

**FIRM INNOVATIVENESS AND
ORGANISATIONAL PERFORMANCE:
KNOWLEDGE MANAGEMENT, INNOVATIVE
CULTURE AND INFORMATION TECHNOLOGY
CAPABILITY**

by

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LIST OF ABBREVIATIONS

DOI	Diffusion of Innovation Theory
FI	Firm Innovativeness
FP	Financial Performance
IC	Innovative Culture
IT	Information Technology
ITC	Information Technology Capability
KA	Knowledge Application
KBV	Knowledge-based View of The Firm
KC	Knowledge Conversion
KM	Knowledge Management
KP	Knowledge Protection
KQ	Knowledge Acquisition
NFP	Non-Financial Performance
OP	Organisational Performance
RBV	Resource-based View of The Firm

**INOVASI FIRMA DAN PRESTASI ORGANISASI: PENGURUSAN
PENGETAHUAN, BUDAYA INOVATIF DAN KEUPAYAAN TEKNOLOGI
MAKLUMAT**

ABSTRAK

Kajian ini cuba meneliti peranan budaya inovatif dan keupayaan teknologi maklumat, masing-masing sebagai penyederhana dan perantara, dalam hubungan di antara pengurusan pengetahuan, inovasi firma dan prestasi organisasi. Kajian ini berusaha untuk menjawab sama ada: (1) Adakah pengurusan pengetahuan, dengan kesan budaya inovatif sebagai penyederhana, memberi kesan kepada inovasi firma? (2) Adakah keupayaan teknologi maklumat boleh menjadi pengantara hubungan antara pengurusan pengetahuan dan inovasi firma yang akhirnya akan meningkatkan prestasi kewangan dan bukan kewangan organisasi? Kajian ini bertujuan untuk menganalisis peranan pengurusan pengetahuan yang luar biasa dalam inovasi firma dan bagaimana keupayaan teknologi maklumat akan meningkatkan hubungan di antara pengurusan pengetahuan dan inovasi firma. Kajian ini juga cuba meneliti peranan yang budaya inovatif dalam memainkan peranan dalam hubungan ini. Matlamat kajian ini juga adalah untuk melihat kesan inovasi firma ke atas prestasi organisasi, yang merupakan prestasi kewangan dan bukan kewangan. Empat belas hipotesis telah dibentuk dan diuji dalam satu kajian dengan sampel sebanyak 202 organisasi MSC Malaysia yang terletak di kawasan Lembah Klang (iaitu Selangor dan Kuala Lumpur). Kajian ini melibatkan Ketua Pengarah Eksekutif, Pengurus Besar dan Pengurus Kanan organisasi-organisasi tersebut yang dilakukan melalui borang soal selidik. Keputusan daripada empat hipotesis pertama pengurusan pengetahuan mendapati bahawa pemerolehan dan perlindungan pengetahuan menunjukkan kesan

signifikan dan positif dengan kemampuan teknologi maklumat. Selain daripada itu, budaya inovasi memainkan peranan sebagai penyederhana dalam hubungan pengambilalihan, penukaran dan penggunaan pengetahuan dengan kemampuan teknologi maklumat. Keputusan kajian ini juga mendapati bahawa kemampuan teknologi maklumat bertindak sebagai pengantara di dalam hubungan di antara perlindungan pengetahuan dan inovasi firma. Hasil kajian menyimpulkan bahawa inovasi firma berkaitan positif dengan prestasi organisasi. Kajian ini memberi asas konseptual tentang keberkesanan penggunaan budaya inovasi dalam organisasi yang inovatif. Dari aspek praktikal, kajian ini menekankan kepentingan bagi pengurus untuk menggunakan budaya inovatif bagi bersesuaian dengan proses pengurusan pengetahuan.

**FIRM INNOVATIVENESS AND ORGANISATIONAL PERFORMANCE:
KNOWLEDGE MANAGEMENT, INNOVATIVE CULTURE AND
INFORMATION TECHNOLOGY CAPABILITY**

