

The Effect of Entrepreneurial Orientation, Innovation Capability and Knowledge Creation on Firm Performance: A Perspective on Small Scale Entrepreneurs

(Kesan Orientasi Keusahawanan, Keupayaan Inovasi dan Penciptaan Pengetahuan kepada Prestasi Firma: Dari Perspektif Usahawan Kecil)

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ABSTRACT

The purpose of this study is to examine the predictive effects of entrepreneurial orientation, innovation capability and knowledge creation on firm performance. Data for the study was collected using a cross-sectional quantitative survey. A total of 188 useable responses were collected from SMEs in Malaysia. The findings show that entrepreneurial orientation, innovation capability and knowledge creation have a positive impact on firm performance. Furthermore, the impacts of entrepreneurial orientation and innovation capability on knowledge creation are also examined in this study. The findings suggest that innovation capability is positively related to knowledge creation, but entrepreneurial orientation does not have a significant impact on knowledge creation. This study makes a considerable contribution to the existing literature on entrepreneurial orientation, innovation capability and knowledge creation of SMEs, particularly in regards to explaining the performance of Malaysian SMEs.

Keywords: Entrepreneurial orientation; innovation capability; knowledge creation; performance; SMEs

ABSTRAK

Tujuan kajian ini adalah untuk mengetahui kesan orientasi keusahawanan, inovasi dan penciptaan pengetahuan kepada prestasi firma. Data kajian ini telah dikumpulkan melalui metod kuantitatif. Seramai 188 responden di kalangan PKS di Selangor, Malaysia telah terlibat di dalam kajian ini. Hasil kajian menunjukkan bahawa wujudnya hubungan positif di antara orientasi keusahawanan, inovasi dan penciptaan pengetahuan kepada prestasi firma. Disamping itu, kajian ini juga melibatkan kesan orientasi keusahawanan dan inovasi terhadap penciptaan pengetahuan. Hasil kajian menunjukkan hubungan positif wujud di antara inovasi dengan penciptaan pengetahuan. Namun begitu, orientasi keusahawanan tidak mempunyai kesan yang ketara kepada penciptaan pengetahuan. Secara umumnya, kajian ini memberikan sumbangan besar kepada kajian-kajian yang sedia di dalam bidang orientasi keusahawanan, inovasi dan penciptaan pengetahuan, khususnya dalam konteks prestasi PKS di Malaysia.

Kata kunci: Orientasi keusahawanan; keupayaan inovasi; penciptaan pengetahuan, prestasi; SMEs

INTRODUCTION

Small and medium enterprises (SMEs) are considered to be significantly important contributors to economic development, particularly in regards to providing jobs and employment opportunities; and generating income for many households (Kongolo 2010; Simpson, Taylor & Barker 2004). SMEs have a tendency to use entrepreneurship principles to focus on the exploitation of opportunities and adopt innovative approaches to attract customers and increase profitability. Additionally, entrepreneurship is argued to be associated with innovative behaviour and strategic orientation in pursuit of profitability and growth (Carland, Hoy, Boulton & Carland 1984). At the same time, entrepreneurship symbolizes innovation and a dynamic economy (Orhan & Scott 2001) that leads to high performance. Generally, many challenges exist that

inhibit the performance of SMEs, such as the absence of innovation; low-level marketing and managerial skills; financial support; and competencies (Dyer & Ross 2008). Existing literature suggests that entrepreneurial orientation is a driver and predictor of SME performance (Covin & Slevin 1991; Smart & Conant 1994; Wiklund 1999); competitiveness (Clausen & Korneliusson 2012); and profitability (Gupta & Batra 2015). Some extant studies find that entrepreneurial orientation enables small firms to perform better than their competitors and enhance firm performance (Ireland, Hitt & Sirmon 2003; Lumpkin & Dess 2001; Wiklund & Shepherd 2005).

Firms with high levels of entrepreneurial orientation tend to constantly scan and monitor the activities of entrepreneurship in order to find new opportunities and strengthen their competitive positions (Covin & Miles 1999). Accordingly, firms may look at innovation

capabilities that can help them better meet the needs of the customers. Today, SMEs are viewed as an important force that can foster growth in the national economy through the application of entrepreneurship principles and innovation to support progress (Rauch, Wiklund, Freese & Lumpkin 2005; Lawson & Samson 2001). Hills and Hultman (2011) posit that innovation, as a dimension of entrepreneurial orientation, is a process that is characterized as holistic, as well as complementary; and fundamental to an organization's success. Although innovation has been widely associated with the survival of individual firms and a source of competitive advantage in meeting the changing demands of customers (Vrontis, Thrassou, Chebbi & Yahiaoui 2012), few integrated studies exist that examine the effect of entrepreneurial orientation and innovation capability on SME performance. Several studies found a positive relationship between entrepreneurial orientation and performance (e.g., Kraus, Pohjola & Koponen 2012; Lumpkin & Dess 2001). However, some extant studies find a negative relationship between entrepreneurial orientation and performance (e.g., Arbaugh, Cox & Camp 2009; Hart 1992).

