

KNOWLEDGE MANAGEMENT AND FIRM PERFORMANCE IN SMEs: THE ROLE OF SOCIAL CAPITAL AS A MEDIATING VARIABLE

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ABSTRACT

Knowledge and intellectual capital are increasingly recognised as the main sources of competitive advantages in the knowledge-based economy. Businesses, particularly those that are small- or medium-sized, find that they need to give increasing attention to knowledge management and social capital — social capital being a mediating variable between knowledge management processes and firm performance. This study examined knowledge management, social capital and firm performance through the use of a questionnaire directed to small- and medium-sized enterprises — all of them situated within the Multimedia Super Corridor in the Klang Valley of Malaysia. The results based on 289 usable questionnaires demonstrated the following: (i) knowledge management processes influence social capital positively; (ii) social capital enhances firm performance; and (iii) social capital is a mediator between knowledge management processes and firm performance. The research demonstrated that knowledge management processes and social capital can be integrated to enhance firm performance.

Keywords: knowledge management, knowledge management processes, firm performance, social capital, SMEs

INTRODUCTION

A firm's performance and survival are determined by the speed at which the firm develops knowledge-based competencies. Knowledge and intellectual capital (IC) are considered among the firm's knowledge-based competencies, and, according to Bell (1973) and Nonaka (1994), the major competitive advantage of a firm lies in its knowledge. Firms competing in the knowledge-based economy

can sustain their competitive advantage by harnessing their own unique knowledge and building their capability to learn faster than their competitors (Grant, 1996b; Prusak, 2001). The type of knowledge needed by a firm must be tailored toward its own unique peculiarities. Knowledge can be distinguished from the traditional factors of production (land, labour and production) in that it is governed by what has been described as the law of increasing returns. In contrast to the traditional factors of production that were governed by diminishing returns, every additional unit of knowledge used effectively results in a marginal increase in performance (Malhotra, 2001). Each firm must be able to accumulate certain intangible knowledge assets that are relevant to its diverse operations.

The concept of knowledge management (KM) began to be implemented in Malaysia in the late 1990s when multinational organisations like Microsoft and Hewlett-Packard brought their KM practices, processes and applications to the country. At the same time, the Malaysian government launched its Knowledge Economy Master Plan, which consisted of strategies for transforming Malaysia from a production-based economy to a knowledge-based economy. One strategy proposed in the plan called for the private sector to be the vanguard of the knowledge economy development. The Multimedia Development Corporation (MDeC), Siemens, Bank Negara Malaysia, Nokia Malaysia, and Telekom Malaysia were among the pioneers for the implementation of KM in the country.

The main concepts used in this study are KM and IC, both of which are required in managing a modern firm (Wiig, 1997). KM and IC need to be integrated to maximise a firm's effectiveness. IC is discussed in terms of the social capital (SC) that comprises customer service and relationships, data on customers and market perspectives, while KM is discussed from the perspective of KM processes that use knowledge to create value in terms of SC. Firms can create competitive advantage by managing SC systematically through KM processes, which include knowledge acquisition, knowledge conversion and knowledge application. This study is aimed at exploring the relationship between KM processes and firm performance (FP). First, the study intends to determine how KM processes influence FP. Then the study investigates the mediating role of SC in the relationship between KM processes and FP — an investigation that involves analysing how KM processes create SC and how SC contributes to FP.

This research focuses on the influence of KM processes and the creation of SC in small-sized and medium-sized enterprises (SMEs) in the Multimedia Super Corridor (MSC). Those organisations are considered to be knowledge intensive-entities focused on producing information communication technology (ICT) products or services; consequently, those organisations must use their unique knowledge as a strategic asset to compete successfully. SMEs are commonly

recognised for their contribution to the economic activity, employment, innovation and wealth creation of a country. SMEs represent 99.2% of the total business establishments in Malaysia, employing at least 5.6 million workers and accounting for 31.4 percent of the country's gross domestic product (SME Corp., 2008). Developing a competitive, productive and resilient SME sector is an important part of the government's strategy to achieve balanced economic development and higher standards of living at all levels of society. Clearly, SMEs play a vital role in a country's economic growth. Thus, the information about the relationship between KM and SC gained from this study can assist SMEs in sustaining their FP through improved KM practices.

