nation's GDP, they considered an important sector to the nation's economy, and the declining issue has a significant impact on the overall Malaysian economy.

Table 1.1 SMEs contribution towards Malaysia GDP by sectors

Year	Service	Manufacturing	Construction	Agriculture	Mining	Imports
2014	59.7	21.7	5.8	11.0	0.4	1.4
2015	58.9	21.7	5.7	12.0	0.4	1.3
2016	59.6	21.6	5.8	11.2	0.4	1.4
2017	59.7	21.5	5.8	11.2	0.4	1.4
2018	62.4	20.1	5.9	10.1	0.5	1.1

Source: SME Corp (2018/19)

A significant cause of SME's poor performance in Malaysia is SME's owner/manager's lack of awareness of business challenges related to financial and management skills. Consequently, SMEs need to achieve some adjustments to their systems, such as restructuring their financial systems, improving management skills, and emphasizing on high-quality product/service to ensure SME survival (CEO of SME Corp. Dato' Hafsah Hashim; SME Corp., 2018/19). In their 2018 annual report, SME Corp stated that SMEs manufacturing had a significant drop in their overall performance due to the low oil palm and rubber production (SME Corp, 2016/17). Figure 1.2 shows that SME manufacturing contribution to the Malaysian GDP had declined significantly from 21.7% in 2014 to 20.1% in 2018. Therefore, many past studies have suggested investigating the SMEs' declining performance and low GDP contribution towards the nation's economy (Osman & Ngah, 2016; Satiman et al.,

2015; Zulkiffli et al., 2017) but only few focused on manufacturing sector (Muda & Rahman, 2019). Past studies have also suggested that more attention should be paid to exploring the issues faced by firm performance of SMEs manufacturing in Malaysia (Muda & Rahman, 2019). Hence, to address the problem of the low GDP contribution of SMEs, manufacturing. SMEs manufacturing need to establish a new strategy and approaches to overcome this issue and increase their performance (Osman & Ngah, 2016).

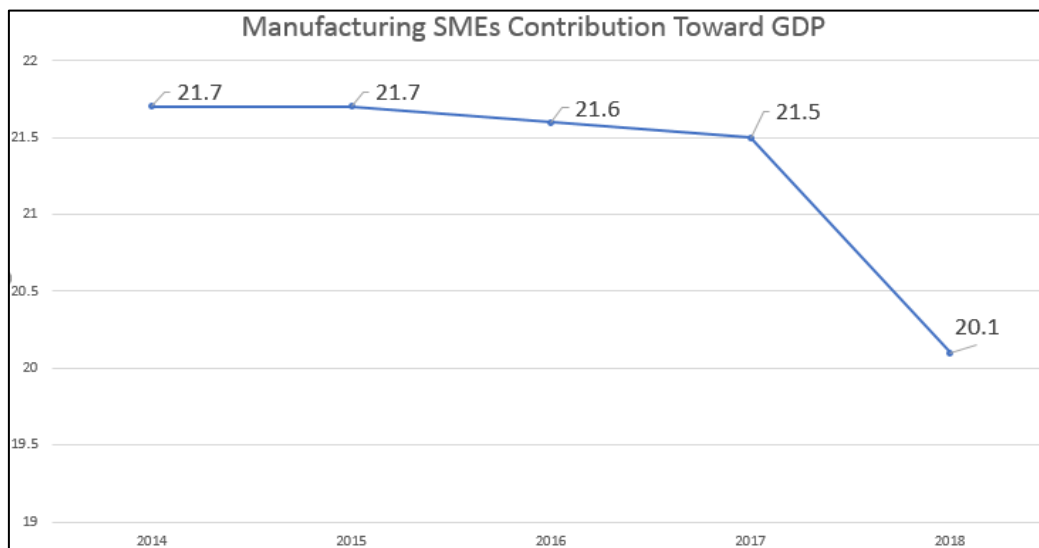


Figure 1.2 SMEs Manufacturing contribution to GDP between 2014-2018/19 (Source: SME Corp, 2018/19)

Various causes have led to the SME's poor performance in the past years; one of these factors is management issues regarding intellectual capital and organizational learning. Low performance, lower value, and higher financial risks have been suggested as causes for poor performance of SMEs manufacturing in Malaysia (Muda & Rahman, 2019; Rehman et al., 2019). Malaysian SMEs manufacturing have limited skills, knowledge, and structural systems (Al Mamun et al., 2018). However, some previous studies have stated that there is a lack of information about the causes that contributed to SME manufacturing low performance (Hosseini et al., 2014). Therefore, high competition has forced various SMEs manufacturing in Malaysia to aggressively start utilizing the intangible resources to survive and be successful financially. SMEs manufacturing have faced intense market pressure, increasing technical progress, shorter product life cycle, and

increasing changes in consumers' needs. These challenges have caused SMEs manufacturing to move away from mass production to customization options of goods, whereby the consumer's awareness is important (Hussain et al., 2015).

Malaysian SMEs manufacturing have been more dynamic, and the number of new business entrants has placed tremendous pressure on management reforms in this high-tech and challenging marketplace. Moreover, upper managers of manufacturing firms face a growing number of choices for their customers. In order to gain and keep their clients, they have offered them better product/services quality (Nor-Aishah et al., 2020). Consequently, in Malaysia, several firms in this field have already deployed intellectual capital to strengthen their marketplace (Muda & Rahman, 2019). However, due to several managerial challenges, SMEs manufacturing in Malaysia have recently shown a drop in their overall financial performance, which eventually led to low contribution to the country's GDP (Ismail et al., 2017). Similarly, previous studies have indicated that SME manufacturing poor performance in Malaysia is due to management issues from an intellectual capital perspective (Khalique & Pablos, 2015; Muda & Rahman, 2019). Moreover, if Malaysian SMEs manufacturing continue their downward contribution toward GDP, it is essential to look at the issues related to the performance of SMEs manufacturing (Ho et al., 2016). Therefore, more studies are needed to be carried out on how to improve the overall SMEs manufacturing performance in Malaysia (Halim et al., 2017; Satiman et al., 2015).

Though some studies have addressed the current issue of performance declining of Malaysian SMEs manufacturing (Al Mamun et al., 2018), limited studies have significantly addressed the various influencers that might impact the improvement of performance in emerging or developing countries, such as Malaysian SMEs manufacturing (Appendix B). Based on previous empirical research conducted in the intellectual capital field, an unclear link exists between intellectual capital and the success of SMEs manufacturing in Malaysia, which requires further studies. More specifically, intellectual capital has been poorly studied in the Malaysian SMEs manufacturing (Muda & Rahman, 2019). However, the degree to which intellectual capital activities are correlated with firm success remained

uncertain (Nor-Aishah et al., 2020; Verbano et al., 2015). SMEs manufacturing failure rate could also be associated with intellectual capital practices (Khalique & Pablos, 2015; Muda & Rahman, 2019). According to Khalique et al. (2018) Malaysian SMEs manufacturing, a lacks employees with high skills and experiences as well as insufficient knowledge affects the quality of production, efficiency, and productivity.

SMEs manufacturing in Malaysia also face inefficient internal structures and systems, which will eventually prevent SMEs from utilizing the firm's potential structural capital. Due to the high cost incurred and difficulty of having effective structures, limited documented knowledge of SMEs manufacturing occurred, such as inventions, technologies, information technology systems, and other automated processes (Muda & Rahman, 2019). On the other hand, relational capital is responsible for the formal methods of transferring information directly by creating structural systems and automatic processes. In this regard, the lack of proper structural capital in SMEs manufacturing would make firms face difficulties in formally transferring the information that causes a lack of resources, such as limited marketing and distribution channel expenses which SMEs manufacturing face, hence, relational capital becomes ineffective (Muda & Rahman, 2019). Therefore, a need arises to examine the influence of intellectual capital especially human, structural, and relational capital) on Malaysian SMEs manufacturing performance.

SMEs manufacturing are the key sector that concentrates on the transition of the low-carbon economy needed for organizations to maintain themselves learned and informed about their market challenges. Therefore, firms need to change continually, learn how to maintain, and grow, but it is challenging for SMEs to be upgraded and innovative without organizational learning (Yusoff et al., 2019). Organizational learning practices were a challenge for Malaysian SMEs manufacturing (Rehman et al., 2019). Nonetheless, the Malaysian government had several initiatives to enable SMEs to implement organizational learning to improve their economy (Abdul-Halim et al., 2019; Hanifah et al., 2017). Moreover, the reason for the declining performance of SMEs manufacturing is the lack of flexibility in adopting innovations (Sharabati et al., 2010). Likewise, due to the market changing,

short product life cycle and competition became wider, thus requiring SMEs to be more innovative. Currently, SMEs manufacturing are not achieving high competition due to the challenges faced by innovation activities in their firms. SMEs manufacturing face challenges to innovate due to the lack of institutional funding, low management expertise, lack of labour resources, knowledge, and market access (Abd Aziz & Samad, 2016).

Furthermore, the local level of innovation capability remains lacking, given the numerous policy measures and funding from institutions to lead Malaysia towards an innovation-led economy. This is partly attributed to the lack of a technologically trained workforce to participate in research and development (Yusoff et al., 2019). Several SMEs follow simple processes and procedures allowing flexibility, direct suggestions, and fast chains of decision-making called manufacturing capability. SMEs have more excellent communication and fast reaction to customers' demands relative to big organizations (Ghazilla et al., 2015). There were various challenges faced by SMEs manufacturing in Malaysia related to the manufacturing capability practices. These challenges were due to globalization, the changes in the customer's demand that forced SMEs manufacturing to continuously adjust their strategies and manufacturing processes to improve their existing capabilities (Lee et al., 2017). Based on the discussion, there were many challenges faced by SMEs manufacturing in Malaysia especially firm performance. According to the past literature and suggestions, further investigation is needed to investigate the relationship between (human capital, structural capital, relational capital, organizational learning) on firm performance and innovation capability. Present research aims at investigating the relationship between human capital, structural capital, relational capital, organizational learning, innovation capability, and manufacturing capability on SMEs manufacturing firm performance.