ABSTRACT

This research attempts to examine the moderating and mediating roles of innovative culture and information technology capability respectively, in the relationship between knowledge management, firm innovativeness and organisational performance. This study endeavours to answer if: (1) Does knowledge management, moderated by innovative culture, affect firm innovativeness? (2) Does information technology capability mediate the relationship between knowledge management and firm innovativeness which ultimately improves the financial and non-financial performances of the organisation? This study attempts to analyse the exceptional role of knowledge management in firm innovativeness and how information technology capability would enhance the relationship between knowledge management and firm innovativeness. This study also attempts to examine the role that innovative culture plays in this relationship. It is also the aims of this study to look at the impact of firm innovativeness on organisational performance, which are the financial and non-financial performances. Fourteen hypotheses were formulated and tested in a field of study with a sample of 202 MSC Malaysia organisations located in the Klang Valley area (i.e. Selangor and Kuala Lumpur). Data were obtained from Chief Executive Officers, General Managers and Senior Managers of these organisations through survey questionnaires. The results from the first four hypotheses of knowledge management found that the acquisition and protection of knowledge were significantly and positively related to information technology capability. Moreover, innovative

culture played a moderating role in the acquisition, conversion and application of knowledge in their relationships with information technology capability. The results underlined that information technology capability only mediates the relationship between knowledge protection and firm innovativeness. The findings conclude that firm innovativeness is positively related to organisational performance. This research provides the conceptual basis for the effective use of innovative culture in innovative organisations. From the practical aspect, this study underlines the importance for managers to apply innovative culture for the appropriate knowledge management processes.

CHAPTER 1: INTRODUCTION

1.1 Background

The business world of today is highly dynamic due to the perennial changes that occur in the marketplace, the fierce competition among players, mergers and acquisition of companies, the emergence of new products, the creation of new technology and globalisation. As a result, it is imperative for organisations to be sensitive to these changes to stay ahead of their rivals and to sustain their business performance. In doing so, it is very crucial for organisations to devise strategies and strategise effectively.

Organisations' survival is very much dependent on how they perform in the competitive environment and hence, it is vital that they are able to sustain their growth and achieve their respective visions and missions. Furthermore, organisations ought to ensure that they are able to meet to the needs of their target market so as to be able to satisfy their stakeholders. In meeting this objective, organisations may have to tweak and reinvent their existing business strategies with the main objective of improving their performances. When organisations are faced with harsh business environments shaped by adverse competition, it is imperative for these organisations to innovate and develop capabilities towards achieving superior organisational performance (OP) (Chen, Huang, & Hsiao, 2010). Furthermore, it is vital for organisations to continuously innovate to guarantee their survival in the market (Bolívar-Ramos, García-Morales, & García-Sánchez, 2012; Hurley & Hult, 1998) and to equip themselves with unique knowledge by converting these knowledge into innovative resources to better their competitors (Cho & Korte, 2014). Wang and Wang (2012) acknowledge that innovation is the catalyst that allows organisations to

generate superior value and obtain competitive advantage in a challenging and varying environment (Subramaniam & Youndt, 2005) while Kim, Kim, Garrett, and Jung (2014) suggest that admirable organisations practice innovativeness regularly in their response to adverse market environment.

Kyrgidou and Spyropoulou (2013) contend that as a result of the intense nature of global competition, organisations have realised the importance of innovation to ensure their effectiveness, survival and performance (Tajeddini, 2009). It involves the effective use of new ideas (Amabile, Conti, Coon, Lazenby, & Herron, 1996) and is related to the formation and utilisation of knowledge (Alegre, Sengupta, & Lapiedra, 2013). Innovation process relies largely on knowledge since knowledge characterises an ambit that is more meaningful than data, information and traditional logic (Nonaka & Takeuchi, 1995).

Innovation ought to be motivated by the opportunities to fulfil and utilise the available resources, abilities, technologies and knowledge; enhance efficiency and create new skills for the organisation. Innovation is also a combination and blend of knowledge in original format consisting appropriate, valued new products or services which allows the organisations to alter information into a new or enhanced products/services that provides the means to battle and distinguish themselves successfully from their competitors. Organisations that have a high degree of innovation will be able to meet the needs of customers and create new competencies that enable them to accomplish higher profits and outstanding organisational performance (Calantone, Cavusgil, & Zhao, 2002).

Innovation occurs in organisation upon the sharing of knowledge among employees that enable the organisation to create new and shared insights (Nonaka, 1994). Additionally, for innovation to take place, organisations would have to be

equipped with knowledge to determine the internal and external factors that have an impact on the organisation and the knowledge itself would have to be fluid for it to emanate across the organisation since a higher level of knowledge dissemination enable leads to more employees across the organisation to be exposed to the new knowledge, which ultimately leads to a higher possibility of innovation (Darroch, 2005). In echoing this, Hu (2014) suggests for organisation to be innovative, there is a need to conduct knowledge search and utilisation (Laursen & Salter, 2006) as a source of learning because learning facilitates exchanges of information and acquisition of knowledge.