UNDERLYING THEORIES

KM is viewed from the perspective of organisational capability as organising and making available important knowledge wherever and whenever it is needed. The resource-based view, the knowledge-based view and organisational learning theory are used as underlying theories for this research. According to resource-based views, firms perform well and create value when they implement strategies that exploit their internal resources and capabilities. With the growth of strategic management theory, there has been considerable interest in focusing on intangible resources or IC and their deployment in the firm (Wernerfelt, 1984; 1995). Resource-based theorists consider IC to be a firm's strategic resource. KM processes, including knowledge acquisition, knowledge conversion and knowledge application, were used in the study to manage and increase SC, to enhance FP and to sustain competitive advantages. The knowledge-based view of the firm considers knowledge as the most strategically significant resource of the firm (Grant, 1996a; Kogut & Zander, 1992). This view considers a firm to be a "distributed knowledge system" composed of knowledge-holding employees, and this view holds that the firm's role is to coordinate the work of those employees so that they can create knowledge and value for the firm (Spender, 1996). A firm's absorptive capacity could be enhanced through KM processes that allow the firm to acquire, convert and apply existing and new knowledge by adding value to the SC while remaining competitive in the market. The next theory applied in this research is organisational learning theory. Garvin (1993) defined organisational learning as reflecting the skills of "creating, acquiring, and transferring knowledge" and "modifying behaviour to reflect new knowledge and insights". This theory emphasises that organisational learning depends on individual learning but is more than the cumulative result of each employee's learning (Fiol & Lyles, 1985). Organisations acquire knowledge, not only through their own employees, but also through consultants and through formal and informal environmental scanning (Huber, 1991).

KNOWLEDGE MANAGEMENT PROCESSES

KM processes can help an organisation acquire, store and use knowledge for tasks such as problem-solving, dynamic learning, strategic planning and decision-making (Sveiby, 1997). Academic literature highlights the importance of KM processes in contemporary organisations (Conner & Prahalad, 1996; Kogut & Zander, 1996), with some authors suggesting that an organisation's ability to generate knowledge is vital (Nonaka & Takeuchi, 1995; Powell, 1998; von Krogh, 1998). Academics and practitioners have recognised that KM processes are becoming prerequisites for an organisation's success (Cole, 1998; Davenport & Klahr, 1998; Porter, 1980; Powell, 1998). Some literature also suggests that KM processes contribute to FP by improving job performance, leveraging core business competencies, accelerating the time to market, reducing cycle times and enhancing product quality (Argote & Ingram, 2000; Davenport & Prusak, 1998). Organisations need to generate knowledge continually, facilitate the sharing of knowledge within the organisation and apply the knowledge so that the organisation can generate new products or services.

Researchers and practitioners observe that KM is not a product that can be bought, but a capability that must be built over time. (For more details, see researchers Daghfous, 2003; Davenport & Prusak, 1998; Leonard-Barton, 1995; and practitioners Mazlan and Ahmad, 2006; & O'Dell & Grayson, 1998b). Through KM processes, an organisation can acquire and generate knowledge and apply the new knowledge to its products or services. The KM processes discussed include acquisition, creation, identification, capturing, collection, organisation, application, sharing, transferring and distributing. From those discussions of KM processes, three broad dimensions emerge: knowledge acquisition, knowledge conversion and knowledge application (Salina & Wan Fadzilah, 2008).

KNOWLEDGE MANAGEMENT PROCESSES IN SMEs

Knowledge management processes are part of an organisation's business processes (Zhou & Fink, 2003). According to Gold, Malhotra and Segars (2001), they are a precondition for effective KM. This requires turning personal knowledge into organisation-wide knowledge that can be shared throughout an organisation and applied (Skyrme, 1997). The goal is to get the right knowledge to the right people at the right time and to help people share and use information to improve FP (O'Dell & Grayson, 1998b). For SMEs to improve their competitive advantage, they should have KM processes that enable them to create and acquire knowledge and to apply, share and preserve knowledge. Some

of the strengths and weaknesses of KM processes (knowledge acquisition, conversion and application) used in this study of SMEs are discussed below.