Innovation and human capital had a connection, innovation, for instance, relies on the development of technical capabilities and stakeholders. Nevertheless, if less attention is given to human capital development, a firm's potential to innovate could be seriously impacted (Waseem et al., 2018). In this regard, previous studies have revealed a link between human capital and innovative capabilities (Danquah &

Amankwah-Amoah, 2017; Ma et al., 2019; Sun et al., 2020). Structural capital on the other hand, encompasses infrastructure, systems policies, and procedures (Cohen & Kaimenakis, 2007; Kengatharan, 2019; Torre et al., 2020; Tovstiga & Tulugurova, 2007). Having the right structural capital and innovation capability is essential for organizations to develop their products (Abdirahman & Tarique, 2020). Besides that, various past studies have found a positive relationship between structural capital and innovation capability (Bontis et al., 2000; Cabrilo et al., 2018a; Deeb & Merhej, 2016; Yan & Guan, 2018). Moreover, relational capital is an essential factor that encourages innovation in organizations (Çakar & Ertürk, 2010; Torre et al., 2020). Furthermore, the close relationship among customers and suppliers will drive the firm into an enhanced process of superior products, services, or innovation (Santos-Rodrigues et al., 2015), and a positive relationship exists between relational capital and innovation capability (Capello & Faggian, 2005; Mucelli & Marinoni, 2011; Siyamtinah, 2016). Consequently, past study suggested that future studies should investigate the relationship between human capital and innovation capability because the findings were limited to the timber sector only. They also stated that the findings could not be generalized since it conducted only in Argentina's specific region (Jardon, 2018). However, the findings could be strengthened by re-examining the variables in other sector or other developing countries. In addition, the study suggested that future studies should examine the role of human capital towards innovation capability in other economic sectors or regions, thereby adding value to the current body of knowledge. In this domain, previous studies have tested the relationship between structural capital and innovation capability and mentioned limitation of their study regarding the targeted population (Yan & Guan, 2018). They also argued that their results might not be generalized to other sectors and suggested future research to re-examine the relationship for generalize the findings using other panel data or multiple data sources to enhance validity. Furthermore, past studies raised their concern about their findings and limitation regarding the sample size (Zhao et al., 2021). Hence, their results were not generalized, and they suggested studying the relationship between relational capital and innovation capability for more accurate results.

Organizational learning is a valued variable for acquiring sustainable competitive advantages and firm performance development (Bontis & Fitz-enz,

2002; Ferreira et al., 2021). Knowledge sharing in a company is very important to maintain its valuable heritage, learn new strategies, solve problems, develop core competencies, launch new undertakings, and eventually gain competitive advantages (Hsu & Fang, 2009; Law & Ngai, 2008). Organizational learning and innovation capability have also been reported by previous studies to be positively associated (Alegre & Chiva, 2013; Husain et al., 2016; Jiménez-Jiménez & Sanz-Valle, 2011; Zhou et al., 2021); however more research into the relationship between organizational learning and innovation capability is needed, the study also indicated a limitation by emphasizing the relevance of the internal company environment and endogenous business aspects, such as organizational learning, which as they stated should be addressed in future studies toward innovation capability (Kafetzopoulos & Psomas, 2015).

Innovation capability led organizations to continue adapting to the changing business environment (Ali et al., 2021; Slater et al., 2010). In this regard, past studies have found that innovation capability has a positive relationship with firm performance (Abdirahman & Tarique, 2020; Bhatti et al., 2016; Rajapathirana & Hui, 2018). However, the impact of innovation capability and firm performance was examined in Greek manufacturing firms and the results of these studies might not be applied to all companies around the world (Kafetzopoulos & Psomas, 2015). Therefore, these studies have suggested examining the relationship between innovation capability and firm performance, which would provide further insights into generalized knowledge. Moreover, other previous studies have tested the relationship between innovation capability and firm performance and stated that their research findings have limitations and cannot be generalized since these studies were conducted on Aguascalientes's SMEs in Mexico (Maldonado-Guzmán et al., 2019). Consequently, the results cannot be applied to all firms in different countries. Therefore, these studies suggested examining the relationship between innovation capability and firm performance with different measurements (Maldonado-Guzmán et al., 2019).

Human capital enables a firm's resources to be fully utilized, make better decisions, and establish best practices in enhancing firm performance (Ahmed et al.,

2019; Asiaei et al., 2018; Asiaei & Jusoh, 2017; Kengatharan, 2019). Many past studies have reported a positive relationship between human capital and firm performance (Asiaei & Jusoh, 2017; Gogan et al., 2016; Scafarto et al., 2016). As for structural capital, it has been identified as a significant resource for a firm, representing the firm's documents, database, and processes (Xu, et al., 2019), whereby past studies have found that structural capital is positively and significantly associated with firm performance (Abdirahman & Tarique, 2020; Asiaei et al., 2018; Asiaei & Jusoh, 2017; Cleary & Quinn, 2016; Muda & Rahman, 2019; Palazzi et al., 2020). Relational capital could improve operational and firms' financial performance. Based on the past studies, these relationships could develop strong ties with outsiders, which would improve firm performance generally (Cleary & Quinn, 2016; Wang et al., 2021). Besides, previous studies have found a positive and significant relationship between relational capital and firm performance (Asiaei & Jusoh, 2017; Barkat & Beh, 2018; Cisneros & Hernandez-Perlines, 2018; Muda & Rahman, 2019; Scafarto et al., 2016; Xu, et al., 2019). Regarding the study conducted in ICT SMEs operating in Malaysia, the findings could not be generalized to all firms in different countries or sectors due to the limited sample size (Shaari et al., 2018). However, their study established a benchmark for future intellectual capital and business performance researchers, recommending future studies to study intellectual capital in various nations or industries for better understanding regarding the application of intellectual capital in businesses and to strengthen the reliability of the findings. Furthermore, future studies should test the relationship between the variable human capital, structural capital, and relational capital on firm performance (Shaari et al., 2018).

Furthermore, knowledge and learning are the essential resources for an employer's survival and competitiveness (Rehman et al., 2019), whereby manufacturing firms' performance is influenced by organizational learning (Mohammad, 2019). Previous research also found a link between organizational learning and firm performance (Mohammad, 2019; Siddique, 2018; Valdez-Juárez et al., 2019). Nevertheless, past studies had a limitation; the relevance of the internal company environment and endogenous business characteristics like organizational learning were not addressed in their study (Kafetzopoulos & Psomas, 2015).

Therefore, they recommended future studies to investigate the connection between organizational learning and firm performance for more accurate understanding.

According to previous research, there is a good chance that innovation capability will act as a mediating factor in the relationship between human capital and firm performance. Previous research has revealed a link between human capital and innovative capability (Danquah & Amankwah-Amoah, 2017; Ma et al., 2019; Sun et al., 2020), as well as innovation capability and firm performance (Alam et al., 2019; Diharto & Budiyanto, 2017; Giménez et al., 2019). Similarly, past studies have found a positive relationship between structural capital and innovation capability (Cabrilo et al., 2018b; Manzanque et al., 2017; Yan & Guan, 2018). Moreover, other studies also found a positive relationship between innovation capability and firm performance (Hoang & Ngoc, 2019; Racela & Thoumrungroje, 2019). Innovation capabilities help trace customers' demands and remarks, which enhance the relationship between the clients and firms which can be vital for developing new products in keeping with the purchaser's taste (Waseem et al., 2018). Furthermore, several studies have found a positive relationship between relational capital and innovation capability (Agostini & Nosella, 2017; Siyamtinah, 2016). In addition, some studies have found a positive relationship between innovation capability and firm performance (Al-kalouti et al., 2020; Shou et al., 2017). Thus, there is a high possibility that innovation capability can mediate the relationship between (human capital, structural capital, and relational capital) and firm performance. Previous studies stated that intellectual capital dimensions might not be useful simultaneously, but managers must have the required knowledge to use relevant dimensions appropriately (Waseem et al., 2018). Furthermore, managers and practitioners who deal with intellectual capital utilize such concepts for the long-term benefit of the firm.

The mediation role of innovation capability should be addressed between intellectual capital dimension and firm performance to present a broader picture of innovation capability as a mediating role (Waseem et al., 2018). However, their study is limited to the Pakistani Textile sector and stated that the research might be expanded to different developing countries to support their findings, mostly when

their mediating role's results were not all supported. Hence, previous studies have suggested that future research should examine the mediation role of innovation capability between (human capital, structural capital, and relational capital) and firm performance (Waseem et al., 2018). Thus, the present research re-examined the mediation role of innovation capability between three dimensions of intellectual capital and firm performance to validate and support the significant hypothesis and re-examined the hypothesis which was not significantly supported. Moreover, previous studies have only addressed the relationship between relational capital and firm performance, and suggested studying innovation capability as an interesting intervention variable between relational capital and firm performance (Siyamtinah, 2016; Sulisty, 2016).

Organizational survival and competitive advantages are dependent on innovation. According to several studies (Alegre & Chiva, 2013; Arzubiga et al., 2020; Husain et al., 2016; Jiménez-Jiménez & Sanz-Valle, 2011), organizational learning improves innovation capabilities. Previous studies have also discovered a positive link between firm performance and innovation capability (Kafetzopoulos & Psomas, 2015; Omar et al., 2016; Pongsathornwiwat et al., 2019; Su et al., 2018). Therefore, it is possible for organizational learning and firm performance to be mediated by innovation capabilities. Hence, present research expanded the framework of (Waseem et al., 2018) by re-examining three (3) components of intellectual capital (human capital, structural capital, and relational capital) and tested the same mediation effect of innovation capability on firm performance. Moreover, present research introduced a new variable into the framework which is organizational learning since previous studies were limited to a certain number of variables to test the mediation impact of innovation capability, such as knowledge management and market orientation (Migdadi et al., 2017). Hence, these studies suggested that future research should investigate new variables such as organizational learning and test their impact on firm performance mediated by innovation capability. The mediation role of innovation capability has not been tested as a mediator between organizational learning and firm performance earlier (Appendix C), only one study which was mediated by only one innovation dimension which was product innovation (Wujiabudula & Zehir 2016). Consequently, the present research contributed to the body of knowledge by testing a new variable

mediated by innovation capability toward firm performance which is organizational learning.

In the Malaysian context, limited studies on SMEs' manufacturing capabilities and the manufacturing industry's performance have been conducted (Ho et al., 2016). Past studies have found a positive relationship between innovation capability and firm performance (Pongsathornwiwat et al., 2019; Su et al., 2018). On the contrary, some studies have found a negative relationship between innovation capability and firm performance (Kafetzopoulos & Psomas, 2015; Möldner et al., 2020). Based on the past literature, inconsistent findings existed regarding the relationship between innovation capability and firm performance. When the relationship between two variables is inconsistent, the moderation role can be applied (Hayes & Preacher, 2014). Hence, past studies have suggested investigating the moderating effect of manufacturing capability between innovation capability and firm performance (Kim et al., 2018). However, the finding of this research cannot be generalized to all firms since they stated that the moderation role of manufacturing capability between innovation capability of firm performance needs further investigation, arguing that a firm's innovation capability is slowly acquired and built over time. Hence, the present research contributed to the body of knowledge by expanding the framework of (Waseem et al., 2018) by introducing a new moderation variable which is manufacturing capability between innovation capability and firm performance.

Resource-based View (RBV) and Dynamic Capabilities (DCT) theories are used for underpinning the present research's framework. These theories are selected because they were the most common theories drawn up to investigate the effect of intellectual capital, organizational learning, innovation capability, manufacturing capability, and firm performance. Furthermore, the RBV theory is the most used in intellectual capital research (Muda & Rahman, 2019). As for DCT, it is used to explain the innovation capability and firm performance relationship. Intellectual capitals were a resource and competency which were valuable and uncommon, thereby giving a lasting competitive advantage and superior performance to the firm (Kamukama et al., 2010; Salvi et al., 2020). However, based on the premise of RBV

theory, a firm's strategic resources can be exploited to achieve a sustainable competitive advantage (Barney, 1991; Peteraf, 1993; Wernerfelt, 1984). It has been argued by various researchers that organizational performance is driven by the proper utilization of the firm's resources (Ahmed et al., 2019). Moreover, efficient usage of resources could help organizations improve their competitive advantages and enhance financial and non-financial performance (Ahmed et al., 2019).