In the context of innovation capability, there are two major aspects of innovation: the first is comprised of the development of ideas and knowledge, while the second is the concrete implementation of the ideas. In an organization, knowledge creation is a central tenet of innovation and is widely applied by anyone seeking to stimulate innovation. Based on the resource-advantage theory, a number of studies found that certain characteristics of knowledge (i.e., tacitness and immobility) make it difficult for knowledge to be transferred and dispersed (Hunt & Arnett 2006; Hunt & Morgan 1997). In addition, Drucker (1993) notes the importance of knowledge as "the only meaningful resource." Other researchers demonstrate the relationship of knowledge management with organizational competencies and business performance (Dröge, Claycomb & Germain 2003; Song, Kolb, Lee & Kim 2012). The existence of such relationships is consistent with the findings of Nonaka and Konno (1998); Nonaka and Takeuchi (1995); and Nonaka, Toyama and Nagata (2000), which argue that firms need to transfer entrepreneurial orientation by focusing attention to the knowledge creation process as it allows firms to amplify knowledge embedded internally; and transfer knowledge into operational activities that lead to organization efficiency and business value. Such findings are supported by Salina and Fadzilan (2010), who opine that SMEs in Malaysia must place greater emphasis on knowledge management and social capital (Salina & Fadzilah 2010).

Despite the enthusiasm among researchers and practitioners, the impact of innovation capability and knowledge creation on firm performance has not been thoroughly investigated (Castro, López-Sáez & Delgado-Verde 2011). Numerous extant studies attempt to explain the effect of innovation and knowledge creation on performance (Hogan & Coote 2013; Jiménez-Jiménez,

Sanz-Valle & Rodríguez-Espallardo 2008), but the findings are not conclusive (Van Thang, Anh & Mai 2015). Moreover, most extant studies ignore a more complex mediated relationship in studies involving knowledge creation and innovation (Darroch 2005). Naranjo-Valencia, Jimenez-Jimenez and Sanz-Valle (2016) report that innovation and knowledge creation improves performance. However, such findings contradict studies by Song and Kolb (2012) and Cao and Zhang (2011), who indicate that no effect, or even negative impact, exists in the relationships between innovation, knowledge creation and firm performance. In addition, Lumpkin and Dess (1996) and Zahra and Covin (1995) suggest including firm characteristics as moderators or mediators when testing the relationship between entrepreneurship orientation and firm performance since the relationship is more complex than expected. The inconsistent findings suggest the need to propose a model that investigates the effect of entrepreneurial orientation, knowledge creation and innovation capability on firm performance.

Thus, the present study addresses such gaps in the literature by combining two theories; the resource-based theory for entrepreneurial orientation and innovation capability; and the theory of organization knowledge for knowledge creation. The integration of these theories is used to explain the relationship postulated in the research model. Thus, the present study seeks to determine the extent to which entrepreneurial orientation (EO), innovation capability (IC) and knowledge creation (KC) affect SME performance; the nature of the relationship of entrepreneurial orientation (EO) and innovation capability (IC) with knowledge creation (KC); and whether knowledge creation (KC) mediates the relationship between innovation capability (IC) and firm performance and the relationship between entrepreneurial orientation (EO) and firm performance.

In order to address such issues, the paper is structured as follows. First, the authors examine the theoretical background and, based upon extant literature, posit a theoretical model where firm performance is seen as an outcome; and propose seven hypotheses concerning the relationships between innovation capability, entrepreneurial orientation, knowledge creation and firm performance. Next, the research strategy is presented, which includes data collection methods, sampling and sample profiles. The authors then present the research findings, discussions, implications and conclude the paper with a discussion of the limitations of the study and suggestions for future research.

THEORETICAL BACKGROUND

The proposed research model depicted in Figure 1 is based on resource-based theory and the theory of organizational knowledge creation. Resource-based theory explains how a firm's resources (i.e., assets, capabilities, organizational process, firm attributes, information and knowledge) act

as sources of competitive advantage for an organization (Barney 1991). Resources that are valuable, rare, inimitable and without substitutes allow firms to develop and implement strategies to improve their competitive advantage. Hafeez et al. (2002) extends the theory to include competency as an additional component of a firm's resources.

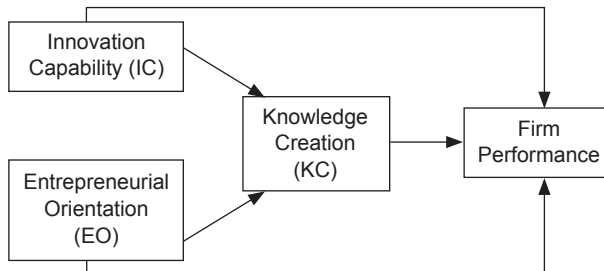


FIGURE 1. Conceptual framework

Firms need to retain their competitive employees as they are strategic assets to the organization for sustained competitive advantage (Bhatnagar 2007). Entrepreneurship researchers attempt to explain firm performance by investigating firm's entrepreneurial orientation (Zahra & Covin 1995). Entrepreneurial orientation is seen as part of managerial processes that includes the orientation of a firm's strategy; and capturing specific entrepreneurial aspects of decision-making styles, methods and practices in order to be constantly ahead of the competitors (Lumpkin & Dess 1996). Based on resource-based view (RBV) theory, knowledge is a valuable resource because it has unique characteristics and is difficult to imitate (Barney 1991). Hence, this study proposes that knowledge creation mediates the relationship between EO and performance. Since EO provides basic elements for achieving benefits in the relationship, the knowledge creation process converts EO into a knowledge asset to be shared by organizational members to achieve firm performance.