Knowledge acquisition involves the processes of creating, generating, developing, building and constructing knowledge. SMEs can acquire knowledge from external sources, such as by hiring people possessing the required knowledge or by purchasing knowledge assets such as patents, research documents or other intelligence (Wong & Aspinwall, 2004). SMEs can also acquire external knowledge through other means such as searching (Huber, 1991; Lee & Yang, 2000), adopting it from other sources (Bhatt, 2000) or obtaining it from knowledge-driven firms. Small firms appear to be in an advantageous position in acquiring customers' knowledge because managers and employees of SMEs tend to have close and direct contact with customers and some employees may know customers socially (Haksever, 1996). The proximity to customers will facilitate a more direct and faster flow of knowledge to the employees. That proximity will also enable employees to obtain information such as competitors' actions and behaviour, market trends and other developments (Wong & Aspinwall, 2004).

Knowledge conversion involves organising knowledge that has been created or acquired and applying it in ways that allow the knowledge to become formalised and accessible. In the context of SMEs, knowledge tends to be passed on without any associated records or documentation because of SMEs' informal communication culture. SMEs tend to believe that it is not feasible to establish a formal system for codifying, organising and storing knowledge because their employees are busy with their daily routines (Wong & Aspinwall, 2004). In addition, SMEs have fewer resources and a reduced capacity to maintain a knowledge repository as compared with large firms. Thus, the knowledge tends to be stored in the head of owners, managers and employees. According to Wong and Aspinwall (2004), the only knowledge management advantage enjoyed by SMEs is that because of their size they have less knowledge to manage, which makes it easier to organise and store the knowledge.

Knowledge application involves storage, retrieval, application and sharing. Knowledge that an employee fails to share is of little value to an organisation. As stated by Bhatt (2001), applying and sharing knowledge means making it "more active and relevant for the organisation in creating values". Communication between employees is likely to be easier in SMEs than in larger firms because SMEs have a simpler management structure. Employees in SMEs are often in close contact with each other, and two-way communication is the norm. That invariably offers a strong foundation for building a knowledge network with each other. SMEs have a great advantage in this KM process because their

environment is likely to be conducive to transferring and disseminating knowledge.

SOCIAL CAPITAL

Social capital (SC) is defined as the combined value of the relationship with customers, suppliers, industry association and markets, and SC represents the potential an organisation possesses as a result of external intangibles (Bontis, 1999). Malaysian managers of Bursa Saham Malaysia firms suggested that SC comprises customer service and relationship, data on customers and market perspectives (Huang, Luther & Tayles, 2007). The relationships with customers can produce customer contacts, customer loyalty, customer satisfaction, brand awareness and distribution networks (Edvinsson & Malone, 1997; Stewart, 2001; Sullivan, 1998). A study that examined biotechnology SMEs found that those organisations used relational-based capital or SC as one way to seek competitive advantage (Clarke & Turner, 2003). Social networking was done through industry clustering and industry associations (Clarke & Turner, 2003); government assistance programs (Clarke & Turner, 2003); linkages among government departments, research institutions and universities (Thorburn, 2000); management and sharing of other resources (Thorburn, 2000); and strategic alliances (DeCarolis & Deeds, 1999).

SC may be the most complex IC component because it depends on the combination of the knowledge and experience of various parties to create knowledge. This supports the definition given by Nahapiet and Ghoshal (1998), who stated that SC is "the sum of actual and potential resources embedded within, available through and derived from the network of relationships possessed by a social unit ". It shows that SC encompasses knowledge in relation to what is already established with the environment and the knowledge that is accumulated by the different parties during exchanges. The presence of SC can also enhance knowledge capture, knowledge codification and knowledge transfer because SC can lead to innovation through facilitating the combination and exchange of resources (Kogut & Zander, 1993). Kogut and Zander (1992) argued that organisations can do better by sharing and transferring knowledge embedded in organisational principles and suggested that an organisation's innovative capabilities "rest in the organising principles by which relationships among individuals, within and between groups, and among organisations are structured". Pennings and Harianto (1992) also suggested that new technologies emerge from an organisation's accumulated stock of skills and technological networking. The way people communicate with each other in an organisation affects the effectiveness of knowledge creation. Constructive and helpful relationships can help to accelerate the communication process that enables employees to share

their knowledge and to discuss their ideas and concerns freely. Thus, good relationships eliminate distrust, fear and dissatisfaction from the knowledge creation process (von Krogh, 1998).