One of the pathways for organisations to obtain competitive advantage is through firm innovativeness (Deshpandé, Farley, & Webster, 1993; Hurley & Hult, 1998; Tajeddini, Trueman, & Larsen, 2006). Present environmental situation such as volatility and uncertainty compel organisations to be innovative in order to stay competitive (Škerlavaj, Song, & Lee, 2010). The ability to innovate is one of the most important components that influence organisational performance (Hurley & Hult, 1998) as innovativeness offers organisations the flexibility to select various choices in meeting customers' expectations that ultimately lead to long-term survival in the market. Innovativeness describes the tendency (Lumpkin & Dess, 1996) and ability (Hult, Hurley, & Knight, 2004) of the organisation in introducing innovations. Additionally, Tsai and Yang (2013) elucidate that firm innovativeness breed innovation since an organisation that is innovative is likely to encourage its members to be creative and to experiment with novel ideas and products.

Story, Boso, and Cadogan (2014) further suggest that firm innovativeness has been regarded as a range whereby organisations are regarded as innovative when they are able to create products that are more “revolutionary ” than their competitors

(Damanpour, 1991). Firm innovativeness has also been measured at product and organisation level (Akgün et al., 2009; Wang & Ahmed, 2004). It could take place in organisations when employees practice and support unique business ideas, ingenious techniques, research and inspired procedures in developing new merchandises or services (Dibrell, Fairclough, & Davis, 2015).

One of the strategies that organisations could utilise to better their competitors is to equip themselves with knowledge. The importance of knowledge is apparent as it is regarded as the centre of global economic transformation. The foundations of knowledge economy in Malaysia began in mid-1990s with the launching Multimedia Super Corridor (MSC), which offers excellent information and communications technology (ICT) environment to lead the development of a K-economy country (Chong, 2006). At the same time, human resources, science and technology, research and development, infostructure and financing, were also taken on board in the development of K-economy. With K-economy in place, whereby it will provide the platform for a sustainable rapid economic growth and enhanced international competitiveness; Malaysia is in its course to achieve the objectives of Vision 2020. The management of knowledge is further considered as the main principle of competitive advantage for an organisation (Edmonson, 2010), not only because knowledge assets are not easily duplicated but also the way the knowledge is being set out. Nonaka (1994) describes knowledge as a justified principle that enhances one's ability for actions that are effective. Past literature (e.g. Grant, 1996; López-Nicolás & Meroño-Cerdán, 2011; Zack, 1999) note that although knowledge is considered as a trump card for organisation to stay competitive, this however, does not warrant the organisation in gaining advantage as the knowledge has to be carefully managed and implemented. Hence, in order to remain competitive, organisations are

to ensure that intellectual capital is applied and knowledge are systematically practised and managed (Wiig, 1997).

Knowledge management (KM) is described as accomplishing the vision and mission of organisations by developing and utilising knowledge resources within the organisation (Davenport & Prusak, 1998). Edmonson, (2010) insinuates that the enormous breath of available literature underline a universal agreement amongst academics, researchers and industry players that success of organisations rely heavily on KM. Efficient deployment of KM enhances the level of knowledge required for employees to disseminate the knowledge effectively within the organisation (Kör & Maden, 2013). Other than that, KM is previously viewed as the science of organisational management, with technological and networking applications being the emphasis, but it has since evolved into a new discipline to which leading organisations have given paramount importance and continually providing efficient KM development processes, in order to increase productivity and innovation.

The utilisation of KM in organisations is professed to enhance innovativeness and responsiveness and it is mostly regarded as a process that consists of multiple activities. Darroch and McNaughton (2003) reiterate this view by stressing that the value of KM does not stop at knowledge being managed effectively, but it permits the appropriation of other resources as well (Penrose, 1959; Wernerfelt, 1984). KM is considered as an organised process in managing knowledge assets and processes in expediting the creation, sharing and application of knowledge to achieve organisational objectives (An, Deng, Chao, & Bai, 2014; Deng, 2010). Effective KM is considered as organisation routines that could path the way towards innovation in the event of changes to the routines (Nelson & Winter, 1982) and this is often viewed as the antecedent of innovation since knowledge by itself consists of novel ideas

(Nonaka & Takeuchi, 1995). Chen et al. (2010) reiterate that knowledge is renowned as a vital asset that allows organisations to maintain unique expertise and realise innovation prospects (Grant, 1996). This is evident in past studies (e.g. Argote, McEvily, & Reagans, 2003; Nonaka & Takeuchi, 1995) who discover the crucial role of KM in the process and outcome of innovation. In a recent study, Alegre et al. (2013) advocate that apart from knowledge, technological competencies are important constituents for organisation to develop new products and services that would propel the organisation into achieving competitive advantage.