Meanwhile, organizational knowledge creation theory focuses on the knowledge held by individuals, organizations and societies that can be enhanced and enriched through spiral and interactive knowledge (Nonaka 1994). Nonaka defines organizational knowledge as the validated understanding and beliefs of a firm concerning the relationship between the firm and its environment. When individuals engage in innovation, the process of discoveries and inventions allow new knowledge to be created and used as a result of the activities (Troitt 2005). Tidd and Bessant (2015) suggest that some potential benefits of open innovation include an increased in the pool of knowledge; reduced reliance on limited internal knowledge; and a better balance of resources to search for and identify new ideas.

CONCEPTUAL BACKGROUND AND HYPOTHESES

FIRM PERFORMANCE

Numerous studies use financial indicators to measure performance of organizations, which include sales growth, cash flow, and profitability (Powell, Donohue, Liang & Fox 2013). However, Aggarwal and Gupta (2006) suggest that financial measures are not adequate to measure overall firm performance. Extant studies find that the combination of financial and non-financial measures provides a more comprehensive evaluation of firm performance (Haber & Reichel 2005). Many researchers argue that a lacuna exists in relation to clear guidance concerning the definition and measurement of performance (Haber & Reichel 2005). Such sentiments are supported by Zacca, Dayan and Ahrens (2015) and Ambad (2014), who find that most small firms are unwilling to share objective performance information, because financial performance data is viewed as sensitive information that is best withheld from outsiders. Hence, the present study uses the perceptual performance of a company to measure firm performance, which includes elements such as comparisons with competitors and rating the importance of performance measures (Wiklund & Shepherd 2005) as an alternative measure of firm performance.

ENTREPRENEURIAL ORIENTATION (EO)

Firms with entrepreneurial orientation have the capabilities to find and exploit untapped market opportunities; the capability to respond to challenges; and the willingness to take risks under uncertain circumstances (Wiklund & Shepherd 2005). Similarly, Lumpkin and Dess (2001) find five dimensions of entrepreneurial orientation: innovativeness; risk-taking; pro-activeness; competitive aggressiveness; and autonomy. Several researchers, such as Lumpkin and Dess (2001) and Wiklund and Shepherd (2005), have strong interests in defining entrepreneurial orientation. In fact, entrepreneurial orientation receives extensive theoretical and empirical attention in organizational research, emerging as one of the most widely accepted firm-level constructs in entrepreneurship literature (Gupta & Batra 2015) and one of the major topics in entrepreneurship studies (Vora, Vora & Polle 2012), as well as being considered an organizational resource that permits firms to differentiate themselves from their competitors (Ireland et al. 2003)

Moreover, entrepreneurial attitude and conduct are important in utilizing new and existing knowledge when an organization discovers opportunities (Wiklund & Shepherd 2003). Several scholars argue that a correlation exists between EO and knowledge creation (Vidic 2013). Sharing knowledge within the company leads to knowledge creation and the diffusion of knowledge across an entrepreneurial firm (Cohen & Levinthal 1990). Several scholars suggest EO organizations often directly support generative learning by identifying and exploring value-creating opportunities (Cui & Zheng 2007; Chaston

& Scott 2012). The preceding discussion suggests that EO is likely to influence firm performance and knowledge creation. This leads to the following hypotheses:

- H₁ Entrepreneurial orientation directly and positively affects firm performance.
 H₂ Entrepreneurial orientation directly and positively affects knowledge creation.

INNOVATION CAPABILITY (IC)

Innovation capability can be described as the ability to continuously transform knowledge and ideas into new products, processes and systems for the benefit of the firm and its stakeholders. Innovation capability not only refers to the ability to be successful in managing a business new-stream, but is also concerned with the ability to synthesize operating paradigms (Lawson & Samson 2001). Romijn and Albaladejo (2002: 1054) refer to innovation capability as the skills and knowledge needed to effectively absorb, master and improve existing technologies and to create new ones. Meanwhile, innovative capability is also described as the capacity to gain access to, develop and implement innovative technologies for designing and manufacturing (Xu, Lin & Lin 2008: 792). Ngo and O'Cass (2009: 48) provide a more comprehensive understanding of the construct and define innovation-based capability as the integrative process of applying the collective knowledge, skills and resources of a firm to achieve innovation activities pertaining to technical innovations (i.e., products or services; and production process technology) and non-technical innovations (i.e., managerial, market and marketing).

The link between innovation and firm performance is well documented in extant studies. Existing academic literature provides evidence indicating the existence of a positive relationship between innovation and firm performance in the manufacturing industry (Löf & Heshmati 2002; Cheng, Lin, Hsiao & Lin 2010). However, some researchers indicate a negative link or no link at all (e.g., Chandler & Hanks 1994; Subramaniam & Nilakanta 1996). Similarly, several researchers argue that innovation is not necessarily related to organization performance (Kraus et al. 2012; Nazri, Abd.Wahab & Omar 2015; Tajeddini 2011). Rhee, Park and Lee (2010) opine that innovation is an action-based capacity that cannot enhance performance, *per se*, since innovation may not have a direct influence on performance.

Tidd and Bessant (2015) note the existence of a dynamic innovation capability able to constantly change according to the competitive pressure and rapid technology change. The lack of such a capability contributes to many failures, even amongst large and established firms, due to the failure to recognize or capitalize on new ideas that conflict with existing established knowledge. Thus, the process of how a firm learns to manage innovation is a vital process. An adaptive learning system allows firms to better adapt to a changing environment. One way to learn about inventing innovation is by evolving through

active iteration in strategies, product, and services through continuous experimentation. Chesbrough's principles of open innovation posit that organizations need to open up their innovation processes, searching widely outside their boundaries and working towards managing a rich set of steadily improving knowledge flows in and out of the organizations. Sutton (2001) suggests that key elements of creativity and innovation in an organization involves the ability to see old things in new ways; and to explore and exploit new things. Based on the previous discussion, the following hypotheses are offered:

- H₃ Innovation capability directly and positively affects firm performance.
 H₄ Innovation capability directly and positively affects knowledge creation.