SOCIAL CAPITAL IN SMEs

SMEs have an advantage in SC as compared with human capital and structural capital (Cohen & Kaimenakis, 2007; Desouza & Awazu, 2006). SMEs often tend to believe that their development is mainly driven by their employees' competencies and the quality of the relationships with their customers (Cohen & Kaimenakis, 2007). Those organisations develop their social capital more easily than do large organisations and they use the available knowledge from relationships more readily to achieve high performance (Desouza & Awazu, 2006). In addition, Wong and Aspinwall (2004) added that SMEs' proximity to their customers enables them to acquire knowledge through a more direct and faster route than in large organisations. However, SMEs are faced with a lack of knowledge repositories (structural capital) because of their limited budget. The structural capital in SMEs is primarily developed and maintained by their employees (Desouza & Awazu, 2006). Knowledge is created, shared, transferred and applied through the organisation's staff without the intervention of automated mechanisms usually found in large organisations. Moreover, employees (human capital) develop common knowledge to organise their work, and they commonly engage in two-way communication because of their small numbers. Nunes, Annansingh, Eaglestone and Wakefield (2006) reported that informal systems are employed to aid KM activities in SMEs. This study examines the mediating effect of SC on the relationship between KM processes and FP.

HYPOTHESES DEVELOPMENT

Knowledge Management Processes and Firm Performance

During the knowledge acquisition process, employees acquire, accumulate, seek, create, generate and capture knowledge and subsequently collaborate with each other to use that knowledge. During the knowledge conversion process, the acquired or captured knowledge — either tacit or explicit — is then converted, distributed, integrated, organised and structured. During the knowledge application process, this tacit or explicit knowledge is applied and shared among employees in the organisation. During that process, knowledge is stored for future retrieval. Becerra-Fernandez, Gonzales and Sabherwal (2004) discussed the impact of KM processes on people, processes, products and FP. They noted that KM processes could affect organisations in those four areas in two main

ways: (i) KM can help create knowledge, which can then contribute to improved FP; and (ii) KM can directly cause improvements in people, processes, products and FP. A similar argument is made by Mohrman, Finegold and Mohrman (2003) and Gold et al. (2001), who suggested that FP is improved when the organisation creates and uses knowledge. Likewise, Marques and Simon (2006) studied SMEs in the biotechnology and telecommunication industries and found that knowledge development, transfer and protection improve FP. Davenport and Prusak (1998) noted that FP is improved through locating and sharing useful knowledge. Salina and Wan Fadzilah (2008) also suggested that KM processes have a significant relationship with FP. Thus it is hypothesised that KM processes influence FP positively.

H₁: KM processes influence FP positively.

Knowledge Management Processes and Social Capital

SC comprises customer service and relationships, data on customers, and market perspectives. SC is a prerequisite for the meaningful sharing and transfer of knowledge (O'Dell & Grayson, 1998a). During the exchange process, the level of SC increases with the established relationships in the environment. Organisations can encourage knowledge sharing and the application of new ideas and knowledge through SC, and those ideas and knowledge can then be codified for future reference. That codified knowledge, when combined with the tacit knowledge possessed by employees, increases firm value through the creation or production of new products or services. One form of knowledge acquisition is acquiring information about changes in customer tastes (Huber, 1991). Inter-organisational relationships include interactions with external organisations such as customers, suppliers, investors and government institutions — interactions that can be used to acquire and create new knowledge (Dyer & Singh, 1998; Larsson, Bengtsson, Henriksson & Sparks, 1998). Such newly acquired knowledge is then integrated and coordinated before being applied and shared to produce new products or services. Those KM processes relate positively to customer intimacy, which includes customer satisfaction and customer retention (McKeen, Zack & Singh, 2006). Some researchers have commented that knowledge acquisition and exploitation can enhance SC (Dyer & Singh, 1998; Inkpen & Dinur, 1998; Yli-Renko, Autio & Sapienza, 2001). Hence, it is hypothesised that KM processes have a positive relationship with SC.