Despite the importance of KM in sustaining competitive advantage, obtaining it is not an easy task due to the dynamics of the business landscape. One of the approaches organisations employ to sustain competitive advantage is to utilise resources to develop capabilities. Capabilities are the skills of an organisation to accumulate, integrate and utilise valuable resources (Amit & Schoemaker, 1993). Capabilities that are heterogeneous form the basis of the resource-based theory and a comprehension of the source of competitive advantage (Helfat & Peteraf, 2003). In organisations' endeavours to better their competitors, organisations invest in capabilities that could blend existing resources and anticipations of future prospects. The capabilities of developing new expertise provide the platform for organisations in arranging technologies for tapping future opportunities and to tackle threats in the market (Kogut & Zander, 1992)

Additionally, organisations can better their rivals by employing information technology (IT), specifically a capability that resides within the organisation. IT is considered as one of the main pillars of organisational capability as well as a basis for achieving competitive advantage and enabling organisations the skills to identify and react to changes in the market (Tallon, 2008). The role of IT is growing in its

importance in organisation's functions and corporate approaches, and for the majority of industries, IT is believed to be a fundamental strategic asset (Lin, 2007). As a result of the utilisation of IT in organisations, this has created the potential for IT capability that could lead to better organisational performance (Brynjolfsson & Hitt, 2000; Kohli & Devaraj, 2003).

Information technology capability (ITC) is defined as the ability to organise and activate IT-related resources by merging and synchronising with other organisation's resources and capabilities (Bharadwaj, 2000). According to Chae, Koh, and Prybutok (2014), superior level of ITC has numerous advantages among others, it enables an organisation to obtain access to valuable customer data and enable the organisation to lower costs in searching for future customers. It is also considered as the organisation's ability to manage various departments, enhanced the quality of the firm's decision-making and to control costs and earnings. It also enables organisations to move forward at a faster pace as manager's IT skills are the source of competitive advantage since organisations with sound human IT skills, are equipped to predict and address future needs of the organisation. Hence, organising and arranging these resources in combination with IT-related assets creates the origin of ITC which leads towards enhanced organisational performance which is valuable, inimitable and non-substitutable (Barney, 1991; Bharadwaj, 2000; Kawakami, Barczak, & Durmuşoğlu, 2014).

Sambamurthy, Bharadwaj, and Grover (2003) argue that investments and capabilities in IT inspire the organisation's capacity to initiate numerous competitive actions and plays a role as a major source of organisational performance. Moreover, ITC enables the organisation to enhance the depth and quantity of information processing and symbolises an appealing technique in increasing the effectiveness and

competence of a firm's in-house and inter-firm practices (Harris & Katz, 1991). By having ITC in place, this enhances communication and the sharing of knowledge and information between the organisation and its customers, which ultimately augments innovativeness and enhances the product designs and lower development costs (Banker, Bardhan, & Asdemir, 2006; Kmiecik, Michna, & Meczynska, 2012).

Tseng (2010) posits that the emergence of information and telecommunication technology has resulted in drastic change in the economic landscape which ultimately promotes the significance of knowledge to organisations (Ruiz-Mercader, Merono-Cerdan, & Sabater-Sanchez, 2006). The importance of knowledge to the organisation is apparent as knowledge has the ability to change organisations into being innovative, allows cost reduction, enhanced customer service and improved decision making. Small and Sage (2006) posit that organisations are learning very quickly that despite the availability of knowing throughout the organisation, knowledge does not automatically disseminated abundantly across the organisation. The reason for this is likely due to cultural issues, which has been frequently highlighted as one of the concerns in the hindrance of KM implementation. There appears to be a consensus among researchers that the potential of knowledge management will unlikely bear fruition as failure to align the "cultural, management, human, social, and organisational elements" effectively is likely to result in failure of knowledge management (Thomas, Kellogg, & Erickson, 2001).