Internal resources, such as human capital form a competitive advantage for the firm (Hoskisson et al., 1999; Paulus & Murdapa, 2018). Human capital is valuable, rare, and non-substitutable assets since they are scarce, specialized, and hold tacit knowledge (Coff, 1999). Based on the RBV theory, structural capital strategy forms a competitive advantage for the firm (Paulus & Murdapa, 2018). Structural capital is connected to the RBV theory by indicating successful allocating of resources in centenary to transform or develop a brand-new process. This could lead to changing short-run competitive advantages into long-term competitive advantages and improving firm performance (Ahmed et al., 2019). Relational capital is unique, and it is difficult for competitors to imitate, and core relational capital constitutes the foundation of the firm's competitive advantage (De-Pablos, 2002; De Pablos, 2004; Salvi et al., 2020). Relational capital contains all the information of a firm's connection with the external networks that associate a setup amongst all the clients, suppliers, and partners. Besides that, relational capital is considered an essential resource to the organization, which enhances and strengthens the firm competitive advantages.

Firm competitive advantages were derived from valuable resources, such as organizational learning, which were intangible resources of a cumulative firm over time. However, firms want to locate an excellent strategy to support their research and development on understanding useful resources by managing them accurately and efficiently to meet present challenges, which would be enhanced through organizational learning (Rehman et al., 2019). Furthermore, manufacturing capabilities have been known as a source of competitive advantage (Li et al., 2019), which include other entities such as supplier, substitute, function, and process sort that provide essential details for sustainable manufacturing capability that essentially

strengthen a company's competitive advantages for better performance (Corbett & Claridge, 2002; Zhang et al., 2017a).

Moreover, DCT theory has been used to explain the innovation capability and firm performance relationship and helped firms in developing their resources and protecting them. Innovation capability in firms must respond faster to the changeable demand in the market. At the same time, DCT theory increased the ability to innovate by integrating, building, and reconfiguring internal and external capabilities to meet rapidly changing market demands for superior performance (Teece et al., 1997).

Present research is focused in examining the declining SMEs manufacturing performance. SMEs manufacturing GDP contribution has declined significantly from the year 2014 to 2018 (SME Corp, 2018/19). Based on the discussion and the gap of the study present research examined the relationship between human capital, structural capital, relational capital, organizational learning, innovation capability, and manufacturing capability against firm performance.

1.4 Research Questions

Based on the research background and response to the problem statement, present research intended to examine the following research questions:

1. Is there any impact of human capital, structural capital, relational capital, and organizational learning on innovation capability?
2. Is there any impact of innovation capability on firm performance?
3. Is there any impact of human capital, structural capital, relational capital, and organizational learning on firm performance?
4. Does innovation capability mediate the relationship between human capital, structural capital, relational capital, and organizational learning and firm performance?

5. Does manufacturing capability moderate the relationship between the innovation capability and firm performance?

1.5 Research Objectives

Based on the discussion, the present research intended to investigate the relationship between human capital, structural capital, relational capital, and organizational learning on innovation capability and firm performance. Furthermore, the research also intended to investigate the mediating role of innovation capability and the moderating role of manufacturing capability. The present research objectives were as follows.

1. To examine the impact of human capital, structural capital, relational capital, and organizational learning on innovation capability.
2. To examine the impact of innovation capability on firm performance.
3. To examine the impact of human capital, structural capital, relational capital, and organizational learning on firm performance.
4. To examine the mediating role of innovation capability between human capital, structural capital, relational capital, and organizational learning on firm performance.
5. To examine the moderating role of manufacturing capability between the innovation capability and firm performance.

1.6 Significant of The Study

a) Practical Significance

The practical significance of the present research provided valuable information and created awareness to the owner/managers of SMEs manufacturing in Malaysia to improve their firm performance. Malaysian SMEs manufacturing had

limited knowledge and understanding of the concept and importance of intellectual capital and organizational learning. Present findings extended the current knowledge of owner/managers of the SMEs manufacturing in Malaysia by understanding how intellectual capital human capital, structural capital, and relational capital, organizational learning, innovation capability, and manufacturing capability enhanced their firm performance. Present research suggested that owner/managers of SMEs manufacturing to pay more attention to the investment of intellectual capital and organizational learning in their firm for improving their innovation level. Moreover, present research conceptual framework and findings could help owner/managers to formulate relevant business strategies for the dynamic competitive markets.

According to the previous studies, intellectual capital and organizational learning had a significant impact on firm performance. Present research's conceptual model is a combination of intellectual capital that consist of human, structural and relational capital along with organizational learning with the mediating impact of innovation capability and moderating impact of manufacturing capability. Therefore, high collaboration, on the corporate level, may be required for the firm to experience optimal firm performance. Hence, to improve business performance, innovation capability is essential to produce new product or service concepts that would enhance firm performance. This would assist owner/managers of SMEs to enhance their firm performance, by underlining the importance role of innovation capability as a mediator. Moreover, present research conceptual model would extend the understanding of factors that could create highly competitive advantage and result superior firm performance in SMEs manufacturing in Malaysia.

b) Theoretical Significance

Present research was conducted on SMEs manufacturing in Malaysia and extended the body of knowledge in both theoretical and practical areas. More specifically, the present research extended the study of Waseem et al. (2018), which was conducted in Pakistan by adding a new variable into the framework, namely organizational learning that is considered an important contribution to fill the gap of

past study (Migdadi et al., 2017). Moreover, human capital, structural capital, relational capital (Muda & Rahman, 2019), and organizational learning (Ismail et al., 2017; Rehman et al., 2019) were posited a strong influence on SMEs manufacturing performance in Malaysia. However, inadequate research exists to validate the intellectual capital model (Khalique et al., 2018), and organizational learning (Rehman et al., 2019). Besides, limited studies on Malaysian SMEs manufacturing related to human capital, structural capital, and relation capital (Muda & Rahman, 2019), and organizational learning have been conducted (Rehman et al., 2019). Therefore, the present research made an essential expansion to the existing literature and the owner/manager of SMEs manufacturing in Malaysia by increasing the current knowledge in the management area, especially in the Malaysian SMEs manufacturing area.

Present research contributed to the resource-based view RBV theory by examining how human capital, structural capital, relational capital, organizational learning, and manufacturing capability complemented and supplemented each other to enhance firm performance. This research also contributed to the dynamic capability DCT theory by showing how innovation capability supported and facilitated the enhancement of competitive advantages towards superior performance. Furthermore, the present research validated and enhanced two main theories: RBV and DCT.

The moderation role of manufacturing capability in past studies has been dressed in limited studies. Past study studies one aspect of manufacturing capability (R&D Clustering) between several dimensions of innovation and firm performance (Sher & Yang, 2005), while the other study used manufacturing capability as a mediating variable between utilization of innovation sources and innovation performance (Yam et al., 2011). Moreover, Kim et al. (2018) used manufacturing capability as a moderator between innovation which considered as a recent study compared to others. Furthermore, manufacturing capability has not been addressed in the context of the SMEs manufacturing worldwide except for one research in Korea (Kim et al., 2018) while none in Malaysia. The main contribution of the present research was by introducing a new variable, namely (organizational learning)

mediated by innovation capability toward firm performance (Appendix B). The present research's framework was not addressed in the past studies globally, and according to the past literature, unclear relationship existed between intellectual capital and firm performance (Khalique et al., 2018). The findings of previous studies have not presented a clear understanding of how intellectual capital would be mediated by innovation capability toward firm performance as the study was conducted in one manufacturing sub-sector, which was textiles companies in Pakistan, and their results cannot be generalized (Waseem et al., 2018). Therefore, the present research contribution was by expanding the model of (Waseem et al., 2018) while addressing one new variable which was organizational learning. Organizational learning is considered a new variable that has not been addressed before toward firm performance and is mediated by innovation capability. Based on (Rehman et al., 2019), a need exists for future studies to study the importance and influence of organizational learning in manufacturing firms, especially SMEs manufacturing operating in Malaysia. Thus, the present research contributed to the body of knowledge by re-examining three factors of Waseem's (2018) work by adding one independent variable which was organizational learning. Present research also expanded the framework by testing one moderator, which is manufacturing capability. The findings of previous studies regarding the moderation role of manufacturing capability between innovation capability and firm performance were insufficient (Kim et al., 2018). Their findings cannot be generalized to other sectors or countries around the world since their study was limited to the SMEs manufacturing in Korea (Kim et al., 2018). Hence, the present research contributed to the body of knowledge regarding intellectual capital, organizational learning, innovation capability, manufacturing capability, and firm performance.

c) Policy Makers

Present research will help the Malaysian government emphasize the importance of intellectual capital and organizational learning. More specifically, the present research's findings stated positive relationships between all independent variables against innovation capability and only human capital and innovation capability was significantly connected to firm performance while structural,

relational capital, and organizational learning were non-significantly connected to firm performance. In addition, the present research stated a positive mediation role of innovation capability, but a non-significant moderation role of manufacturing capability was found. The findings of the present research were similar to previous findings, which stated a positive connection among those variables. These results would help policy-makers to adjust and modified their decisions and actions regarding the importance of the present research variables on enhancing innovation capability and firm performance.

A strong and dynamic SME policies has stimulated the economy and contribute to a wide range of economic development objectives. The government support the growth of successful SMEs which ensured the efficient use of resources, employment creation, mobilisation of domestic savings and investments, entrepreneurs, thereby, increasing the use of local resources such as intellectual capital and organizational learning and ensuring a higher level of performance (National Agenda for SMEs, 2020). Present SMEs policies have promoted the development of SMEs which formulated against the backdrop of a changing and challenging economic environment, characterized by globalization, and advances innovation aspects. However, the Malaysian government have established a national economic development plan which focused on achieving sustainable growth through intangible assets through increasing the knowledge content of activities, and innovation and adoption of modern technologies. Malaysia government can emphasise on intellectual capital knowing that intellectual materials help in creating wealth and they help to produce high valued assets.

The government can impose policies for manufacturing firms to increase their intellectual capital resources by hiring better employees, conducting training programs for employees, and developing new patents. Organizational learning on the other hand proved to be and importance assets in firms which showed various benefits that occur in firms that develop a learning culture, increased employee job satisfaction, lower turnover rates, and Increased productivity, profits, and efficiency. Moreover, government can emphasize

on organizational learning by imposing policies that help in increase knowledge availability and accessibility to cope with market changes.

