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Wee, Janet Chui Neo; Chua, Alton Yeow Kuan

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Janet Wee and Alton Y.K. Chua

1. Introduction

Small and medium-sized enterprises (SMEs) are often referred to as the backbone of the economy as they provide the source for jobs and social cohesion ([46] OECD, 2012). In fact, over 90 percent of OECD member countries' enterprises are SMEs that employ 60-70 percent of its working population ([45] OECD, 2006). However, approximately less than half of all SME start-ups survive beyond five years. Those that have thrived tend to differentiate their offerings and remain competitive against their peers ([9] Brush and Vanderwerf, 1992; [23] Dollinger, 1985). In addition, successful SMEs are those that are able to leverage on their resourcefulness, exploit their networks and tap on their niche knowledge of the markets.

Many scholars have also argued that SMEs do not manage knowledge the way large organizations do. This could stem from the differences in organizational culture and structure ([38] Montequin et al. , 2006). For example, SMEs are generally less bureaucratic in decision-making and have a less complex organizational structure. Compared to their larger counterparts, they usually feature higher socialization characteristics where employees work in close proximities ([13] Cohen and Kaimenakis, 2007). SMEs also tend to utilize resources in an ad hoc manner ([27] Ghobadian and Gallear, 1996; [29] Hutchinson and Quintas, 2008). Recent literature review of knowledge management (KM) on SMEs by [25] Durst and Edvardsson (2012) reflected fragmented insights into KM in SMEs and called for deeper, realistic insights taking into consideration the environment and working dynamics of SMEs with particular focus on knowledge identification, utilization and storage.

To deepen on-going KM research on SMEs, this paper focuses specifically on KM processes found in SMEs. Its objectives are two-fold. The first is to examine the peculiarities of KM processes that are unique in SMEs from three perspectives, namely knowledge creation, knowledge sharing and knowledge reuse. The second is to identify enablers and impediments of these KM processes that influence the competitiveness of SMEs. Drawing from the interviews of 21 participants from four SMEs in Singapore, this paper sheds light on the distinctiveness of KM processes in SMEs.

The rest of this paper is structured as follows. Section 2 reviews existing literature and establishes the theoretical bases for knowledge creation, knowledge sharing and knowledge reuse in SMEs. Section 3 presents the methodology adopted in this paper. Section 4 highlights the major findings distilled from the interviews and observations. Insights from the findings are discussed in section 5. Finally, section 6 concludes the paper and offers a few implications for practitioners and researchers in the KM community.

2. Literature review

2.1 The importance of knowledge in SMEs

Knowledge is one of the most important strategic resources in today's rapidly-changing environment ([20] Davenport and Prusak, 1998; [40] Nonaka, 2007). Successful organizations are those that consistently create new knowledge, disseminate it through the organization and embody it in technologies, products and services.

Instead of competing on the basis of physical and financial capital, the success of SMEs is influenced by the knowledge, experience and skills of the owners and its employees ([35] Man et al. , 2002). The major advantages of SMEs lie on two fronts, namely, the simplicity of their internal structure and the porosity of their organizational boundary. As a result, they are poised to forge strong social connections internally and maintain close contact with the market. These are key ingredients for success and innovation. Innovation is defined as the creation or improvements of products, services, operations, processes and people ([4] Baregheh et al. , 2009; [42] Nooteboom, 1994).

Numbers, however, have shown that SMEs have a high mortality rate. Less than half of all SME start-ups survive beyond five years ([44] OECD, 1997). In China, 68 percent of SMEs close down in the first five years, 19 percent survive up to ten years, and only 13 percent SMEs exceed a lifespan of ten years

([16] CTIBJ, 2008). The average longevity of SMEs is between five and ten years ([49] Perricone et al. , 2001). Thus in order to survive and remain competitive in the market, SMEs have to leverage on their knowledge to achieve operational efficiencies, higher innovation and better client service relations ([22] Desouza and Awazu, 2006).

2.2 KM processes in SMEs

KM processes occur naturally in an organization regardless whether a formal KM charter has been set in place. However, there is little consensus as to what KM processes definitively constitute. Based on parsimonious reason and what has been commonly identified in the literature, this paper conceives them as three distinct but interdependent processes, namely knowledge creation, knowledge sharing and knowledge reuse. They are part and parcel of everyday-interactions among organizational members ([2] Alavi and Leidner, 2001). KM processes are also influenced by factors surrounding the organization and its environment. For example, organizational policies and support provided by the management could affect the implementation of KM processes ([19] Davenport et al. , 1998).