Organisation that lacks the appropriate culture will find sharing of knowledge to be limited and demanding as organisations are made up of employees who provide the necessary knowledge for the organisation to learn and improve. An organisational culture is regarded as an interconnected force that encourages their members to impart values, principles and beliefs of the organisation as these principles

and values form employees' future attitudes and characteristics. These are symbolised as architecture of vision, mission and goals that intertwine and function by means of business model and processes (Yeh & Singhatheh, 2013). Wei, O'Neill, Lee, and Zhou (2013) posit that an organisation with innovative culture highly appreciates opportunities that enable them to experiment novel ideas or develop new products that enhance organisational performance. Furthermore, Rooney (2005) contends that many studies found organisational culture could be a main stumbling block in the successful implementation of KM initiatives. Furthermore, there is a possibility of the existence of various cultures that hamper conversion of knowledge which leading to knowledge loss during the process of conversion (Davenport & Prusak, 1998). This underlines that employees' understanding on the impact of organisational culture and its bearing on KM is a vital and significant factor in the development of KM.

Innovative culture (IC) is expressed as a collection of customs that influence on the attitudes and conducts by expressing what "should be" or "must be" in a certain situation that would be conducive to the inventiveness, risk-taking and accommodating errors; and assist its implementation by creating a general consensus when working collectively and quickly (Caldwell & O'Reilly, 2003). It underlines the importance of innovation, willingness to embrace novelties and quick decision-making; as well as encompassing a set of principles and activities that could have an impact on the management of innovation (Toaldo, Didonet, & Luce, 2013). By practicing innovative culture within the organisation, this will reduce resistance to change among employees and promotes the initiation of new technology, while at the same time, enhances the independence of working groups, support from manager on research ventures, relationship among various departments, faith, sincerity and recognition (Shrivastava & Souder, 1987).

In contrast, the absence of innovative culture may result in the sense of individualism to reign throughout the organisation as individual employees are battling for their own individual objectives. Past studies (Gatignon & Xuereb, 1997; Pearson, 1993) posit that the main driver of these successes is to nurture an innovative culture that accentuates on research and development function and the creation of technology. These innovative organisations relentlessly create competitive positions as a result of their technology advancement that meet current and future customers (O’Cass & Ngo, 2007) and ensure that they are on the right track in enhancing their chances of survival in the business environment.

As businesses operate with the basic goal of making profits and in doing so, they bid to obtain greater performance through the development and implementation of effective strategies that tap on market opportunities while exploiting their resources and capabilities (Bharadwaj, Varadarajan, & Fahy, 1993). OP describes how efficient is the organisation’s performance in accomplishing its objectives (Venkatraman & Ramanujam, 1986) while Daft (2000) refers it as the ability of an organisation to use the organisation’s available resources efficiently and effectively in pursuing its goals and objectives. OP is created with valuable assets such as resources, knowledge and vision in mind to achieve competitive advantage by reacting with exceptional abilities to changes in the market conditions and this allows the strengths of the organisation to be in line with prospects in external environment (Barney, 1991; Porter, 1985).

Similarly, Andrevski, Richard, Shaw, & Ferrier (2014) regard OP as the consequences of various strategic measures over a period of time that are in response to competition as well as the organisation’s own strategic initiatives that enable the organisation to enhance performance and gain superior market share (Andrevski et al., 2014). According to past researches (Kaplan & Norton, 1992; Venkatraman &

Ramanujam, 1986), OP consists of multi-dimensional factors and comprises of multidimensional and complex components (Dess & Robinson, 1984; Pinho, Rodrigues, & Dibb, 2014). Failure in obtaining superior performance, especially the financial perspective of performance, will have negative consequences on the organisation as the organisation will not be able to continue operating their businesses.

This study endeavours to investigate the roles of knowledge management, ITC and innovative culture in shaping firm innovativeness and how they affect organisational performance as an outcome, in order to establish if the relationship between knowledge management and firm innovativeness is mediated by ITC and whether innovative culture moderates the relationship between knowledge management and ITC. Moreover, this research attempts to verify if the implementation of knowledge management enables organisations to be innovative through the capabilities of information technology that is supported by an innovative culture, will result in organisations obtaining superior financial and non-financial performances. The study of organisational performance refers to how efficient is the organisation's performance in accomplishing its objectives (Venkatraman & Ramanujam, 1986) and as such, OP could be determined by the organisation's effectiveness and efficiencies in attaining the organisational goals while others measured OP from the financial and operational angles (Venkatraman & Ramanujam, 1986), finance, efficiency, and others (Liang, You, & Liu, 2010), economic and organisational views (McGivern & Tvorik, 1997), and organisational, process and job or performer standpoints (Rummler & Brache, 1995).