The research variables play an important role in enhancing firm performance according to the past literature. Based on the present findings, the results created a beneficial perspective to the policy makers and stockholders in long/short term policies. This could be accomplished by formulating new policies and guidelines to support the growth of the SMEs manufacturing in Malaysia by encouraging them to invest more in intellectual capital and organizational learning within the firm. For example, the Malaysian government could help the owner/manager of SMEs manufacturing find a suitable policy to support their firm performance by imposing regulations on the owner/managers through meeting specific criteria or a benchmark of performance or contributing toward the national GDP through high emphasis on intangible resources especially intellectual capital and organizational learning, and that might be based on the firm's size, capital, or sales. The policy makers had valuable knowledge about the favourable implication of intellectual capital and organizational learning toward enhancing the firm performance. Accordingly, the policy makers who implemented new policies and regulations would be get benefits since intellectual capital and organizational learning proved to be an important factor in improving the performance of the Malaysian SMEs manufacturing in a way which will make the manufacturing sector more productive.

1.7 Scope of the Study

The scope of the present research is the SMEs manufacturing operating in Malaysia. There were eleven (11) subsectors in the SMEs manufacturing which are textiles & wearing apparel, food & beverages, fabricated metal products, machinery & equipment, printing, furniture, rubber & plastic products, non-metallic mineral products, wood products, electrical & electronics, and others (DOSM, 2018; SME Corp, 2018/19). The research was limited to the manufacturing firms listed under (FMM Directory, 2019) which was 2740 firms only. Based on the literature review and the theoretical gap, the present research investigated the impact of intellectual

capital human capital, structural capital, relational capital and organizational learning on firm performance. Present research also investigated the mediation effect of innovation capability on the relationship between human capital, structural capital, relational capital, and organizational learning on firm performance, as well as the moderating effect of manufacturing capability on the relationship between innovation capability and firm performance. The data were collected from the owner/managers of SMEs manufacturing in Malaysia since the SME's owner/managers have the relevant information related to their firm performance (Singh & Mahmood, 2014).

1.8 Key Variable (Definitions)

Operational definitions defined the concepts and measure it by operations (Larry et al., 2014). The researcher used operational definitions of the concepts before collected data. The key terms were defined below to establish the positions of the present research.

1.8.1 Firm Performance

a) Definition

Firm performances were defined as the firm's level of success (Chelliah et al., 2010). Firm performance categorized as the business's ability to create satisfactory results and actions (Eniola & Entebang, 2016).

b) Operational Definition

In this research, firm performance was defined as the extent of a firm ability to achieve its financial performance in terms of revenue, profit, cost reduction, return on assets and sales.

1.8.2 Intellectual Capital

a) Definition

Intellectual capital refers to the intangible assets that contribute to a company's bottom line.

b) Operational Definition

Intangible asset that consists of three main dimensions: human capital, structural capital, and relational capital.

1.8.3 Human Capital

a) Definition

Human capital represents the employees' combined ability to address consumer and organizational challenges (Phusavat et al., 2011). Meanwhile, others suggested that human capital includes knowledge; individual intelligence, talents & abilities and experiential experience, behaviour; attitude, inspiration, and ethical behaviour, and mental strength; innovation, emulation, and adaptation (Tovstiga & Tulugurova, 2007).

b) Operational Definition

In this research, human capital was defined as the employee's capability comprising, skills, experience, creativity, knowledge, and problem-solving ability.

1.8.4 Structural Capital

a) Definition

The concept of structural capital was developed by (Edvinsson & Malone, 1997). Structural capital contains the expertise in information technology processes and information transfer results and products, documents, databases, process specifications, strategies, business intellectual property, and other non-human information storage facilities within an organization (Bontis, 1998).

b) Operational Definition

In this research, structural capital was defined as the firm's operations, working procedures, working culture, firm atmosphere and quick market respond.

1.8.5 Relational Capital

a) Definition

The concept of relational capital has been first introduced and developed by past study as the knowledge developed in a firm's network of relationships, which in other studies called social capital (Nahapiet & Ghoshal, 1998).

b) Operational Definition

In this research, relational capital was defined as the marketing power and cooperation relationships between the firm and its shareholders.

1.8.6 Organizational Learning

a) Definition

Organizational learning is the ability of an organization's capability or processes to sustain or increase performance based on past performance (Neelam, 2014). Organizational learning was introduced by (Crossan et al., 1999) as a complex process that takes place across three stages of time: individual, team, and organization.

b) Operational Definition

In this research, organizational learning was defined as the organization's capacity to identify the need for change, adapt and take necessary actions for competitive advantage against competitor.

1.8.7 Innovation Capability

a) Definition

Innovation capability refers to generating a new product or service, new manufacturing technique, new structure or administrative system, or new organizational strategy or program can all be examples of innovation capabilities (Damanpour, 1991).

b) Operational Definition

In this research innovation capability was defined as the firm's ability to identify new ideas, transforming them into new products/service that increase firm performance.

1.8.8 Manufacturing Capability

a) Definition

The first who proposed manufacturing capability was in the middle of the 1990s. Manufacturing capability is a description of the manufacturing cycle linked to various factors, which describes the manufacturing process to achieve optimal competitive advantages (Skinner, 1969).

b) Operational Definition

In this research manufacturing capabilities was defined as the firm's ability to integrate, and build based on firm size, technological processing capability, and production capacity.

1.8.9 Small and Medium Enterprises (SMEs)

a) Definition

Small and Medium Enterprises (SMEs) was defined as the enterprise that operates to create wealth through new economic activity.

b) Operational Definition

In this research SMEs will be defined based on Table 1.2.

Table 1.2 SMEs definition

Industry	Micro	Small	Medium
Manufacturing	Sales turnover less than 5 people Full-time employees less than 5 people RM300,000.	Sales turnover of less than 15M. Full-time employees from 5 to less than 75 people	Sales turnover of 15M to less than or equal to 50M. Full-time employees from 5 to less than or equal to 75 people

Source: SME Corp (2018/19)

1.9 Organization of this Research

Chapter One (1) provided a background of the study, research problem, research question, research objective, significance of the research, scope of the research, definitions of key variables, and organization of the thesis.

Chapter Two (2) provided the review of relevant literature, the research framework concerned with previous models of the present research, the general review of the variables and constructs in the proposed model of management literature, which helped to understand and examine the proposed conceptual model. Moreover, the focus of the discussion in this research was mainly on SMEs manufacturing performance, which lead to the development of the conceptual framework and chapter summary.

Chapter Three (3) provided introductions, research paradigms, research design, research methodology, sampling techniques, data collection techniques, research respondents, research instruments, demographic information, data analysis tools, and PLS-SEM techniques to test the proposed hypothesis and chapter summary.

Chapter Four (4) Provided a detail description of data analysis process, and elaboration of the research findings. The research variables were tested using Statistical Package for the Social Sciences software (SPSS.V25) data analysis tool for the first phase of required analysis. The second phase included validity, reliability, hypothesis testing, structural modelling, path modelling, mediation testing, and moderation testing were accomplished using (Smart PLS.V3) software and the results were interpreted accordingly.

Chapter Five (5) provided discussion on the findings of the present research included the concluding remark. Similarly, the chapter highlighted research key findings. Likewise, the chapter summarizes the discussion on the research objectives and research questions. Finally, the chapter discussed the theoretical, practical implications, limitations, and suggestions for future research in the areas of intellectual capital and organizational learning.

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Appendix A Research Questionnaire



Universiti Teknologi Malaysia
Azman Hashim International Business School

Survey: to investigate how intellectual capital, organizational learning, innovation capability and manufacturing capability would affect firm performance

Purpose of Survey

The purpose of the survey is to help the Malaysia SMEs Manufacturing in understanding the intercultural and organizational learning impact toward firm performance.

Further Assistance

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This information provided by you will be held at strictest confidence. We will release nor disclose any information on or identifiable with, individuals and any organization

Dear respondent,

I am an PhD student from Azman Hashim International Business School, University Teknologi Malaysia, (AHIBS, UTM) would like to invite you to participate in my survey regarding the firm performance in SMEs Manufacturing in Malaysia.

Your answer will be used only for the research purpose and will remain strictly confidential. Please read the instruction and question carefully.

Your support and cooperation are most appreciated.

Thank you very much for your time.

.....
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Section A: Demographic profile, kindly, tick (√) whichever is applicable

Gender	a. Male	<input type="checkbox"/>
	b. Female	<input type="checkbox"/>

Age	a. 20-30 years	<input type="checkbox"/>
	b. 31-40 years	<input type="checkbox"/>
	c. 41-50 years	<input type="checkbox"/>
	d. 51 and above	<input type="checkbox"/>

Ethnicity	a. Malay	<input type="checkbox"/>
	b. Chinese	<input type="checkbox"/>
	c. Indian	<input type="checkbox"/>
	d. Others	<input type="checkbox"/>
	<input type="checkbox"/>

Educational Level	a. Diploma	<input type="checkbox"/>
	b. Bachelor's Degree	<input type="checkbox"/>
	c. Master's Degree	<input type="checkbox"/>
	d. PhD.	<input type="checkbox"/>

Section B: Firm Profile, kindly, tick (√) whichever is applicable

Firm's operating state/region	a. Kuala Lumpur	<input type="checkbox"/>
	b. Selangor	<input type="checkbox"/>
	c. Johor	<input type="checkbox"/>
	d. Kedah	<input type="checkbox"/>
	e. Kelantan	<input type="checkbox"/>
	f. Malacca	<input type="checkbox"/>
	g. Negeri Sembilan	<input type="checkbox"/>
	h. Pahang	<input type="checkbox"/>
	i. Penang	<input type="checkbox"/>
	j. Perak	<input type="checkbox"/>
	k. Perlis	<input type="checkbox"/>
	l. Sabah	<input type="checkbox"/>
	m. Sarawak	<input type="checkbox"/>
	n. Terengganu	<input type="checkbox"/>

Company Form	a. Private	<input type="checkbox"/>
	b. Partnership	<input type="checkbox"/>
	c. Sole Proprietorship	<input type="checkbox"/>

Number of Employee	a. 5-15 Employees	<input type="checkbox"/>
	b. 16-30 Employees	<input type="checkbox"/>
	c. 31-50 Employees	<input type="checkbox"/>
	d. 51-75 Employees	<input type="checkbox"/>
	e. 75 and above	<input type="checkbox"/>

Estimation annual sales in (RM)	a. 300K < 3 M	<input type="checkbox"/>
	b. 3.1 M < 5 M	<input type="checkbox"/>
	c. 5.1M < 15M	<input type="checkbox"/>
	d. 15M and above	<input type="checkbox"/>

Section C: Measures of Human Capital

Rate the following regarding human capital in your firm. Each item considered of a 7-point Likert scale, ranging from 1 “*Strongly disagree*” to 7 “*Strongly agree*”, kindly, circle wherever applicable.

No	Item	Indicators						
1	Our employees are highly skilled	1	2	3	4	5	6	7
2	Our employees are well experience in their job	1	2	3	4	5	6	7
3	Our employees are creative	1	2	3	4	5	6	7
4	Our employees are knowledgeable	1	2	3	4	5	6	7
5	Our employees are quick in problem solving.	1	2	3	4	5	6	7

Section D: Measures of Structural Capital

Rate the following regarding structural capital in your firm. Each item considered of a 7-point Likert scale, ranging from 1 “*Strongly disagree*” to 7 “*Strongly agree*”, kindly, circle wherever applicable.