KNOWLEDGE CREATION (KC)

Knowledge is widely associated with key organizational resources and economic resources (Merx-Chermin & Nijhof 2005), as well as being the source of competitive advantage for organizations (Nonaka 1994; Grant 1997). Andreeva and Kianto (2011: 1120) define knowledge creation as "the development of novel and useful ideas and solutions in organizations and innovation is about the successful implementation of that idea." Knowledge creation should therefore be positioned at the forefront of knowledge initiatives in an organization since the generation of the new knowledge will ensure the organization possesses a constant source of competitive edge for creating value, wealth and sustainable growth. According to Prahalad and Ramaswamy (2004), knowledge and innovation are inseparable. Therefore, the ability of an organization to create new knowledge is vital to its innovation capability (Leonard-Barton 1995; Nonaka 1994). Extant studies classify knowledge into tacit and explicit knowledge (Nonaka & Takeuchi 1995; Nonaka 1994). Explicit knowledge can be communicated in the form of hard data, formulae and principles; and is capable of being shared through words and numbers (Nonaka 1994). Meanwhile, tacit knowledge is hard to formalize and communicate, as well as being highly context specific (Nonaka 1994).

Knowledge creation starts at the individual level and, through social interaction and collaborative processes, becomes organizational knowledge (Nonaka & Takeuchi 1995). Nonaka proposes a knowledge creation model, known as the Socialization, Externalization, Combination and Internalization (SECI) model, which includes four methods of knowledge conversion: from tacit knowledge to tacit knowledge (socialization); from tacit knowledge to explicit knowledge (externalization); from explicit knowledge to explicit knowledge (combination); and from explicit knowledge to tacit knowledge (internalization). Knowledge created through the SECI model causes a new spiral of knowledge creation that helps firms develop new knowledge (Nonaka, Toyama & Konno 2000). The knowledge conversion process allows a

firm to be more efficient and productive as it improves the speed and the cost of developing new products (Nonaka et al. 2000)

Through the process of socialization in an organization, tacit knowledge can be applied to increase collective learning among employees (Nonaka & Takeuchi 1995; Nonaka et al. 2000). Tacit knowledge is more easily understood and utilised by employees when it is converted to explicit knowledge. Through the process of internalization, a firm utilizes its human capital to transfer tacit knowledge, which becomes the base for further innovation and new routines (Kogut & Zander 2003; Lee & Choi 2003; Nonaka et al. 2000).

According to Tidd and Bessant (2015), innovation involves managing knowledge flows and mobilizing multiple source of knowledge. The ability of a firm to recognize the value of new external information, to assimilate such information and apply it to a commercial end is largely a function of the firm's level of prior related knowledge. Thus, how a firm seeks out, selects and implements knowledge will influence the ability to create and improve existing products/processes, which will contribute to the success of a firm. Accordingly, knowledge creation capability is a dynamic process of combination and exchange leading to new knowledge (Smith, Collins & Clark 2005). Tidd and Bessant (2015) argue that innovation capability is difficult to create and easy to destroy, so constant attention is crucial to keep the momentum going. The end of innovation management is not an exact or predictable science. Innovation management is a reflective practice in which the key skills lies in reviewing and organizing knowledge to develop new approaches to gain competitive advantage (Tidd & Bessant 2015). During the process of creating innovation, knowledge has the potential to disrupt the existing "state of the art", which may involve significant unlearning of existing knowledge, skills and routines; and leapfrogging to a new type of knowledge (Hall & Andriani 2003).

Several scholars suggest that knowledge creation has a critical impact on successful organizations (Chia 2003; Kogut & Zander 2003; Matusik & Hill 1998). Based on resource-advantage theory, knowledge is seen as a strategic resource of firms (Grant 1996; Hunt & Morgan 1996). The characteristics of knowledge (i.e., heterogeneity, uniqueness, and immobility) permit firms to produce and utilize knowledge to develop a sustainable competitive advantage (Grant 1996; Hunt & Arnett 2006). Such an approach is supported by Hunt and Morgan (1997), Lee and Choi (2003) and Nonaka and Konno (1998), who find that the organizations that best exploit knowledge creation processes are able to apply the knowledge in new and distinctive market offerings.

Additionally, extant studies suggest that knowledge creation plays a mediating role through which entrepreneurial orientation delivers basic elements for attaining benefits in a relationship. Meanwhile, knowledge creation also converts entrepreneurial orientation into knowledge assets that can be leveraged by employees

to achieve firm performance (Li et al. 2009). Several studies place emphasis on dynamic processes, rather than on the outcomes of knowledge creation (Nonaka et al. 2000; Nonaka & Konno 1998). Therefore, in view of the preceding discussion, the following hypotheses are proposed:

- H₅ Knowledge creation directly and positively affects firm performance.
- H₆ Knowledge creation mediates the relationship between innovation capability and firm performance
- H₇ Knowledge creation mediates the relationship between entrepreneurial orientation and firm performance