H₂: KM processes have a positive relationship with SC.

Social Capital and Firm Performance

SC helps SMEs to enhance their FP through knowledge that is embedded in the relationships among employees, customers, suppliers, alliances and partners. The transfer of knowledge through SC allows organisations to coordinate diverse skills and knowledge, integrate the skills and knowledge with multiple streams of technology and leverage knowledge from one part of the organisation to another. SC contributes to product innovation through social networking (Tsai & Ghoshal, 1998), which drives customer benefits and satisfies customer needs. Rudez and Mihalic (2007) found that customer satisfaction, image and brand, and direct distribution channels all directly affect financial performance. That finding is consistent with a statement from the managing director of a MSC company in Malaysia, who commented that firms need to maintain constant contact with customers to ensure that customers' requirements are being met (Chong, Wong & Lin, 2006). Having more customers helps an organisation to improve FP. Those organisations with strong SC can facilitate the flow of tacit knowledge between partners (Collins & Hitt, 2006) and are likely to be well-positioned to succeed (Friedman & Krackhardt, 1997; Hitt, Bierman, Shimizu & Kochhar, 2001; Mehra, Kilduff & Brass, 2001). Hence, it is hypothesised that SC is positively related to FP.

H₃: SC has a positive relationship with FP.

Knowledge Management Processes, Social Capital and Firm Performance

The last hypothesis is constructed to establish SC as a mediator between KM processes and FP. Chen and Huang (2007) noted that SC mediates the relationship between structural capital and KM, and SC fully mediates the relationship between human capital and career mobility (Lin & Huang, 2005). Takeuchi, Lepak, Wang and Takeuchi (2007) examined human capital and SC as mediating variables on the relationship between high performance work systems and FP. In addition, a firm's SC has important implications for FP (Bontis, 1998; Bontis et al., 2000; Pennings, Lee & Witteloostuijn, 1998). A firm become vulnerable if its stock of SC is low (Bontis et al., 2000). Hence, it is hypothesised that SC mediates the relationship between KM processes and FP.

H₄: SC mediates the relationship between KM processes and FP.

METHOD

For this study, a questionnaire was sent to the owner or senior manager of selected companies. The questionnaire, designed on a 1 through 7 Likert scale,

consisted of four main sections: Section A focusing on KM processes, Section B focusing on SC, Section C focusing on FP and Section D focusing on the respondents' profile. An attached cover letter explained the purpose of the questionnaire.

Population and Sample

The population for this study consists of MSC firms. The MSC firms were chosen because they are knowledge-intensive (Mohammad Nazir et al., 2005), and as such, they are at the "cutting edge" of KM applications in Malaysia. A knowledge-intensive firm relies heavily on its unique knowledge as an input and produces new knowledge as an output and resells it to others (Grassberger, 2004; Starbuck, 1997). Such firms produce customised products and services using close relationships with their customers, suppliers and strategic partners (Edvinsson & Malone, 1997). The sampling frame for this study was a list of 1487 MSC firms obtained from the MDeC. The sample consisted of 833 SMEs located in the five cybercities in Klang Valley: Cyberjaya, Technology Park Malaysia, Kuala Lumpur City Centre, Universiti Putra Malaysia (UPM) — Malaysia Technology Development Corporation (MTDC) and Kuala Lumpur Tower.

Measures

The questionnaire addressed three main variables, derived from related literature: KM processes, SC and FP. All theoretical variables were operationalised using previously developed multi-item scales or using theoretical concepts from related research. The subjective FP dimensions were measured according to the respondents' perspectives, with self-reporting on a Likert scale. Respondents were asked to rate their firm in comparison with their top competitors in the same industry over the last three years on each measure of performance. There were seven items under FP dimension. Profitability, innovativeness and overall business performance, were developed and validated by Deshpande, Jarley and Webster (1993) and Drew (1997). Customer satisfaction, quality in processes and products or services, and flexibility in resource utilisation were developed by Hudson, Smart and Bourne (2001), Kaplan and Norton (1992, 2007), and Raymond and St-Pierre (2005). The variable KM processes consist of knowledge acquisition, knowledge conversion, and knowledge application (Gold et al., 2001; Holsapple & Singh, 2001; O'Dell & Grayson, 1998a; Tiwana, 2002). A total of 27 items were used to measure the variable KM processes. Ten of the items measured knowledge acquisition, seven items measured knowledge conversion and ten items measured knowledge application. Those three dimensions of KM processes used in the study were validated by Gold et al. (2001) and Holsapple and Singh (2001). The SC dimension includes customer