No	Item	Indicators						
1	Our firm’s overall operations procedure is very efficient	1	2	3	4	5	6	7
2	Our firm responds to changes very quickly	1	2	3	4	5	6	7
3	Our firm has an easily accessible information system	1	2	3	4	5	6	7
4	Our firm’s system and procedure support innovation	1	2	3	4	5	6	7
5	Our firm’s culture and atmosphere are flexible and comfortable	1	2	3	4	5	6	7
6	Our firm emphasizes new market development investment	1	2	3	4	5	6	7
7	There is strong cooperation among different departments in our firm.	1	2	3	4	5	6	7

Section E: Measures of Relational Capital

Rate the following regarding relational capital in your firm. Each item considered of a 7-point Likert scale, ranging from 1 “*Strongly disagree*” to 7 “*Strongly agree*”, kindly, circle wherever applicable.

No	Item	Indicators						
1	Our firm discovers and solves problems through intimate communication and effective collaboration	1	2	3	4	5	6	7
2	Our firm maintains appropriate interactions with its stakeholders	1	2	3	4	5	6	7
3	Our firm maintains long-term relationships with customers	1	2	3	4	5	6	7
4	Our firm has many excellent suppliers	1	2	3	4	5	6	7
5	Our firm has stable and good relationships with the strategic partners	1	2	3	4	5	6	7

Section F: Measures of Organizational Learning

Rate the following regarding organizational learning capital in your firm. Each item considered of a 7-point Likert scale, ranging from 1 “*Strongly disagree*” to 7 “*Strongly agree*”, kindly, circle wherever applicable.

No	Item	Indicators						
1	Organizational learning is key to the competitive advantage	1	2	3	4	5	6	7
2	Our business philosophy is based on continuous organizational learning	1	2	3	4	5	6	7
3	Our firm constantly search for information and knowledge	1	2	3	4	5	6	7
4	Our employees have acquired skills and abilities to perform their job	1	2	3	4	5	6	7
5	Our firm has transformed knowledge into an added value	1	2	3	4	5	6	7
6	Our firm performance is the product of the organizational learning	1	2	3	4	5	6	7

Section G: Measures of Innovation Capability

Rate the following regarding innovation capability in your firm. Each item considered of a 7-point Likert scale, ranging from 1 “*Strongly disagree*” to 7 “*Strongly agree*”, kindly, circle wherever applicable.

No	Item	Indicators						
1	Our firm try out new ideas	1	2	3	4	5	6	7
2	Our firm seek new ways of doing things	1	2	3	4	5	6	7
3	Our firm is creative in its operating methods	1	2	3	4	5	6	7
4	Our firm develop new products and services	1	2	3	4	5	6	7
5	Our firm’s perception of innovation as not risky and therefore acceptable	1	2	3	4	5	6	7
6	Our firm introduced new products/service in the last five years	1	2	3	4	5	6	7

Section H: Measures of Manufacturing Capability

Rate the following regarding manufacturing capability in your firm. Each item considered of a 7-point Likert scale, ranging from 1 “*Strongly disagree*” to 7 “*Strongly agree*”, kindly, circle wherever applicable.

No	Item	Indicators						
1	Our firm’s manufacturing department has ability in transforming R&D output into production	1	2	3	4	5	6	7
2	Our firm effectively applies advanced manufacturing methods	1	2	3	4	5	6	7
3	Our firm has capable manufacturing personnel	1	2	3	4	5	6	7
4	Our manufacturing process is reflection of research and development (R&D)	1	2	3	4	5	6	7
5	Our firm has continuous improvement of manufacturing system	1	2	3	4	5	6	7
6	Our firm has the control of product quality	1	2	3	4	5	6	7
7	Our chief manufacturing cost through new process	1	2	3	4	5	6	7

Section I: Measures of Firm Performance

Rate the following regarding firm performance in your firm. Each item considered of a 7-point Likert scale, ranging from 1 “*Strongly disagree*” to 7 “*Strongly agree*”, kindly, circle wherever applicable.

No	Item	Indicators						
1	Our firm’s revenue is continuously increasing over the past five years	1	2	3	4	5	6	7
2	Our firm profit is continuously increasing over the past five years	1	2	3	4	5	6	7
3	Our firm has been continuously reducing cost per revenue unit over the past five years	1	2	3	4	5	6	7
4	Our firm’s net return on assets has been increasing over the past five years	1	2	3	4	5	6	7
5	Our firm’s net return on sales has been increasing over the past five years	1	2	3	4	5	6	7

Thank You and God Bless

This concludes this survey

Appendix B Research Novelty

No.	Author/Year	Structural Capital	Human Capital	Social Capital	Technical Capital	Technological Capital	Relational Capital	Organizational Capital	Customer Capital	Innovation capital	Process Capital	Spiritual Capital	physical capital	Organizational Learning	Mediated by Innovation Capability	Moderated by Manufacturing	Manufacturing Sector	Firm performance	Malaysia
1	Cisneros <i>et al.</i> (2018)		✓		✓		✓	✓									✓	✓	
2	Torre <i>et al.</i> (2020)		✓				✓	✓										✓	
3	AL MOMANI <i>et al.</i> (2021)	✓	✓				✓											✓	
4	Mohapatra <i>et al.</i> (2019)	✓	✓															✓	
5	Yuzhong Lu <i>et al.</i> (2021)	✓	✓				✓			✓								✓	
6	Zhang <i>et al.</i> (2021)	✓	✓				✓			✓			✓				✓	✓	
7	Nadeem <i>et al.</i> (2018)	✓	✓										✓					✓	
8	Fengli Ge <i>et al.</i> (2020)	✓	✓				✓						✓					✓	
9	Kulkarni <i>et al.</i> (2020)	✓	✓				✓											✓	
10	Tsakalerou, M. (2015)	✓	✓															✓	
11	Ahmad <i>et al.</i> (2016)	✓	✓															✓	
12	Hamdan <i>et al.</i> (2017)	✓	✓															✓	
13	Ramírez <i>et al.</i> (2020)	✓	✓														✓	✓	
14	Hamdan (2018)	✓	✓															✓	
15	Mardini <i>et al.</i> (2020)	✓	✓															✓	

No.	Author/Year	Structural Capital	Human Capital	Social Capital	Technical Capital	Technological Capital	Relational Capital	Organizational Capital	Customer Capital	Innovation capital	Process Capital	Spiritual Capital	physical capital	Organizational Learning	Mediated by Innovation Capability	Moderated by Manufacturing	Manufacturing Sector	Firm performance	Malaysia
16	Xu et al. (2020)	✓	✓														✓	✓	
17	Alves et al. (2020)	✓	✓				✓											✓	
18	Bayraktaroglu et al. (2019)	✓	✓						✓	✓								✓	
19	Nadeem et al. (2017)	✓	✓				✓											✓	
20	Nhon et al. (2020)		✓	✓				✓										✓	
21	Hesniati et al. (2019)	✓	✓				✓											✓	
22	Xi and Liu (2020)	✓	✓				✓			✓							✓	✓	
23	Weqar et al. (2020)	✓	✓															✓	
24	Rahayu and Ramadhanti (2019)	✓	✓				✓											✓	
25	Hussain and Mehar (2021)	✓	✓				✓										✓	✓	
26	Onumah and Duho, (2020)	✓	✓															✓	
27	Al Momani et al. (2020)	✓	✓															✓	
28	Surjandari and Minanari (2019)	✓	✓										✓					✓	
29	Mohapatra et al. (2015)	✓	✓															✓	

No.	Author/Year	Structural Capital	Human Capital	Social Capital	Technical Capital	Technological Capital	Relational Capital	Organizational Capital	Customer Capital	Innovation capital	Process Capital	Spiritual Capital	physical capital	Organizational Learning	Mediated by Innovation Capability	Moderated by Manufacturing	Manufacturing Sector	Firm performance	Malaysia
30	Restuti et al. (2018)	✓	✓				✓											✓	
31	Irez et al. (2020)	✓	✓															✓	
32	Naushad (2019)	✓	✓															✓	
33	Kaawaase and Bananuka (2019)	✓	✓				✓											✓	
34	Mohammad and Bujang (2019)	✓	✓															✓	
35	Xu and Wang (2019)	✓	✓															✓	
36	Dabić et al. (2018)	✓					✓											✓	
37	Bayraktaroglu et al. (2019)		✓															✓	
38	Vishnu and Gupta (2014)	✓	✓															✓	
39	Nimtrakoon (2015)	✓	✓															✓	
40	Bayraktaroglu et al. (2019)	✓	✓							✓								✓	
41	Ousama and Fatima (2015)	✓	✓															✓	
42	Dzenopoljac et al. (2016)	✓	✓															✓	
43	Sidharta and Affandi (2016)	✓	✓															✓	

No.	Author/Year	Structural Capital	Human Capital	Social Capital	Technical Capital	Technological Capital	Relational Capital	Organizational Capital	Customer Capital	Innovation capital	Process Capital	Spiritual Capital	physical capital	Organizational Learning	Mediated by Innovation Capability	Moderated by Manufacturing	Manufacturing Sector	Firm performance	Malaysia
44	Maji and Goswami (2017)	✓	✓															✓	
45	Nawaz and Hanifah (2017)	✓	✓															✓	
46	Razafindrambinina and Anggreni (2017)	✓	✓															✓	
47	Dzenopoljac et al. (2017)	✓	✓															✓	
48	Mohammad et al. (2018)	✓	✓															✓	
49	Nadeem et al. (2018)	✓	✓															✓	
50	Ozkan et al. (2017)	✓	✓															✓	
51	Kweh et al. (2019)	✓	✓															✓	
52	Chowdhury et al. (2019)	✓	✓															✓	
53	Smriti and Das (2018)	✓	✓															✓	
54	Obeidata et al. (2021)	✓	✓				✓	✓							✓				
55	Ahmed <i>et al.</i> (2019)	✓	✓					✓										✓	
56	Kengatharan (2019)		✓	✓				✓										✓	
57	McDowell <i>et al.</i> (2018)		✓	✓				✓										✓	
58	Liu (2017)		✓					✓	✓									✓	

No.	Author/Year	Structural Capital	Human Capital	Social Capital	Technical Capital	Technological Capital	Relational Capital	Organizational Capital	Customer Capital	Innovation capital	Process Capital	Spiritual Capital	physical capital	Organizational Learning	Mediated by Innovation Capability	Moderated by Manufacturing	Manufacturing Sector	Firm performance	Malaysia
59	Asiaei and Jusoh (2017)	✓	✓	✓			✓										✓	✓	
60	Gogan <i>et al.</i> (2016)	✓	✓				✓											✓	
61	Scafarto <i>et al.</i> (2016)		✓				✓			✓	✓							✓	
62	Asiaei <i>et al.</i> (2016)	✓	✓	✓			✓											✓	
63	Anwar <i>et al.</i> (2018)	✓	✓				✓										✓	✓	
64	Khalique <i>et al.</i> (2018)	✓	✓	✓		✓			✓			✓					✓	✓	✓
65	Bin Shaari <i>et al.</i> (2018)	✓	✓	✓	✓				✓									✓	✓
66	Darus <i>et al.</i> (2018)	✓	✓				✓											✓	✓
67	Hameed and Anwar (2018)	✓	✓				✓											✓	
68	Othman <i>et al.</i> (2017)			✓														✓	✓
69	Maji and Goswami (2017)	✓	✓									✓	✓					✓	
70	Cleary and Quinn (2016)	✓	✓				✓											✓	
71	Wang <i>et al.</i> (2018)	✓	✓				✓											✓	
72	Xu <i>et al.</i> (2019)	✓	✓				✓											✓	
73	Iqbal <i>et al.</i> (2019)	✓	✓				✓											✓	
74	Waseem <i>et al.</i> (2018)	✓	✓			✓	✓		✓						✓			✓	