Knowledge creation is the development of new ideas through human interactions of explicit and tacit knowledge ([40] Nonaka, 2007; [41] Nonaka et al. , 2000). This process helps improve operational procedure and flow, enable new opportunities to be identified and supports innovation for organizational growth ([6] Beikerse, 2000; [51] Popadiuk and Choo, 2006). Factors promoting knowledge creation include employee competencies, attitude and intellectual agility ([53] Roos et al. , 1997; [55] So, 2010). Furthermore, the existence of formal organizational structures such as a team dedicated to problem solving and technology incubation structures ([55] So, 2010) can help to create knowledge. Conversely, impediments to the knowledge creation process have been found to include the lack of management support and organizational policies ([19] Davenport et al. , 1998). For example, low tolerance of mistakes and the lack of policies to address conflict management deter employees from contributing to the knowledge creation process.

Knowledge sharing is the exchange of knowledge between individuals to allow the recipient to apply or reshape the knowledge gained for a new context ([5] Bechina and Bommen, 2006). This is the process by which employees discuss practices such as know-what and know-how to enable the organization to remain competitive ([37] Mitchell, 2003). However, the success of knowledge sharing is contingent on the values, interests and motives of the employee concerned ([8] Bock et al. , 2005). Environments with high levels of trust and social interaction, in terms of closeness and communication frequency, encourage knowledge sharing and resource flows ([50] Politis, 2003; [58] Tsai and Ghoshal, 1998). In the case of SMEs, the organization's flat structure and open culture supports knowledge sharing, and encourage collaboration ([28] Hamdam and Damirchi, 2011).

Knowledge reuse is the process of capturing knowledge and repackaging it for use in a subsequent application ([36] Markus, 2001). Its purpose is to promote the use of proven practices from past experiences, projects and transactions, to reduce duplication efforts and eliminate similar mistakes. Knowledge reuse is influenced by the absorptive capacity of employees and facilitated by employees' familiarity of the context requiring the knowledge, and where the knowledge can be obtained ([57] Szulanski, 2003). In general, SMEs are poor at storing knowledge, and tend to utilize resources in a more ad hoc manner, with the proclivity to focus on tacit knowledge ([27] Ghobadian and Gallear, 1996). In fact, previous studies on SMEs found that individuals are knowledge sources and that the use of technology was mainly for document storage, even though the availability of information system support structure exists as a major enabler of knowledge reuse ([61] Wong and Aspinwall, 2004; [63] Zhang and Sundaresan, 2010).

Table I provides a summary of the KM processes, segmented into knowledge creation, knowledge sharing and knowledge reuse, and the enablers and impediments to these processes as covered in the literature above.

Table 1: Knowledge Management Processes

KM PROCESSES	DESCRIPTIONS	ENABLERS/ IMPEDIMENTS
Knowledge Creation	• Development of new ideas through human interactions of explicit and tacit knowledge (Nonaka, 2008; Nonaka et al., 2000) • Helps improve processes, identify new opportunities and supports innovation for growth (Beikerse, 2000; Popadiuk & Choo, 2006)	• Formal structures (So, 2010) and supportive organizational policies and management could encourage or discourage knowledge creation among employees (Davenport et al., 1998) • Knowledge creation is dependent on the competencies, attitude and intellectual agility of employees in the organization. (Roos et al., 1997; So, 2010)
Knowledge Sharing	• Process by which employees discuss practices such as know-what and know-how to enable the organization to remain competitive (Mitchell, 2003) • SMEs' flat structure and open culture supports knowledge sharing, and encourage collaboration (Hamdam & Damirchi, 2011).	• Knowledge sharing is subject to the values, interests and motives of the employee concerned (Bock et al., 2005) • Environments with high levels of trust and social interaction, in terms of closeness and communication frequency, encourage knowledge sharing and resource flows (Politis, 2003; Tsai & Ghoshal, 1998).
Knowledge Reuse	• SMEs tend to utilize resources in a more ad-hoc manner, with the proclivity to focus on tacit knowledge (Ghobadian & Gallear, 1996) • Technology used for storage rather than accessing and reusing knowledge (Wong & Aspinwall, 2004)	• Effectiveness of knowledge reuse influenced by employees' absorptive capacity and familiarity of context requiring the knowledge (Szulanski, 2003) • Information system a major enabler of knowledge reuse (Zhang & Sundaresan, 2010)