METHODOLOGY

SAMPLING DESIGN AND PROCEDURES

The present study examines SMEs located in Selangor, since most SMEs are located in this area of Malaysia (125, 904 SMEs) (SME Annual Report 2012/2013). The entrepreneur operators are primarily involved in manufacturing, food industries, printing, tailoring and insurance. This study uses purposive sampling and the data were collected by using self-administered questionnaires distributed via the drop and collect technique. Of the 320 questionnaires that were distributed, 188 participants completed the questionnaires, representing a response rate of 59 percent. Among the samples collected, the majority of respondents were male respondents (78 percent). The highest age group distribution of the respondents falls in the 36 to 45 years old age group (44 percent), followed by 31 percent in the 26-35 years old age group. In regards to ethnicity, 82 percent of the respondents are Malay; 13 percent are Chinese; and 5 percent are Indian. In terms of the size of the firms, 31 percent of the respondents were from firms with 20 or fewer employees; and 69 percent of the respondents are from firms with 10 or fewer employees. In terms of firm age, 76 percent of the respondents are from firms that have been in operation for less than 3 years; and 24 percent of respondents are from firms that have been in operation for more than 3 years.

OPERATIONAL MEASURES

The questionnaires employ five-point Likert scales ranging from 1=strongly disagree to 5=strongly agree to gather data for each construct of the research model. All instruments are adopted and adapted from extant studies. The questionnaires are designed based on a multiple item measurement scale adapted from previous research by Yong-Hui Li, Jing-Wen Huang, Ming-Tien Tsai (2009) and Peter Balan and Noel Lindsay (2010). Knowledge creation is measured with the four dimensions identified by Nonaka et al. (2000) and Sabherwal & Becerra-Fernandez (2003): socialization, externalization, combination and internalization adopted from. Entrepreneurial orientation is measured with the five dimensions identified by Lumpkin

and Dess (1996) and Miller (1983): innovativeness, risk-taking, proactiveness, competitive aggressiveness, and autonomy. Innovation capability is adopted from Hogan et al. (2011), while performance measurement is adopted from Li and Calantone (1998); Lumpkin and Dess 2001; Ramayah, Samat and Lo (2011).

DATA ANALYSIS AND RESULTS

MEASUREMENT MODEL

SmartPLS 3.0 is used to test the goodness of data and the hypotheses because the software is recommended for predicting relationships between the constructs. The software enables researchers to test a set of interrelated research objectives using a systematic, single and comprehensive analysis by modelling the relationship among multiple and dependent constructs simultaneously; and allowing authors to test complete theories and concepts (Hair, Ringle & Sarstedt 2013). Moreover, it is also able to gauge the mediation effects of the model simultaneously, instead of measuring individual regression analyses (Iacobucci 2010). All constructs in this study are reflective. The item loadings are assessed in a manner consistent with most extant studies, which require item loading of 0.70 or higher (Fornell & Larcker 1981). Due to low loading, four items were removed from entrepreneurial orientation; two items were removed from innovation capability; and three were removed from knowledge creation. However, some items with loading above .6 are retained due to their content validity. As suggested by Hair et al. (2013), it is common to observe weaker item loadings in social science studies. Therefore, removing items with low loadings must be performed with care because it may affect the content validity of the constructs. The Cronbach's alpha coefficient is used to assess the inter item consistency of the measurement items. Table 3 summarizes the loadings and alpha values. All alpha values are above 0.6, as suggested by Nunnally and Berstein (1994). With regards to the examination of the composite reliability, the results reveal that the value exceeds the cut-off value of .7; and the average variance extracted (AVE) is also above .5 (see Table 1). The results indicate that the four constructs in this study possess a high level of internal consistent reliability (Fornell & Larcker 1981).

The average variance extracted (AVE) is examined to determine convergent validity. Table 1 demonstrates that all PKS values are higher than 0.50, indicating a sufficient level of convergent validity for all constructs (Fornell & Larcker 1981). Next, discriminant validity is assessed by examining the Fornell-Larcker criterion, cross-loadings and the HTMT criteria of the items. For this purpose, individual item reliability is further examined for cross-loading. All item loadings are checked to ensure that the loadings are higher in corresponding constructs than in other constructs. As recommended, each item loading exceeds the cross-loading by at least .10 (Gefen & Straub

2005). The results depicted in Table 2 also satisfy the Fornell-Larcker criterion, which requires that the square root of average variance extracted (AVE) for a construct is higher than the correlation with other constructs. Another approach to assessing discriminant validity involves the application of HTMT criterion. The HTMT approach is employed due to issues associated with the low sensitivity of cross-loading and Fornell-Larcker criterion, which only work well in situations with heterogeneous loading patterns and high sample sizes (Henseler, Ringle & Sarstedt 2015). The HTMT results of this study indicate that the findings satisfy the threshold criteria of HTMT .85. Hence, the results indicate adequate discriminant validity of the constructs and items tested in this study.

Furthermore, to test for the presence of common method bias in data due to the use of self-reported data, the Harman one-factor test is performed to determine whether a single factor accounts for the majority of the variance explained (Podsakoff & Organ 1986). The Harman's single-factor test is performed using exploratory factor analysis (EFA) to determine whether all items are extracted to only one factor (Gaskin 2012). According to Podsakoff and Organ (1986), common method bias is problematic if a single latent factor accounts for the majority of the explained variance. The results of the Harman one-factor test indicates that a single factor only explains 42.13 percent of the variance. Thus, common method bias is not present in the data (Podsakoff, MacKenzie, Lee & Podsakoff 2003).