75	Fu <i>et al.</i> (2016)		✓	✓				✓										✓		
76	Kamaluddin <i>et al.</i> (2016)			✓						✓								✓		
77	Muda and Rahman (2019)		✓	✓			✓											✓	✓	✓
78	Palazzi <i>et al.</i> (2020)	✓	✓															✓	✓	
Total		66	75	11	2	2	30	9	5	7	1	2	5	0	2	0	10	77	5	

Appendix C Organizational learning studies

No	Author/Year	Independent Variable	Dependent Variable	Mediator	Sector	Country
1	Calisir et al. (2016)	Organizational learning	Firm Performance	None	IT and construction	Turkey
2	Wujiabudula & Zehir (2016)	Organizational learning	Firm Performance	Product Innovation	Manufacturing	Turkey
3	Hailekiros & Renyong (2016)	Organizational learning	Firm Performance	Technological Innovation	Manufacturing	Ethiopia
4	Weinzimmer & Esken (2017)	Organizational learning	Firm Performance	None	Multiple industries	USA
5	Gomes & Wojahn (2017)	Organizational learning	Firm Performance	None	Textile	Brazilian
6	Salama (2017)	Organizational learning	Firm Performance	None	63 Factories	Egypt
7	Sari & Sukmasari (2018)	Organizational learning	Firm Performance	None	Banking sector	Indonesia
8	Hosseini & Rudgarnejad (2018)	Organizational learning	Firm Performance	CRM	Bank sector	Iran
9	Narsa (2019)	Organizational learning	Firm Performance	None	Manufacturing	Indonesia
10	Pudjiarti, & Darmanto (2020).	Organizational learning	Firm Performance	None	Smelting and metalwork	Indonesia
11	Hinda et al. (2021)	Organizational learning	Firm Performance	None	Software Firms	Pakistan
12	Kittikunchotiwut (2020)	Organizational learning	Firm Performance	None	Textile and clothing	Thailand
No	Author/Year	Independent	Dependent	Mediator	Sector	Country

		Variable	Variable			
13	Lela Hinasah1 & Nuryakin (2020)	Organizational learning	Firm Performance	None	Various business sectors	Indonesia
14	Šteta-Ćerimović, & Mekić, (2020)	Organizational learning	Firm Performance	None	IT Sector	Bosnian
15	Khairilisani & Pasaribu (2020).	Organizational learning	Firm Performance	Renewal of strategy	Public sector	Indonesia
16	Wibowoa et al. (2020)	Organizational learning	Firm Performance	None	Islamic Universities	Indonesia
17	Uljanati et al. (2021)	Organizational learning	Firm Performance	None	Embroidery MSMEs	Tasikmalaya
18	Mashudi et al. (2021)	Organizational learning	Firm Performance	None	PT. “XXX” Pharma,	Indonesian
19	Dass & Chelliah (2021)	Organizational learning	Firm Performance	Competitive Advantage	Multinational Enterprises (MNEs)	Malaysia

Appendix D Screenshots for Data Collection Process

Sending Emails to
Manufacturing SMEs

The screenshot shows a 'Send form' dialog box with the following elements:

- Close button:** An 'X' icon in the top left corner.
- Title:** 'Send form'.
- Checkbox:** An unchecked checkbox labeled 'Collect email addresses'.
- Send via options:** A row of icons for 'Send via', including an envelope icon (selected), a link icon, and a code icon. Social media icons for Facebook and Twitter are also present on the right.
- Email section:**
 - To:** A list of email addresses: sales@pcauto.com.my, raymond@pt-group.com.my, muhammadnor.ismail@polyplastics.com, patrickong@powertecindustries.com, and enquiry@promac.com.
 - Subject:** 'I would like to invite you to participate in a study regarding Manufacturing SMEs Firm Performance'.
 - Message:** 'I've invited you to fill out a form:'.
- Checkbox:** A checked checkbox labeled 'Include form in email'.

I would like to invite you to participate in a study regarding Manufacturing SMEs Firm Performance

Dear Respondents,

My name is [Zainab](#) Mohammed [Alwan](#), and I am a PhD candidate at University [Teknologi](#) Malaysia. Currently, I am conducting a survey for my PhD research and inviting you to participate in this study (This email directed to the Owner/Manager of your firm) title: Impact of Intellectual Capital, Organizational Learning Mediating Role of Innovation Capability, Moderating Role of Manufacturing Capability on SMEs Performance. Please be assured that all of the information will remain confidential and for academic purpose only.

If you choose to participate in this study, please answer all question as honest as possible and return the completed questionnaire promptly. Participation is strictly voluntary and you may refuse to participate at any time. For those who have responded to my survey, I wish to express how grateful I am for your time and inputs. May you be blessed with continuous good health and happiness. Thank you for taking the time to assist me in my educational endeavor.

Lastly, the survey is very straightforward and will only take about 10 minutes to complete. I am afraid that there is no incentives for responding. Nevertheless, I personally want to thank you for every second invested in my research. Should you require additional information or further clarification, please contact or email me as the information below. Thank you.

Sincerely,
Zainab Mohammed Alwan
zainab.ssmv@gmail.com

Responded emails by firms

The screenshot shows an email client interface. At the top, there is a search bar with the text "Search mail" and a magnifying glass icon. To the right of the search bar are icons for help, settings, and a grid. Below the search bar is a toolbar with icons for back, forward, delete, archive, refresh, and other actions. The email subject is "RE: I would like to invite you to participate in a study regarding Manufacturing SMEs Firm Performance" with an "Inbox x" tag. The sender is "Winnie Ng Kien Leng <kling@monin.com>" with a profile picture and a "to me" dropdown. The email body contains the following text: "Dear Zainab, Sorry to inform you that Monin is not under SME category. Thus, we will not participant in your survey. Thank you. Best regards, Winnie NG Monin Asia KL Sdn Bhd DID: +60-3-6099 0815 TEL: +60-3-6099 0999 FAX: +60-3-6099 0899".

RE: I would like to invite you to participate in a study regarding Manufacturing SMEs Firm Performance Inbox x



Paul Ellis <paul.ellis@schaeferkalk.com.my>
to me ▾

Thu, Jul 1, 11:15 PM (9 hours ago) ☆

Dear Zainab
By your definition I am not an SME
Best Regards

Paul Ellis C.Eng., FIChemE.

Managing Director

*Schaefer Kalk (Malaysia) Sdn. Bhd.
Lime and Lime Products Sdn. Bhd.
Schaefer Kalk Calcium Carbonate (Huzhou) Co., Ltd.
PT Schaefer Kalk Indonesia*

+60 12 296 8676
paul.ellis@schaeferkalk.com.my

*Lot 10-01, 10th Floor, Menara K1
Lorong 3/137C, Batu 5, Off Jalan Kelang Lama,
58000 Kuala Lumpur
Malaysia*

RE: I would like to invite you to participate in a study regarding Manufacturing SMEs Firm Performance Inbox x

Paul Ellis <paul.ellis@schaeferkalk.com.my>
to me ▾

7:12 AM (1 hour ago)

Dear Zainab
We are not an SME now, with a Turnover >RM150m, and 100+ personel.
Thanks
Best Regards

Paul Ellis C.Eng., FIChemE.

Managing Director

*Schaefer Kalk (Malaysia) Sdn. Bhd.
Lime and Lime Products Sdn. Bhd.
Schaefer Kalk Calcium Carbonate (Huzhou) Co., Ltd.
PT Schaefer Kalk Indonesia*

+60 12 296 8676
paul.ellis@schaeferkalk.com.my

*Lot 10-01, 10th Floor, Menara K1
Lorong 3/137C, Batu 5, Off Jalan Kelang Lama,
58000 Kuala Lumpur
Malaysia*

Redirected Emails by
respondents



16 of 743 <

Automatic reply: I would like to invite you to participate in a study regarding
Manufacturing SMEs Firm Performance Inbox x

Yvonne Loy Wai Kieng <yvonneLOY@itwmeritex.com.my>

1:15 PM (9 minutes ago) ☆

to me ▾

Hi all,

Please be informed that my email address has changed to the below:-

yvonneLOY@itw-mail.com

Kindly update the new email address to avoid unread/unsent messages.

Sorry any inconvenience caused.

Regards

Yvonne Loy

Autoreply: "I would like to invite you to participate in a study regardi" Inbox x

liza@fonghong.com.my via 5003.newipdns.com
to me ▾

12:29 PM (4 minutes ago) ☆

Hi Sir/Madam,

Fong Hong apologizes to inform that Ms.Liza has resigned from Fong Hong.
This email address will be suspended shortly, if you have any further information that want to share with Fong Hong,

kindly send to the following email address:

cklee@fonghong.com (CK Lee)

Best Regards,

Fong Hong

Manufacturing SMEs Firm Performance Inbox x



DNP, Info <Info.DNP@dsm.com>
to me ▾

10:24 AM (2 minutes ago) ☆

Dear Sir, Madam,

*Thank you for your email.
This mail box is not regularly monitored.
We kindly ask you to refer to the following options below:*

- *For questions about our products and markets, please look at <https://www.dsm.com/corporate/markets-products.html>;
there are various contact options for all markets*
- *For questions about career, please look at <https://www.dsm.com/corporate/careers.html>*
- *For media questions, please contact
media.relations@dsm.com*

*Bright regards,
DSM Nutritional Products*

Failed to participate due to
limited resources

Response from Mondelez International - {S-12518224} Inbox x



Mondelez International Consumer Service <consumerservice@mdlz.com>
to ZAINAB.SSMY ▾

Wed, May 19, 11:25 PM (8 hours ago) ☆ ↶ ⋮

Hi Ms. Zainab,

Thank you very much for taking the time to reach out to us. We have received your email requesting for information regarding our company. Unfortunately, due to limited resources, we are unable to accommodate to your request. However, we wish you all the best in your studies and future undertakings. We hope you will continue to enjoy our brands.

Thank you and have a nice day.

Yours sincerely,
Consumer Care Team

Failed to deliver for incorrect emails provided by FMM Diectory (2019)

The screenshot shows a Gmail interface with a search bar at the top and a left-hand navigation menu. The main area displays a list of 12 failed delivery notifications. Each notification includes a checkbox, a star icon, the sender 'Mail Delivery Subsy.', the subject 'Delivery Status Notification (Failure)', and a detailed error message. The error messages include 'Address not found Your message wasn't deliver...', 'Message blocked Your message to sells@wood...', and 'Message not delivered There was a problem deli...'. The timestamps for these notifications range from 5:59 AM to 6:10 AM.