service and relationships with customers, suppliers, media, strategic partners and other types of alliances; data on customers; and market perspectives (Bontis, 1998, 2001; Claessen, 2005; Huang et al., 2007). The SC dimensions that were adopted in this study were validated by Bontis (1998, 2001) and Huang et al. (2007). Eleven items were used to measure the SC variables.

RESULTS AND DISCUSSION

Demographic Profile

The sample consisted of 833 SMEs MSC firms located at five cybercities in Klang Valley: Cyberjaya, Technology Park Malaysia, Kuala Lumpur City Centre, UPM-MTDC, and Kuala Lumpur Tower. Of those, 289 (35%) completed the questionnaires, and 21 (3%) provided incomplete questionnaires. The majority of the respondents (54%) were from Cyberjaya. Among the firms, 79% were local and 17% were multinational firms, while the remaining 2% and 1% were joint venture and franchise firms, respectively. Among the firms, 10% had been operating for less than three years, 44% for three to five years, 42% for six to ten years and 1% for more than 15 years.

Reliability of the Instrument

The reliability of the data was verified using the Cronbach's alpha procedure. The closer the Cronbach's alpha is to 1, the higher the internal consistency reliability (Sekaran, 2000). The alpha coefficients for this study were all above 0.70 and, thus, they were considered to be reliable (Hair, Black, Babin, Anderson & Tatham, 2006; Nunnally, 1978). Table 1 presents the Cronbach's alpha coefficient for each variable.

Table 1
Coefficient of Cronbach's alpha

Variables	Number of items	Cronbach's alpha coefficient
Knowledge acquisition	10	.85
Knowledge conversion	7	.81
Knowledge application	10	.86
Social capital	11	.83
Firm performance	7	.84

Validity of the Instrument

The survey questions used for this study conformed to validity requirements. Content validity was verified during pilot study, with the dimensions for the independent variable being found to comprise all the processes for KM, namely knowledge acquisition, conversion and application. The development of the dependent variable and mediating variable was based on the literature review and all dimensions necessary for FP and IC were included. Those variables are also confirmed as having content validity. Factor analysis was used to establish construct validity for all of the variables employed in this study (Kerlinger & Lee, 2000). All of the items in the variables were subjected to factor analysis, and they loaded in accordance with prior theoretical expectations. The results of the data analysis revealed satisfactory outputs for dependent, independent and mediating variables.

Descriptive and Correlation Analysis

Table 2 presents a descriptive analysis for all variables used in the study. Based on the 7-point Likert scale, the mean value for FP was 5.82, indicating that the overall level of FP was good. The mean values for KM processes were in the range of 5.66 to 5.75, with knowledge application having a higher mean value than the other two KM processes. Table 2 also shows that all of the independent variables had a positive correlation with SC and FP. Those independent variables may have an effect on SC and FP. The findings also show that the coefficient correlation values were below 0.9, which showed that there was no multicollinearity in the study variables.

Table 2
Descriptive statistics and correlations between knowledge management processes, social capital and firm performance

Variables	Mean	SD	1	2	3	4
Knowledge acquisition	5.69	.61				
Knowledge conversion	5.66	.68	.71**			
Knowledge application	5.75	.64	.72**	.70**		
Social capital	5.75	.54	.57**	.55**	.51**	
Firm performance	5.82	.66	.58**	.55**	.55**	.59**

Note: Cronbach's alpha coefficient shown in bracket in diagonal parentheses. $n = 289$

Regression Results and Hypotheses Testing

Table 3 presents the regression results for three models:

- Model 1: KM processes and FP;
- Model 2: KM processes and SC; and
- Model 3: FP and SC.