3. Methodology

3.1 Research approach

This paper employs an embedded case study approach ([26] Eisenhardt and Graebner, 2007) to examine the peculiarities of KM processes in four SMEs in Singapore in their organizations. The approach is a qualitative research methodology often used and accepted by scholars in gathering rich, contextual data, which could not have been elicited in closed ended survey ([11] Chetty, 1996; [47] Oliver and Kondal, 2006). In addition, case study approach allows the researcher to observe and gather information about new or never researched natural phenomenon for inductive teleological analysis ([34] Lin et al. , 2005).

Singaporean SMEs serve as an interesting context for study in view that most organizations in Singapore are SMEs, employing seven out of every ten workers, and contributing over 50 percent of the country's national GDP ([56] SPRING Singapore, 2012). Moreover, Singapore enjoys high volume of trade, connectivity and networked environment, which is also reflective of major cities in the world.

A two-step research approach was adopted. Firstly, face-to-face interviews were conducted with owners (often the managing director or chief executive officer (CEO)), managers and executives individually to encourage candor. The diverse representation of participants enabled data to be obtained from multiple levels and perspectives. Anonymity of participants was assured so as to put them at ease. Each interview lasted approximately an hour.

Guided by the literature on KM processes, the interviews were structured using open-ended questions under three themes, namely knowledge creation, knowledge sharing and knowledge reuse. The questions were intended to explore and understand the "what", "how" and "why" behind each KM processes for SMEs, as well as the enablers and impediments of these KM processes.

The second step in the research approach involved collecting information produced by the organization, either for the public or their customers. These included the organization's brochures, internal documents,

corporate website and media articles. The data, which yielded a consistent pattern, were used to identify and analyze the peculiarities of KM processes in SMEs.

3.2 Procedures and data analysis

Over a period of two months, from October 2012 to November 2012, a total of 21 participants comprising management staff and front-line employees from four Singaporean SMEs were interviewed for this paper. These SMEs were chosen as they have been in the business for at least ten years, which was indicative of their ability to remain competitive for a sustained period of time ([49] Perricone et al. , 2001). Collectively, they represented a spectrum of industry segments, namely logistics, manpower recruitment, education and professional support services. A brief background of these SMEs is provided in section 4.1.

To understand the nuances of KM processes in line with the three themes, participants were asked to provide insights to unique practices and current operational processes within their organizations. On knowledge creation, participants were asked to describe how knowledge was created to help their organizations generate new products and services ([7] Bender and Fish, 2000; [12] Clarke and Rollo, 2001; [30] Inkpen and Dinur, 1998). On knowledge sharing, participants were asked how knowledge was shared internally and what processes were in place to support knowledge sharing ([33] Lee and Al-Hawamdeh, 2002; [60] Wenger, 1998). On knowledge reuse, participants were asked on their processes in managing (capture and update) organizational knowledge, and the extent to which they reused the knowledge resources within their organization ([14] Collis and Montgomery, 2008; [32] Klaila and Hall, 2000; [52] Riahi-Belkaoui, 2003). Organizational knowledge is defined as the collective body of knowledge in an organization, drawn from employees experiences and internal processes that have been cumulated over time, and that which differentiates the organization from its competitors ([21] Deeds and Decarolis, 1991; [31] King and Zeithaml, 2003; [59] Tsoukas and Vladimirou, 2001).

In addition, participants were also asked to comment on the enablers and impediments of each KM process in supporting their organizations' competitiveness. On knowledge creation, participants were asked for the source of the inspiration and/or direction in generating new knowledge, and to share their views on barriers in creating new knowledge, other than the lack of capital/resources. On knowledge sharing, the participants were consulted on their motivations to share, and "how, when and why" the sharing of knowledge was most effective. Finally on knowledge reuse, participants were asked for their views on the relevance of knowledge reuse, and the factors that fostered and stifled the reuse of knowledge in their organizations. Measures undertaken to minimize knowledge loss were also probed.