STRUCTURAL MODEL

The evaluation of the structural model for collinearity issues indicates that the VIF output for each construct is much less than the common cut-off threshold of 5. Hence, collinearity among the predictor constructs is not an issue in the structural model proposed in this study (Hair et al. 2013). Considering that the PLS-SEM is for prediction and its main objective is to maximize the variance of the dependent variables, the important criterion in evaluating a PLS model is the assessment of the coefficient of determination (R^2) of the endogenous constructs (Hair et al. 2013). Table 4 and Figure 2 show the R^2 values for the structural model, which suggest that the variables can explain 27–40% of the variance of the respective dependent variables. Another important aspect of the evaluation of the structural model is the predictive relevance of the model. For this purpose, the Stone-Geisser's Q^2 is examined with the use of a blindfolding procedure. As depicted in Table 4, the results yielded positive Q^2 values for all endogenous constructs, which suggests the model has predictive relevance (Hair et al. 2013).

TABLE 1. Composite reliability values

	Measurement items	Loading	CR	PKS
<i>Entrepreneurial Orientation</i>	EOAuto1	0.739	0.938	0.5813
	EOAuto2	0.8776		
	EOAuto3	0.847		
	EOAuto4	0.8647		
	EOCompAgg3	0.6742		
	EOCompAgg4	0.7303		
	EOInn1	0.7626		
	EOInn5	0.688		
	EOInn6	0.7786		
	EOPro1	0.7298		
EOPro2	0.6571			
<i>Firm Performance</i>	FPEff1	0.8238	0.9562	0.5644
	FPEff2	0.6885		
	FPEff3	0.7575		
	FPG1	0.6484		
	FPG2	0.692		
	FPG3	0.8253		
	FPP1	0.7531		
	FPP10	0.7964		
	FPP11	0.8629		
	FPP12	0.8537		
	FPP3	0.7297		
	FPP4	0.7801		
	FPP5	0.7063		
	FPP6	0.7029		
	FPP7	0.6551		
FPP8	0.6725			
FPP9	0.7732			
<i>Innovation Capability</i>	ICAli4	0.8148	0.9439	0.515
	ICAlli1	0.6328		
	ICAlli2	0.6908		
	ICCustInt1	0.8437		
	ICCustInt2	0.6332		
	ICCustInt3	0.8069		
	ICExp1	0.748		
	ICExp2	0.6379		
	ICHR_HC1	0.6254		
	ICHR_HC4	0.6323		
	ICMgrAtt1	0.7055		
	ICMgrAtt2	0.7473		
	ICMgrAtt3	0.8287		
	ICResAw3	0.6857		
	ICStgyPlng1	0.6809		
	ICStgyPlng3	0.7078		
	<i>Knowledge Creation</i>	KCComb1		
KCComb3		0.6854		
KCComb5		0.719		
KCExt1		0.6702		
KCExt2		0.7324		
KCExt3		0.6414		
KCInt1		0.6617		
KCInt2		0.6245		
KCSoc1		0.725		
KCSoc2		0.7989		
KCSoc3		0.8031		

Notes: * Composite reliability (CR) = (square of the summation of the factor loadings) / {(square of the summation of the factor loadings) + (square of the summation error variances)}; ** Average variance extracted (PKS) = (summation of the square of the factor loadings) / {(summation of the square of the factor loadings) + (summation of the error variances)}.

TABLE 2. Discriminant validity of constructs

Constructs	1	2	3	4
Entrepreneurial Orientation	0.7624	0.0000	0.0000	0.0000
Firm Performance	0.5366	0.7513	0.0000	0.0000
Innovation Capabilities	0.5935	0.5432	0.7176	0.0000
Knowledge Creation	0.4665	0.4592	0.4538	0.7159

Notes: Diagonal (in bold) represent the average variance extracted, while the other entries represent the squared correlations.

TABLE 3. Result of reliability test

Constructs	Cronbach's Alpha	Loading range
Entrepreneurial orientation	0.9267	0.6449 - 0.8060
Firm Performance	0.9512	0.6584 - 0.8498
Innovation Capability	0.9372	0.5578 - 0.8302
Knowledge Creation	0.9056	0.5741 - 0.7974

TABLE 4. Results of R² and Q² measures

	R ² Value	Q ² Value
Knowledge creation	0.27	.01
Firm performance	0.40	.25

TABLE 5. Path coefficient and hypothesis testing

Hypothesis	Relationship	Coefficient	t-value	Supported
H1	EntOri -> FirmPerf	0.270	2.3125*	yes
H2	EntOri -> KnowCrea	0.304	1.6215	ns
H3	InnoCap -> FirmPerf	0.292	2.6646*	yes
H4	InnoCap -> KnowCrea	0.273	1.8514*	yes
H5	KnowCrea -> FirmPerf	0.201	1.8048*	yes
H6	InnoCap->KnowCrea->FirmPerf	no mediation		ns
H7	EntOri->KnowCrea->FirmPerf	no mediation		ns

Notes: * = p < .05; ns = not significant

performance has a value of 0.292, while the indirect effect via knowledge creation has a value of $0.273 \times 0.201 = 0.0549$. Thus, the total effect has a value of $0.292 + 0.0549 = 0.347$. To determine the magnitude of this indirect effect, Iacobucci and Duhachek (2003) propose utilizing the VAF (Variance Accounted For) to determine the size of the indirect effect in relation to the total effect. A situation in which the VAF is larger than 20% and less than 80% can be characterized as partial mediation (Hair et al. 2013). Based on the VAF results, the value is smaller than 20% (i.e., 15.8%). Hence, H₆ is not supported. Since the direct relationship between entrepreneurial orientation and

Next, a path analysis is performed to test the seven hypotheses by running a bootstrapping procedure in SmartPLS 3.0. Table 5 shows the results regarding the significance of the hypotheses, which include the path coefficients and t-statistics.