1.2 The Malaysian Scenario

Malaysian corporations are faced with the threat of global competition from foreign organisations as it was found that the innovation level of Malaysian firms are

lower than that of foreign firms (Kowang, Rasli, & Long, 2014). Besides competition from these foreign companies, our local organisations are faced with threats from emerging economies such as India, Vietnam or China. Majority of Malaysian organisations' are dependent on technology in their daily operations and are resisting in engaging knowledge workers (Jayasingam, Ansari, & Jantan, 2010). The Malaysian government highly encourages Malaysian organisations to progress in becoming a knowledgeable organisation through knowledge economy (K-economy) in the nation's aspiration to become a developed nation.

Past researches (Choi, 2000; Chong, Chong, & Yeow, 2006) emphasise the importance of knowledge implementation in Malaysian organisations to enhance skills and expertise of workers (Chong, Chong, & Gan, 2011) and the practices of KM in the Malaysian context have been given much attention by researchers and practitioners (Chong, Ooi, Bao, & Lin, 2014; Chong, 2006; Ooi, 2014; Ramachandran, Chong, & Wong, 2013; Raman, Woods, & Lim, 2013; Syed-Ikhsan & Rowland, 2004; Yahya & Goh, 2002)

In a study by Razali and Juanil (2011), it was found that limited studies have been carried out with regards to the implementation of KM in property management industry in Malaysia and their study also found that KM in property management is still at the initial stage. In a study on the higher education institution sector, it was revealed that both private and public institutions should emphasise on the creation of sharing and disseminating environment of knowledge that will enhance efficiency and increase the work processes (Sohail & Daud, 2009). Chong, Salleh, Ahmad and Sharifuddin (2011) further added that the implementation of KM in Malaysian public organisations is yet to be understood and their study revealed that KM is imperative for the performance of public sector organisations in Malaysia. Moreover, KM is

rather new in the Malaysian perspective despite its encouraging influences (Jayasingam, Ansari, Ramayah, & Jantan, 2013). This is echoed in a study of higher education institutions (HEIs) setting, whereby Ramachandran et al. (2013) elucidate that only limited number of HEIs implement KM practices.

On the same breath, Chong, Chong, and Lin (2010) elucidate in their study of the Malaysian telecommunication industry, of the need to explore the implementation of KM in the Malaysian setting as past studies on KM (Choi, 2000; Chong et al., 2006; Ramachandran, Chong, & Lin, 2008) are lacking in their focus as these studies concentrate on the essential success factors of KM implementation. They are of the opinion that KM implementation in businesses should be considered as an information system strategy. Their findings highlight the influence of organisational demographic components on the implementation of KM in telecommunication industry as KM implementation is essential in enhancing organisational performance. Moreover, in a study on small and medium enterprises (SMEs) in Malaysia, Chong et al. (2014) posit that there is a dearth on the study of the impact of KM on the adoption of e-business in these SMEs. Their research found that the processes of KM were the significant drivers on the choice of these SMEs to adopt e-business.

Furthermore, Ooi (2014) in his study on the manufacturing and services industries in Malaysia, suggests that there is a shortage of study that highlights the link between KM and total quality management (TQM). His findings indicate the necessity for both industries to adopt the appropriate TQM practices that would enhance KM processes of both industries This underlines that the human resource management and strategic planning of TQM, such as new employees induction programme and mentoring, are crucial in ensuring employees' commitment that enhance KM endeavours within these industries.

Malaysian businesses realise the urgency in producing high quality products to compete globally (e.g. Abdullah, Uli, & Tari, 2008; Agus & Abdullah, 2000) and to improve their organisational performance. Past studies found that the performance among electrical and electronic organisations is below the expected level for Malaysia to attain the position of an industrialised nation by 2020 (Idris, McEwan, & Belavendram, 1996). Malaysia is considered as an attractive destination for information technology industry and one area that have seen an increase in latest development is on the information technology outsourcing, due to established infrastructure, government backing and skilful workers (Arshad, Yap, & Mohamed, 2008). Abdul Hamid and Salim (2010) posit that Malaysian IT outsourcing industry is worth at US\$1.9 billion as a result of our country's efforts through the MSC Malaysia initiatives. Malaysia is placed at no 3 in the world's IT outsourcing destination with India and China taking the top 2 spots respectively (Kearney, 2011). As such, Ojukwu, Mason, and Orole (2015) elucidate that MSC Malaysia companies face challenges in information technology industry and call for studies to be carried out investigating challenges faced by MSC Malaysia companies.