Sender	Subject	Message Preview	Time
Mail Delivery Subsy.	Delivery Status Notification (Failure)	- Address not found Your message wasn't deliver...	6:10 AM
Mail Delivery Subsy.	Delivery Status Notification (Failure)	- Address not found Your message wasn't deliver...	6:10 AM
Mail Delivery Subsy.	Delivery Status Notification (Failure)	- Address not found Your message wasn't deliver...	6:10 AM
Mail Delivery Subsy.	Delivery Status Notification (Failure)	- Address not found Your message wasn't deliver...	6:02 AM
Mail Delivery Subsy.	Delivery Status Notification (Failure)	- Address not found Your message wasn't deliver...	6:02 AM
Mail Delivery Subsy.	Delivery Status Notification (Failure)	- Address not found Your message wasn't deliver...	6:02 AM
Mail Delivery Subsy.	Delivery Status Notification (Failure)	- Address not found Your message wasn't deliver...	6:01 AM
Mail Delivery Subsy.	Delivery Status Notification (Failure)	- Message blocked Your message to sells@wood...	6:01 AM
Mail Delivery Subsy.	Delivery Status Notification (Failure)	- Address not found Your message wasn't deliver...	6:01 AM
Mail Delivery Subsy.	Delivery Status Notification (Failure)	- Address not found Your message wasn't deliver...	6:00 AM
Mail Delivery Subsy.	Delivery Status Notification (Failure)	- Message not delivered There was a problem deli...	6:00 AM
Mail Delivery Subsy.	Delivery Status Notification (Failure)	- Address not found Your message wasn't deliver...	5:59 AM
Mail Delivery Subsy.	Delivery Status Notification (Failure)	- Address not found Your message wasn't deliver...	5:59 AM

Reminder Emails

X Send form

Collect emails

Send via



Email

To

-my@clorox.com info@diemduroil.com Enquiries@eauclairewater.com Enghing21793@gmail.com msia@eonet.net Charlie.cheah@esker.com.my ana@etikaholdings.com info@focusprint.info chuash@ctarken.com.my sales@goldenclay.com

Subject

I would like to invite you to participate in a study regarding Manufacturing SMEs Firm Performance

Message

Dear Sir/Madam

I sincerely hope that you are well and healthy.

First of all, I wish to thank all the respondents who have taken their valuable time to complete my research survey on improving Manufacturing SMEs firm Performance in Malaysia

Nevertheless, this email also acts as a reminder for ladies and gentlemen who have not done so; my humble appeal is that kindly take a few minutes from your valuable time to answer my survey.

In case you have already answered my survey, please ignore this email and we would like to thank you for your kind assistance and collaboration.

Many thanks in advance for helping me in my PhD journey, May GOD repay your kindness more in all forms.

Your cooperation is highly appreciated.

Yours Sincerely

Zainab Mohammed Alwan
PhD student

[Azman Hashim](#) International Business School [Universiti Teknologi](#) Malaysia, Kuala Lumpur

Follow-up Calls

All Missed Edit

Recents

- 07 251 0846
Taman Tasek, Johore 3:05 PM ⓘ
- 07 556 0344
Tampoi, Johore 3:00 PM ⓘ
- 07 256 2288
Taman Tasek, Johore 2:56 PM ⓘ
- 07 334 0911
Taman Tasek, Johore 10:23 AM ⓘ
- 07 597 7800
Tampoi, Johore 10:16 AM ⓘ
- 07 661 6986
Senai, Johore 10:07 AM ⓘ
- 07 452 8808
Peserai, Johore 10:03 AM ⓘ
- 07 509 0213
Tampoi, Johore 10:01 AM ⓘ
- 07 252 3788
Taman Tasek, Johore 9:54 AM ⓘ
- 07 251 6005
Taman Tasek, Johore 9:50 AM ⓘ

Favourites Recents Contacts Keypad Voicemail

All Missed Edit

Recents

- 03 2781 8590
Kuala Lumpur 11:39 AM ⓘ
- 03 2282 4155
Kuala Lumpur 11:33 AM ⓘ
- 03 2389 3657
Kuala Lumpur 11:33 AM ⓘ
- 03 6203 4339
Kuala Lumpur 11:23 AM ⓘ
- 03 2727 6700
Kuala Lumpur 11:20 AM ⓘ
- 03 6272 1678
Kuala Lumpur 11:20 AM ⓘ
- 03 6257 3700
Kuala Lumpur 11:17 AM ⓘ
- 03 7941 2992
Kuala Lumpur 11:15 AM ⓘ
- 03 2142 0155
Kuala Lumpur 11:11 AM ⓘ
- 03 6277 2480
Kuala Lumpur 11:07 AM ⓘ

Favourites Recents Contacts Keypad Voicemail

All
Missed
Edit

Recents

09 221 0888 Bentung, Pahang	3:28 PM
09 582 6888 Sungai Karang, Pahang	3:22 PM
09 582 5500 Sungai Karang, Pahang	3:19 PM
09 277 2889 Mentakab, Pahang	3:09 PM
09 566 1005 Kuantan, Pahang	3:05 PM
09 508 3836 Kuantan, Pahang	2:59 PM
09 556 3750 Kuantan, Pahang	2:56 PM
09 583 3338 Sungai Karang, Pahang	2:42 PM
09 566 3288 Kuantan, Pahang	2:38 PM
09 221 0888 Bentung, Pahang	2:32 PM

Favourites
 Recents
 Contacts
 Keypad
 Voicemail

All
Missed
Edit

Recents

04 642 6601 Mukim 15, Penang	3:22 PM
04 510 1513 Kampung Tasik Gelugur, Pena...	3:15 PM
04 503 8200 Kampung Tasik Gelugur, Pena...	3:15 PM
04 501 3678 Kampung Tasik Gelugur, Pena...	3:10 PM
04 261 2872 Mukim 15, Penang	2:58 PM
04 399 3343 Mukim 15, Penang	2:54 PM
04 390 7988 Mukim 15, Penang	2:48 PM
04 640 7200 Mukim 15, Penang	2:40 PM
04 501 1010 Kampung Tasik Gelugur, Pena...	2:35 PM
04 323 0333 Mukim 15, Penang	2:28 PM

Favourites
 Recents
 Contacts
 Keypad
 Voicemail

Dealing with missing values

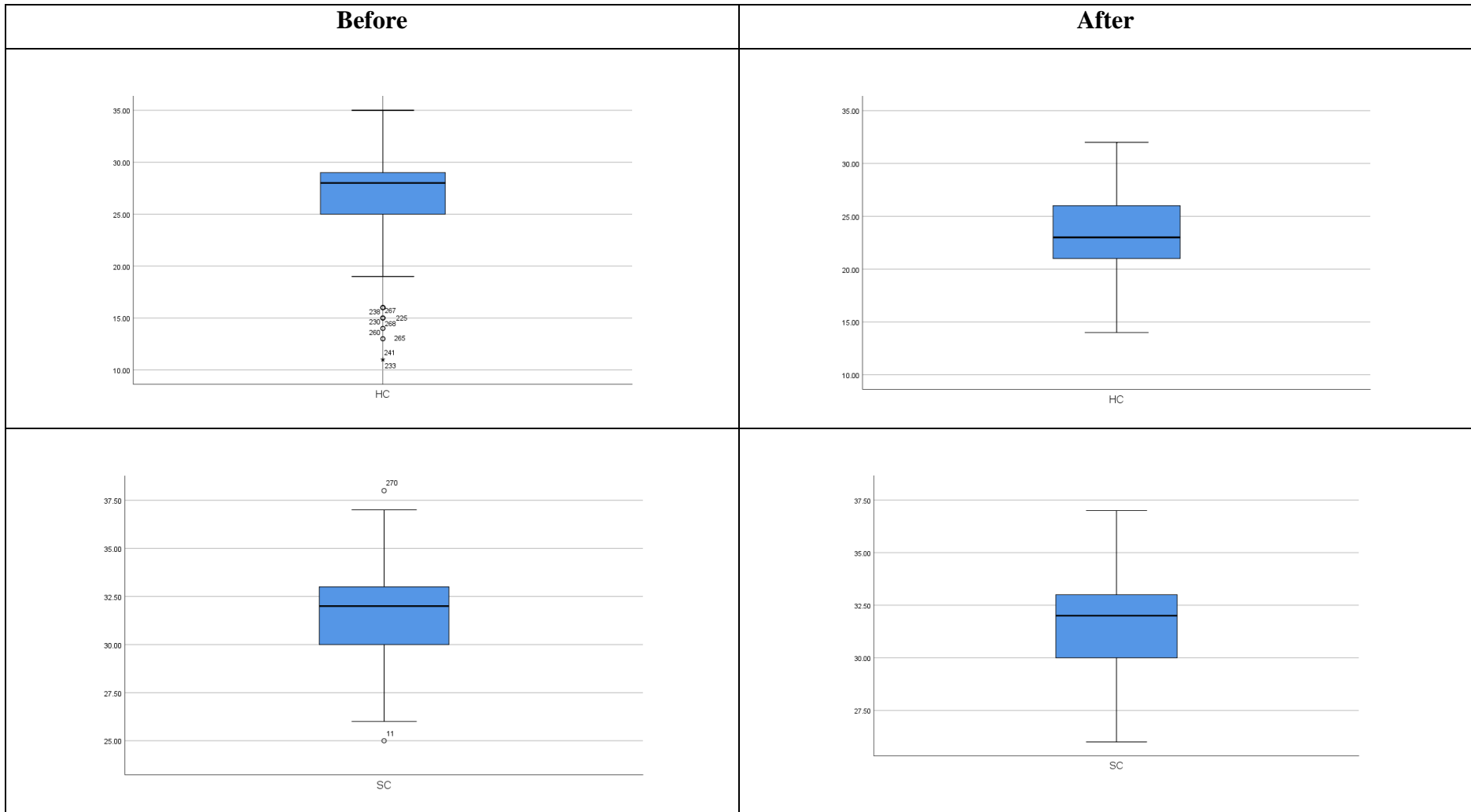
Our firm emphasizes new market development investment