Table 5 indicates that four out of seven hypotheses are supported. The results show that entrepreneurial orientation is positively related ($\beta = 0.270$, $p < 0.05$) to firm performance, but not to knowledge creation ($\beta = 0.304$, $p < 0.05$). Thus, H₁ is supported, but not H₂. With regards to the path coefficient of innovation capability in relation to knowledge creation ($\beta = 0.273$, $p < 0.05$) and firm performance ($\beta = 0.292$, $p < 0.05$), the results indicate that both are significant and positively related to innovation capability. Hence, H₃ and H₄ are supported. Additionally, the hypothesis concerning the relationship between knowledge creation and firm performance is also significant and positively related ($\beta = 0.201$, $p < 0.05$). Therefore, H₅ is supported. The results of the present study indicate that innovation capability is the most significant predictor of firm performance, followed by entrepreneurial orientation and knowledge creation. Thus, the higher the level of innovation capability, the better firm performance is expected to be.

Then, the mediating role of knowledge creation is analyzed. The empirical t-value of the indirect effect of innovation capability on firm performance is 0.985, from which it can be concluded that the relationship via the knowledge creation mediator is not significant ($p < 0.05$). The direct effect of innovation capability on firm

knowledge creation is not significant, the first condition for mediating effect is not met (Baron & Kenny 1986; Zhao et al. 2010). Hence, the mediation effect cannot be tested and, therefore, H₇ is rejected. The findings indicate that knowledge creation has no mediation effect on the innovation capability-firm performance relationship; and the entrepreneurship orientation-firm performance relationship.

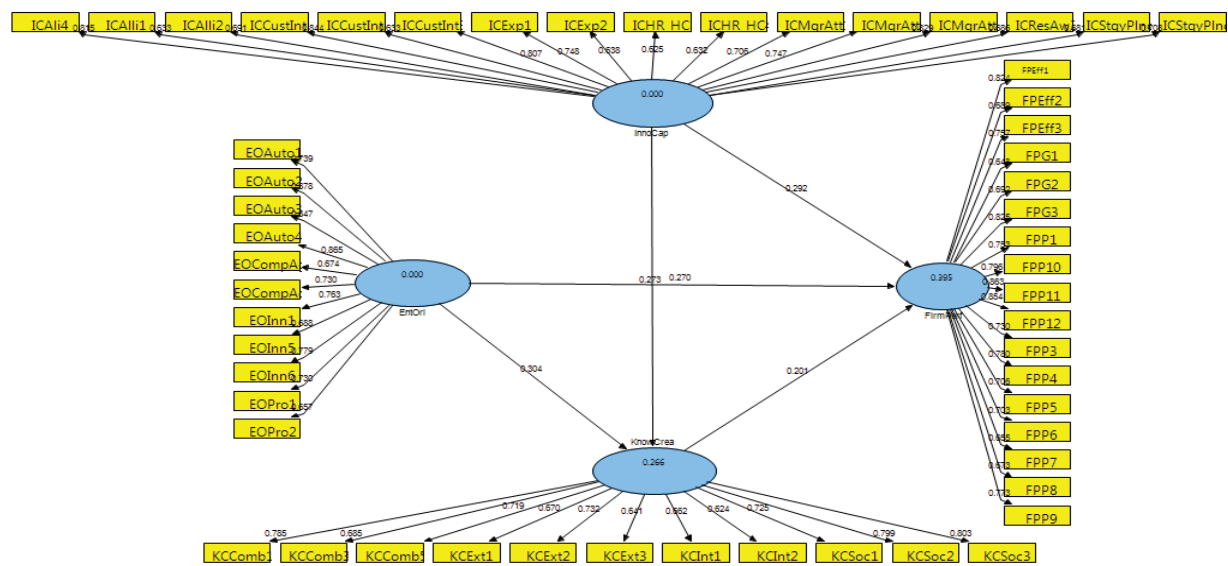


FIGURE 2. Results of the structural model

DISCUSSION

This study proposes that entrepreneurial orientation and innovation capability play a significant role in influencing knowledge creation and firm performance. Additionally, this study also proposes a relationship exists between knowledge creation and firm performance. Seven hypotheses are tested, of which four hypotheses are supported. The effectiveness of entrepreneurial orientation is empirically studied in entrepreneurship literature (Rauch et al. 2005; Rauch, Wiklund, Lumpkin & Frese 2009). However, few studies consider knowledge creation and innovation capability (Balan & Lindsay 2010; O'Connor, Roos & Vickers-Willis 2007). Several researchers suggest that one-off innovation is not sufficient for competitiveness. Hence, firms need to create knowledge culture, capacity and innovation on a continuous basis (Kiernan 1996; Li & Kozhikode 2009; Hamel & Prahalad 1990; Slater 1997).

The findings show that innovation capability is the most significant antecedent to firm performance, followed by entrepreneurial orientation and knowledge creation. The finding of significant relationships is consistent with extant studies (Fidel, Schlesinger & Cervera 2015; Huang & Shih 2009; Rauch et al. 2009; Saeed, Yousafzai & Engelen 2014). According to the finding, firms are more inclined to achieve efficiency, growth, and competitive advantage when they are able to exploit opportunities, increase the ability to innovate and are better in regards to knowledge creation. The results of the study also demonstrate a significant and positive relationship between innovation capability and knowledge creation. Prior studies suggest the importance of innovation influences knowledge creation (Cantner, Joel & Schmidt 2009; Gupta & Moesel 2007). Moreover, the findings of a study performed in China also indicate that innovativeness and knowledge transfer are positively related (Yuan Li

et al. 2009). From a practical point of view, the present study suggests that entrepreneurs should be aware of the importance of innovation capability, knowledge creation and entrepreneurial orientation in influencing firm performance.