Hence, it is timely to investigate the performances of Malaysian businesses to drive the Malaysian economy further. The enablers of superior performance are aplenty and apart from knowledge management, information technology capability also plays a crucial role (Ringim, Razalli, & Hasnan, 2012). In the setting of Malaysian organisations, there are limited number of studies that investigate the role of information technology capability as the literature mostly covers the adoption level of IT and the acceptance of IT (Hassan, Arshad, Mustapha, & Jaafar, 2013). Ling, Tee, and Eze (2013) deem that the lack of studies on information technology capability in emerging countries such as Malaysia is because of the differences in the economic and

business cultures. Furthermore, Malaysian organisations are faced with complications in obtaining the appropriate IT applications because of the challenging IT issues and specific hurdles that are related to the operating matters within the context of a developing country.

Firm innovativeness, according to Yusof and Abu-jarad (2011), provides numerous benefits, among them, it enhances the country's economic growth and creates new job opportunities by opening up new industries and provides an enhanced physical environment. It also has been incorporated as a goal for organisations to enable organisations to obtain competitive advantage that ultimately enhances the organisations' fortunes (Bidmeshgipour, Ismail, & Omar, 2013). From organisational perspective, firm innovativeness increases efficiency that enhances performances and responsiveness to customer's feedbacks (Jun & Weare, 2010).

Albeit the significant contribution of firm innovativeness to organisational performance, it continues to pose a crucial challenge for Malaysian organisations (Abdullah, Mei, Shamsuddin, & Wahab, 2014) as most studies on firm innovativeness in Malaysia focus on the SMEs (Aziz & Omar, 2013; Jafri, Ismail, Khurram, & Soehod, 2014; Mohamad & Sidek, 2007), whereas the present study focuses entirely on MSC Malaysia, which is a technology-related industry. Moreover, as Malaysia is considered as an important destination for international business within the region of South East Asia, there is a lack of empirical study on firm innovativeness in the Asian setting (Ibrahim, Zolait, Subramanian, & Ashtiani, 2009) and this study attempts to address this gap. Additionally, Rosdi and Chew (2014) call for a study to examine how human resources management in MSC Malaysia organisations can contribute to the development of the organisations' innovativeness. They further suggest that innovation, knowledge management and human capital management are crucial to

MSC Malaysia organisations. This study endeavours to investigate MSC Malaysia companies as to study: (1) Knowledge workers, and (2) the performance of these companies, as the performance of these companies are not as competitive as technology companies in other countries. From the knowledge workers perspective, it is one of the requirements for MSC Malaysia companies to possess knowledge workers as part of the criteria to obtain an MSC Malaysia status which is in line with the Government of Malaysia's aspiration for Malaysia to be a knowledge-based society.

1.3 Problem Statement

In contemporary industrial environment, organisations are faced with greater challenges than ever before as customers are becoming knowledgeable and sophisticated. Furthermore, recent trend in globalisation has opened up the market with the entrance of many foreign businesses operating within the boundary. This and coupled with the advancement in technology has also affected the way businesses are being conducted; hence traditional method of organisational management is insufficient to tackle the fiercely competitive market. As a result, to achieve competitive advantage, organisations have to improve and innovate in order to maintain and persevere in the market.

In today's dynamic environment, organisations are scheming various ways to obtain competitive advantage and achieve sustainable organisational performance. In doing so, many organisations realised the importance of KM and have implemented it (Davenport & Völpel, 2001), however, the majority of these KM initiatives stumbled into failures, due to various causes such as the unsuitable KM strategy being adopted, over reliance on information technology and unaware of the outcome of KM. On that note, Jayasingam et al. (2013) found that the concept of KM is comparatively new in

the Malaysian perspective and Malaysian industries trail other countries in adopting KM since they are unsure of the advantages of KM. Interestingly, past research found that practices of KM do not directly support in enhancing OP but could be augmented by intermediate practices that are encouraged by KM (Davenport & Prusak, 1998; Law & Ngai, 2008; Lee & Choi, 2003).

One of the intermediate practices adopted by organisation is ITC, which augments employees' tasks in handling vital information (Orlikowski & Iacono, 2001). However, implementing ITC is challenging as the presence of culture may create a barrier that hamper the widespread use of IT within the organisation (M. Zhang, Sarker, & Sarker, 2013). Hence, it is imperative for organisation to cultivate the appropriate culture that harmonises with KM and ITC. As such, organisational innovative culture plays a critical role in providing a conducive environment that promotes both initiatives.