Model 1 was aimed at determining how KM processes influence FP. The results showed that KM processes explained 39% of the variation in FP. The model was significant with an F -statistic = 60.58 and a significant p -value = 0.00. All standardised beta coefficients were significant, showing a positive contribution to FP. The standardised beta coefficient also showed that knowledge acquisition ($\beta = 0.28$) contributes the most to FP, followed by knowledge conversion ($\beta = 0.22$), and knowledge application ($\beta = 0.19$). All of those variables were significant with p -values < 0.05. Knowledge acquisition is the main contributor to FP, when compared with knowledge conversion and knowledge application. Through knowledge acquisition, firms accumulate and generate information and knowledge about their customers, competitors and suppliers. The acquisition of new knowledge enables a firm to update its collection of knowledge and to compete better in the market. Firms find that the updated knowledge directly improves their performance. As such, H_1 was supported, which is consistent with earlier research findings (Becerra-Fernandez et al., 2004; McKeen et al., 2006; Salina & Wan Fadzilah, 2008).

Model 2 was designed to examine the influence of KM processes on SC. The findings in Model 2 indicate that 37% of the variation in SC was explained by KM processes. This model was significant with an F -statistic = 56.13 and a p -value = 0.00. Knowledge acquisition and knowledge conversion were significant with p -values = 0.00, but knowledge application does not influence SC in this model. As was discussed earlier, SC includes customer services and relationships, data on consumers and a market perspective. Thus, knowledge acquisition and conversion processes play a vital role in acquiring, accumulating, generating, integrating and converting information about customers, competitors, and suppliers. Knowledge application is not significant in this case basically because the SC elements focus more on the acquisition and conversion of tacit and explicit knowledge to strengthen the relationships among producers, customers and suppliers. Furthermore, because SMEs' firm structure is relatively simple, their relationships with customers and suppliers are close and SMEs can easily retrieve information on customers' preferences, competitors, and market trends (Haksever, 1996; Wong & Aspinwall, 2004). Key customers aid in knowledge acquisition by providing introductions to other customers and their knowledge bases. Previous studies (Dyer & Singh, 1998; Inkpen & Dinur, 1998;

Yli-Renko et al., 2001) have also suggested that knowledge acquisition and exploitation could enhance SC. The results of the study support H₂.

Model 3 was used to analyse the effect of SC on FP. The results showed that SC explained 35% of the variation in FP. This model was significant with an F-statistic = 154.21 and a *p*-value = 0.00. The standardised beta for SC is equal to 0.59 and is significant at 0.05 levels. It showed that SC influences FP positively. The relationships involving employees, customers, suppliers, alliances and partners help to update the information and knowledge of employees. Knowledge acquired and transferred through SC can be used to coordinate and integrate the diverse skills and knowledge available in the firm and leverage it within the firm. Firms with strong SC can reduce firm costs and increase their holdings of information and knowledge by encouraging the transfer of tacit and explicit knowledge between stakeholders, which directly helps to enhance FP. Those findings support H₃ in the study and previous findings in the literature (Friedman & Krackhardt, 1997; Hitt et al., 2001; Mehra et al., 2001).

Table 3
Regression results for Models 1, 2 and 3

Model	R ²	Adjusted R ²	F-stat	Sig. F	Standardised β	Sig.
1. KMP → FP	.39	.38	60.58	.00	–	–
Acquisition					.28	.00*
Conversion					.22	.00*
Application					.19	.01*
2. KMP → SC	.37	.37	56.13	.00	–	–
Acquisition					.32	.00*
Conversion					.24	.00*
Application					.11	.14
3. SC → FP	.35	.35	154.21	.00	–	–
SC					.59	.00*

Note: KMP: knowledge management processes, FP: firm performance and SC: social capital.