Despite the importance of entrepreneurial orientation, the construct is not significantly related to knowledge creation. The result is inconsistent with Li et al. (2009) and Martin-de Castro et al. (2013), which highlight the importance of entrepreneurial orientation in influencing knowledge creation. Since the direct link between EO and KC is not supported, the mediating effect of KC in the relationship between EO and performance is also not supported. A possible explanation for these findings is that SMEs may seldom see the importance of knowledge creation and knowledge management implementation. According to Edvardsson and Durst (2013), SMEs appear to have problems regarding practicing knowledge creation and social interaction compared to larger organizations. Even though several researchers find some SMEs practice knowledge management within their organizations, but the utilization of knowledge management is inefficient (Ayer & Lama 2011). Other researchers argue that SMEs are still at an early stage of knowledge management implementation and the level of awareness concerning the importance of knowledge management among SMEs is still low (Wei, Choy & Chew 2011).

Another possible reason for the non-significant results could be due to the fact that the majority of the samples in this study are drawn from small and young firms (less than 3 years). The ability to access information due to the resource constraints may somehow influence the findings of the study. As mentioned in existing literature, most young start-up SMEs are characterized as possessing limited resources for acquiring information when running the business; a lack of management information systems; and a concentration of decision-making in a small number

of owners (Terpstra & Olson 1993; Huang & Brown 1999; Omar & Nazri 2014). Moreover, the existence of different cultures in different countries (high context and low context) may influence the sources of information and knowledge among firms (Ismail 2016). Additionally, little conclusive evidence has been presented concerning the potential for knowledge creation to mediate the relationship between EO and firm performance. Wiklund and Shepherd (2003) find EO plays a moderating role between KC and firm performance. In conclusion, due to the sample characteristics and mixed findings reported in extant studies, no results indicate the existence of a mediating effect of knowledge creation on the relationship between EO-performance and IC-performance. However, the present study finds that EO, IC and KC do play a direct role in firm performance, which supports the findings of Kraus et al. (2012), Nonaka et al. (2000), Tajeddini (2011) and Wiklund and Shepherd (2005).

IMPLICATIONS

The present study makes several contribution to academic and industrial knowledge, particularly in regards to SMEs in Malaysia. Firstly, this study reveals that entrepreneurial orientation is critical to an organization and has positive impacts on SME performance. SMEs should adopt entrepreneurial orientation as one of the strategies of SME business. Although this study employs entrepreneurial orientation as a uni-dimensional construct, SMEs that apply this concept in their business operations should understand that entrepreneurial orientation has five dimensions (Lumpkin & Dess 2001). The application of all dimensions of the concept will help SMEs to achieve their respective business goals. Secondly, this study also suggests that managers should be aware of the importance of knowledge creation to SME performance. Managers of SMEs need to facilitate dynamic knowledge creation, particularly in the SECI process. Such facilitation can be accomplished by enlarging knowledge through the transformation of tacit knowledge into explicit knowledge; and *vice versa* (Nonaka 1994). SME managers also need to nurture an enabling environment that allows sharing and exchanging tacit knowledge to create new knowledge in their organization. Each mode of knowledge conversion requires different approaches for knowledge to be created and shared effectively (Nonaka & Konno 1998). Employees of SMEs should be motivated to exchange, learn and create knowledge. In addition, employees in SMEs should further be allowed to transform knowledge into strategic knowledge and execution (Nonaka 1994).

Thirdly, this study suggests the importance of innovation capability for SMEs and how SMEs can improve innovation capability through performance measurements from various perspectives. Innovation capability can lead to a positive impact on SME performance, specifically when SMEs, in order to achieve organizational goals, explore new ideas; develop new ways to do things; become involved

in new product development; and become creative in operation. Moreover, the ability of an SME to create knowledge is also important to its innovation capability. Fourthly, knowledge creation through the socialization and externalization of tacit knowledge and exploitation through the combination and internalization of explicit knowledge should take place in a context where the use of such knowledge is given meaning and significance. The market becomes the relevant context of innovation for SMEs since innovations are defined as new ideas that have been commercialized as products or implemented as processes. Lastly, SMEs need to be proactive and nurture an enabling environment that facilitates learning, knowledge management and innovation ability among employees in order to be relevant and sustainable in today's competitive market.

LIMITATION AND FUTURE RESEARCH

The findings of this study are specific to SMEs in Malaysia; and are based on non-probability sampling. Furthermore, the survey was conducted via a 'drop and collect' approach in the area of Selangor, Malaysia. Therefore, the sample population may not be representative of the overall Malaysian population. Moreover, the findings of this study rely on cross-sectional data since the survey was conducted at one point of time. Therefore, strong conclusions regarding the true dynamic effects of the model cannot be drawn in the same manner as if this study was conducted using a longitudinal design. Additionally, this study does not classify the types of innovation and firms into the categories. The firms may fall into technological and non-technological based firms. Thus, it is recommended that future research examine whether the conceptual model utilized in this study may produce different results when taking into account different types of firms; ages; and types of innovation.

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