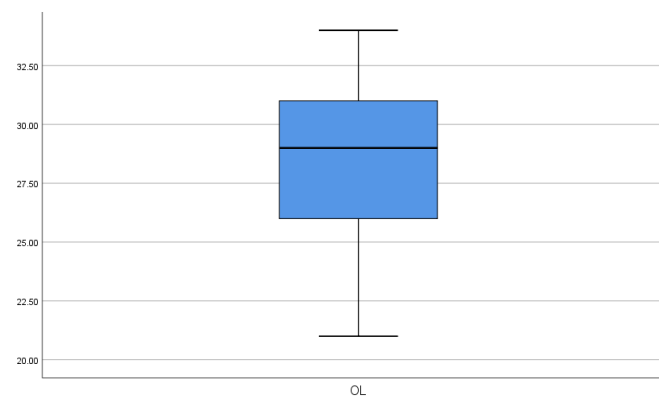
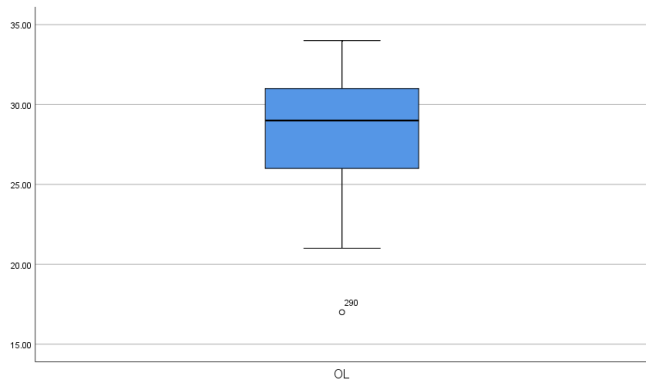
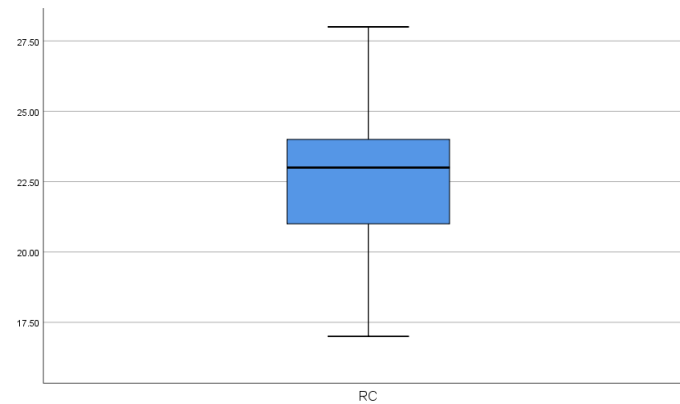
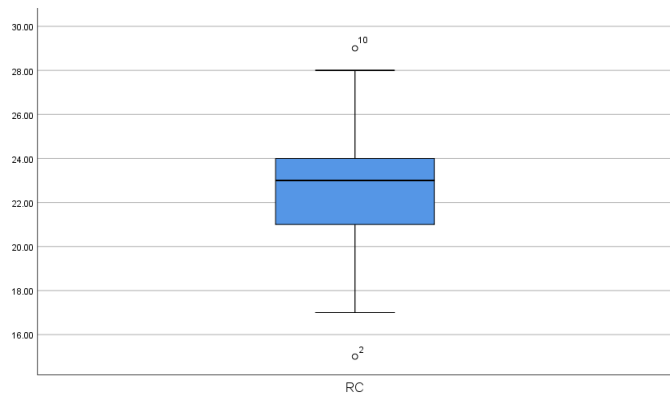
There is strong cooperation among different departments in our firm.

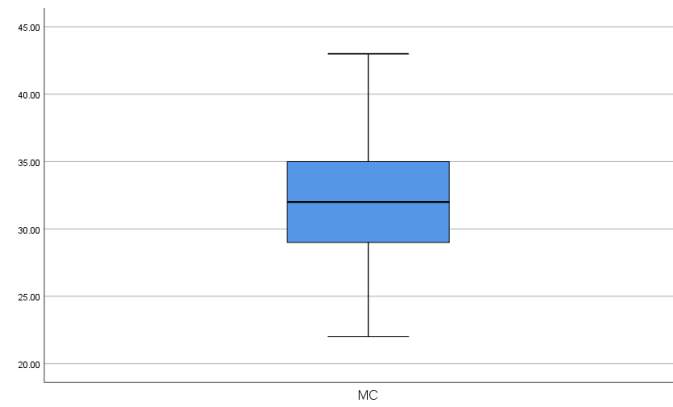
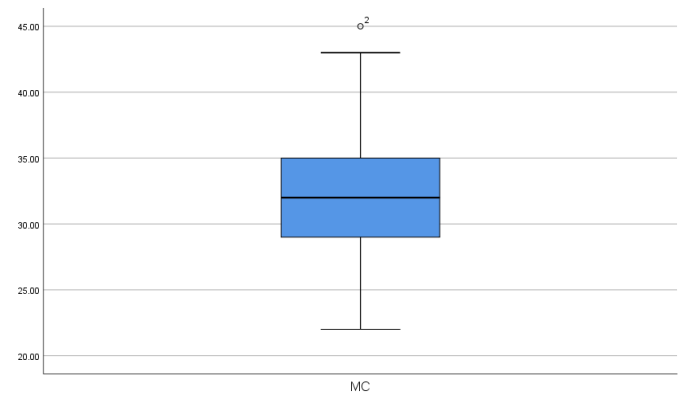
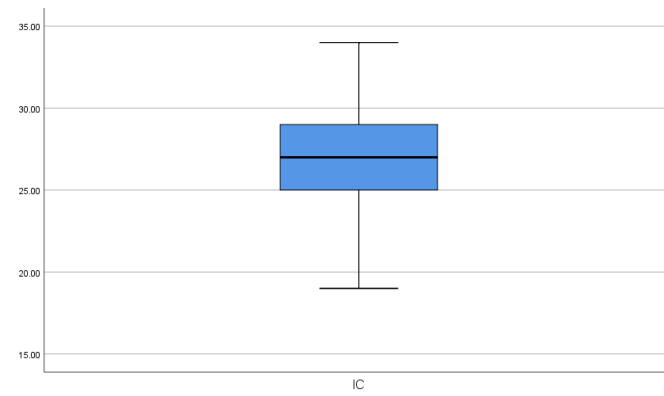
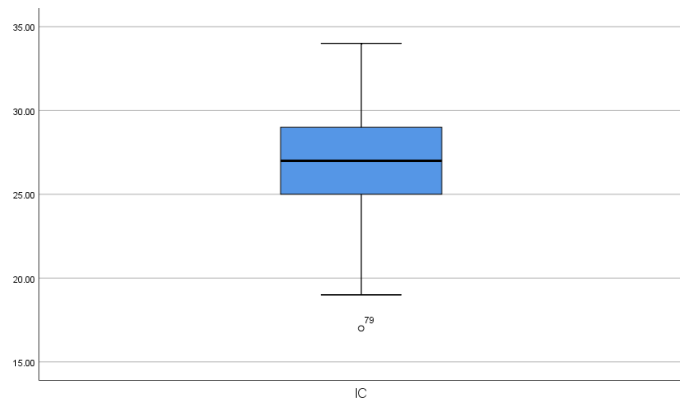
 This question requires one response per row

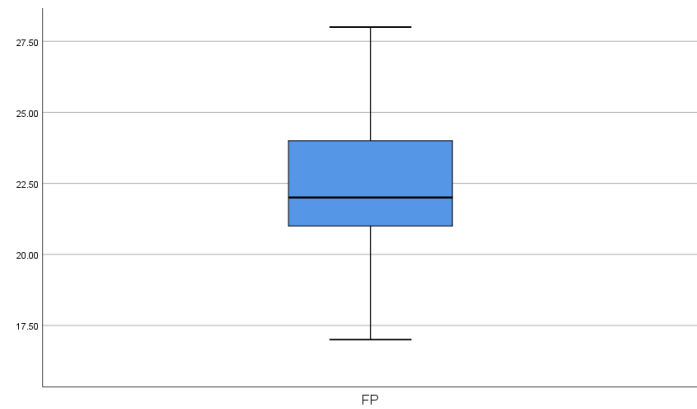
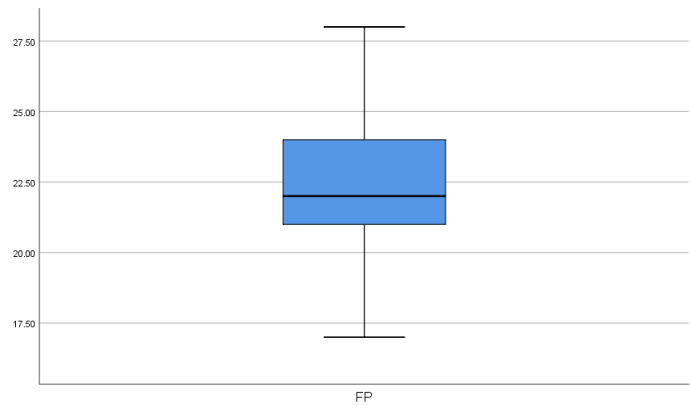
[Back](#) [Next](#)

Appendix E Outliers









LIST OF PUBLICATIONS

Published (ERA)

1. **Zainab Mohammed Alwan Al- Juboori**, Harcharanjit Singh, Iwuchukwu Ekene, Shahiera Fazriena Mohd Foad, Ayu Andirah Sakka, The Employee's Perception towards Work Performance in Arab Schools, Kuala Lumpur, Malaysia, 2021 [ERA].
2. **Zainab Mohammed Alwan Al-Juboori**, Harcharanjit Singh, Nur Naha Abu Mansor, Abdul Samad Kakar, Urooj Zulfiqar, Abdul Latif Bin Allah Pitchy, The Impact of Organizational Learning, on Firm Performance in The Context of Manufacturing SMES in Malaysia, Mediating Role of Innovation Capability, 2021 [ERA].
3. Ali Saleh Amer Maaodhah, Harcharanjit Singh, **Zainab Mohammed Alwan Al-Juboori**, Abdul Latif Bin Allah Pitchy, Iwuchukwu Ekene, The Impact of Market Orientation and Entrepreneurial Orientation on Firm Performance of Wholesale and Retailer SMES in Malaysia, 2021 [ERA].
4. Esra'a Alawamleh, Harcharanjit Singh, Zainab M. Aljuboori, Does Soft and Hard TQM Practices Impact Operational Performance? A Conceptual Model, 2022 [ERA].
5. Urooj Zulfiqar, Harcharanjit Singh, Asfandyar Khan, Ikram-Ullah, Aliya Yasmin, Zainab Mohammed Alwan Al-Juboori. Measurement of Destination Personality: An Updated Literature Review, 2021 [ERA].

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1. **Zainab Mohammed Alwan Al- Juboori**, Dr Harcharanjit Singh, Esra'a Mohammad Abdul Kareem Alawamleh; Ikram Ullah, The Impact of Intellectual Capital, Knowledge Management on Firm performance in The Context of Malaysian SMEs, 2021 [Scopus].
2. Ikram Ullah, Harcharanjit Singh Mahinder Singh, Fayaz Ali Shah, Zainab M. Aljuboori, Nur Naha binti Abu Mansor, Relationship between Emotional Intelligence, Organizational Politics, Job Involvement, Organization Commitment and Job Performance, 2022 [Scopus].
3. **Zainab M. Aljuboori**, Harcharanjit Singh, Hossam Haddad, Nidal Mahmoud Al-Ramahi and Mostafa A. Ali, The Mediation Role of Innovation Capability on the Relationship between Intellectual Capital and Firm Performance, 2022 [Q1, Sustainability, MDPI].