In organisations' quest of obtaining competitive advantage, it is also imperative that organisations source competitiveness from the external boundary of the organisation (Gulati, Nohria, & Zaheer, 2000). Network and inter-organisational affiliation are one of the ways that organisations could lessen costs albeit the availability of having internal resources and capabilities. These approaches are initiated as organisations may not have the internal knowledge-related resources and competence (Carlsson, 2003). In addition, there are also evidences that there is a lack of consensus with regards to the best, or suitable, indicators of OP, whereby the diversifying view caused the misperception on the measures of performance (Cameron, 1986). Past studies (Kaplan & Norton, 1992; Murphy, Trailer, & Hill, 1996) found that there have been small or little discussions on the OP measures being

chosen in some of the studies and there are insufficient efforts being placed on these measures that could lead to the generalisability of these researches (Cooper, 1993).

In a study of MSC Malaysia firms by Kassim (2006), it was found that MSC Malaysia organisations concur that firm innovativeness enable their organisations to explore new business opportunities such as the introduction of new innovative products. A similar study by Saad and Mazzarol (2014) highlight that leadership styles has a direct and positive impact on firm innovativeness. They further propose for MSC Malaysia firms to be innovative in producing new products and for the leaders of these companies to exert their influences to encourage innovative activities.

Organisations that resist innovation are likely to fail in their business ventures (e.g. Ho, 2008; Leavy, 1998) and would not be able to develop new and improved products and services that would be translated into profitability. The consequences of organisations not practicing innovativeness would impair their ability to respond and react effectively to changes in the dynamic nature of the business environment and lessen the ability of the organisation to achieve superior performance (Montes, Moreno, & Fernández, 2004). Moreover, organisations that are not innovative will not be able to manufacture their products efficiently, perform poorly (Gunday, Ulusoy, Kilic, & Alpkan, 2011) and incapable of achieving sustainable competitive advantage (Drucker, 1985; Hitt, Ireland, Camp, & Sexton, 2001; Kuratko, Ireland, Covin, & Hornsby, 2005).

In summary, this research endeavours to answer these problem statements: (1) Does knowledge management, moderated by innovative culture, affect firm innovativeness? (2) Does ITC mediate the relationship between KM and firm innovativeness which ultimately improves the financial and non-financial performances of the organisation? This study attempts to analyse the exceptional role

KM plays in firm innovativeness and how would ITC enhance the relationship between KM and firm innovativeness. This study also attempts to examine the role that innovative culture would play in this relationship. It is also the aims of this study to look at the impact of firm innovativeness on organisational performance, which are the financial and non-financial performances.

1.4 Research Objective

The purpose of this study is to investigate the relationship between KM and firm innovativeness with organisational performance as the outcome, whereby IT capability acts as the mediator and innovative culture as the moderator.

There is a dearth in studies that connect knowledge management, ITC and firm innovativeness together as most studies have investigated these connections in isolation. Moreover, in investigating the mediating effect of ITC, only a handful of researchers (Sambamurthy et al., 2003; Wade & Hulland, 2004; Yeoh & Roth, 1999) have focused on investigating ITC that affect organisational resources and capabilities. Past studies (e.g., Hsu & Fang, 2009; Hynes, 2009; Prajogo & Ahmed, 2006) have investigated the moderating role of culture in achieving superior organisational performance and have found inconclusive evidences. As such, Martín-de Castro, Delgado-Verde, Navas-López, and Cruz-González (2013), explain that innovative culture may be crucial in linking technological knowledge-based assets and innovation as the approach for using technological resources are the essence in deciding the optimum usage of resources and capabilities of the organisation.

In other words, this study aims to establish the empirical evidence on the relationship between the applications of KM with the presence of innovative culture; IT capability and firm innovativeness in a single framework and finally performances

are measured as an outcome of firm innovativeness. It is believed that IT capability and firm innovativeness play important roles in encouraging the performance of organisations. On another note, there are inconclusive evidences whether ITC and innovative culture would play a role in enhancing performances of organisations.

This study endeavours to meet the objectives set out below:

1. To examine the relationship between KM (knowledge acquisition, knowledge conversion, knowledge application and knowledge protection) and ITC
2. To investigate the mediating impact of ITC between KM (knowledge acquisition, knowledge conversion, knowledge application and knowledge protection) and firm innovativeness
3. To study the moderating effect of innovative culture on the relationship between KM and ITC
4. To examine the relationship between firm innovativeness and financial performance
5. To investigate the relationship between firm innovativeness and non-financial performance

1.5 Research Questions

This study attempts to examine the effect and importance of KM in strengthening the firm innovativeness and subsequently performance of organisations, the mediating effect of ITC and the moderation impact of innovative culture. Thus, this study endeavours to answer the following questions:

- (i) Do KM (knowledge acquisition, knowledge conversion, knowledge application and knowledge protection) predict ITC?