Models 4(a) and 4(b) were designed to investigate the mediating effect of SC on the relationship between KM processes and FP. The results in Model 4(b) shows that the beta coefficient of KM processes has decreased by 0.22. The results also showed that the R² change = 0.07, which displayed an increment in R² value in Model 4(b) as compared with Model 4(a). In addition, the F change = 38.68, F-statistic = 122.12 and *p*-value = 0.00. The model demonstrated a partial mediating effect of SC on the relationship between KM processes and FP. The partial mediation effects were demonstrated when the relationship between the

independent variable and the dependent variable remained significant while the coefficient was reduced after controlling for the effects of the mediating variable (Baron & Kenny, 1986; Hair et al., 2006). The analysis also showed that, the direct effect = 0.62, indirect effect = 0.14 and total effect = 0.76, which means that with the introduction of SC as a mediating variable, firms can enhance their KM processes and improve their FP. This outcome confirms the important role played by SC, especially in building social networks with customers, suppliers and industry associations and in acquiring information about customers' needs and market perspectives. As mentioned by Desouza and Awazu (2006) and Wong and Aspinwall (2004), SMEs can use their strong SC to access information and knowledge from their customers and associations more quickly and more directly, compared with larger organisations that need to employ consultants to acquire knowledge and information about market and customer needs. SMEs' strong SC results from their simple and flexible firm structure and their proximity to customers, which allows them to contact customers and suppliers directly to access information for immediate decision-making. Additionally, because SMEs have less staff, the relationship among staff is very strong and this accelerates communication processes, thereby enabling rapid discussion and sharing of personal knowledge and ideas. Those findings support H₄ in the study.

Table 4
Regression results for Model 4

Model 4	R ²	Adjusted R ²	R ² change	F change	F-stat	Sig. F	Std. β	Sig.
(a) KMP → FP	.39	.39	.39	181.70	181.70	.00	–	–
KMP							.62	.00*
(b) KMP → SC	.46	.46	.07	38.68	122.12	.00	–	–
→ FP							.42	.00*
KMP							.34	.00*
SC								

Note: KMP: knowledge management processes, FP: firm performance and SC: social capital.

IMPLICATIONS FOR MANAGERS

The findings of this study show that the integration of KM processes and SC have a significant positive effect on FP. The findings also indicate that managers and owners of SME MSC firms need to acquire more knowledge to generate greater FP because it is confirmed that knowledge acquisition is the main contributor to better performance. The acquisition of information and knowledge can be accomplished through SC. The results indicate that SMEs have a strong SC foundation because of their simple and flexible firm structures. The results also demonstrate a positive association between social interaction and knowledge acquisition, a finding that is consistent with the assumption that learning

particularly involves difficult-to-transfer information and that the learning is aided by intensive and repeated interactions. The respondents' strength in SC may facilitate a firm's learning by fostering close and intensive information exchange. In addition, the managers and owners of SME MSC firms also need to acknowledge the importance of SC, which is observed to act as mediator between KM processes and FP in this study. In other words, although KM processes contribute significantly to FP, the existence of SC helps to improve FP. However, if SC fully mediates the relationship between KM processes and FP, it shows that the relationship between KM processes and FP is insignificant with the presence of SC.

CONCLUSION

KM involves the acquisition, conversion and application of knowledge, and KM has been used to enhance SC and to improve FP. The findings of this study supported all four stated hypotheses, providing strong support for the relationship between KM processes, SC and FP. The results also offer implications for the theory of the firm and management practices. The findings show a successful integration of KM, SC and FP that was examined empirically in SME MSC firms. The results are encouraging, as they provide new findings such as the importance of SC in contributing to performance in SME MSC firms. Furthermore, SC partially mediates the relationship between KM processes and FP. The study concludes that the survival and performance of a firm are influenced by the firm's ability to use its SC through KM processes. SMEs, to fully enhance their performance, need SC that consists of relationships with customers, suppliers, media, strategic partners and partners and other type of alliances; data on customers; and market perspectives. Because SMEs have a flat and flexible structure, they can easily get information from their customers, suppliers, media and others about market trends and customer demand. By applying this integrated SC concept, SMEs can easily overcome a few of challenges they face, including constraints on human resources, the inability to adopt some technologies, the lack of information on potential markets and customers, and global competition. When SMEs acquire new knowledge, convert it and apply it to their daily business activities, the value of SC is renewed and refreshed. In conclusion, this research demonstrates that knowledge management processes and social capital can be integrated to enhance firm performance.

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