The diverse representation of participants enabled data to be obtained from multiple levels and perspectives. With data triangulation, the risk of post-rationalization of actions, decisions undertaken historically, as well as problems related to memory could be reduced ([62] Yin, 1994). The interview data was analyzed using content analytical approach with thematic analysis, allowing data to parse into rich information quotations that was ultimately placed into thematic categories in line with the three knowledge processes in knowledge creation, knowledge sharing and knowledge reuse ([3] Anderson and Felsenfeld, 2003). Given that theory does not always account adequately for the discursively incomplete and somewhat incoherent ways practice is conducted ([17] Czarniawska, 2001), this study has adopted the constructionist approach. Hence, this allows for insights into the subjective aspects and subtleties of the organization to be gleaned ([18] Czarniawska, 2003).

4. Findings

4.1 Background

The SMEs interviewed have a relatively flat structure with three levels of reporting, involving the owner, key managers and employees. The owner and the managers are part of the management of the organization. The proportion of management to executives interviewed is almost comparable. Table II [Figure omitted. See Article Image.] below summarizes the participants for this study. A brief description of each organization, gathered from interviews with staff of each organization and supplemented with organization's collateral and media resources, follows suit.

SMELogistics was incorporated in 2002 and provides logistics fulfillment services that include customized channel management and scheduled delivery for its customers in Singapore. It operates a

warehouse and two service centers in three separate locations. SMELogistics employs 45 staff, 15 of which are independent contractors who possess their own vehicles.

SMERecruit has been engaged in manpower recruitment since 2000. It has grown from a local partnership in Singapore to become a regional organization with operations in Singapore and representative offices in Malaysia, China, Taiwan, India, Bangladesh, Myanmar and the Philippines. In Singapore, SMERecruit has 15 employees. Most of its customers are based in Singapore, with hires imported from the representative offices' countries.

SMESchool has a history dating back to 1997 and is engaged in providing experiential learning through practical educational programs to SAP consultants and IT professionals in Asia. It has staff strength of 40 people in Singapore, and a subsidiary in India with 40 employees. In addition, SMESchool has approved agents in India, Myanmar, Indonesia and Malaysia to distribute its programs across the region. Its classes are held in Singapore, India and Malaysia.

SMEProfessional was established in 2002 specializing in providing customized commercial research and intelligence to advisory professionals in the investment banking, private equity, legal and accounting sectors. It has total staff strength of 12 employees based in Singapore, Malaysia and Hong Kong. While most clients of SMEProfessional are based in Singapore and Malaysia, there are a few from countries such as the UK, the US and Australia.

4.2 Knowledge creation in SMEs

4.2.1 Knowledge creation was centrally undertaken by the owner rather than the employees of the SME

The process of knowledge creation in SMEs was found to lie primarily in the hands of the owner, in particular, the role to create knowledge of strategic importance, which included new business strategies and product development. This role was usually neither shared nor delegated to other employees. For example, the employees of SMESchool regarded the CEO as the "product evangelist and chief architect", while they accepted and reviewed the conceptual ideas for execution and implementation. The employees of SMERecruit referred their managing director as the "brainchild" of the company. The level of innovativeness and creativity of the owner could thus enable or impede knowledge creation within the organization.

Employees in all four SMEs were invariably trained with functional responsibilities sufficient to operate the business, but possessed no depth of knowledge to run the whole business. Their role in knowledge creation was limited or non-existent. As such, the case to hire talented staff was uncompelling. According to the management of the SMEs interviewed, SMEs that were not able to hire top talents had a two-sided view. The Managing Director of SMELogistics opined:

On one end, inaffordability is a hindrance to SMEs as the lack of talented staff will impact organizational performance resulting in slower growth. On the other end, having top talent would imply large volume of queries/work coming in, which SMEs may not be able to deal with.

The head of research for SMEProfessional also added that:

We prefer to have controlled growth rather than exponential growth. There would be difficulty in coping with service recovery. SMEs do not have the budget to recover the cost of mistakes that large organizations can, for example, to compensate for errors.

4.2.2 Innovation was a function of the SME's ability to customize solutions to meet with clients' needs

Innovation to the four SMEs interviewed was a matter of survival rather than to create a novel idea, product or service. These SMEs could not afford to invest in inventions that either lack commercial value or take long gestation periods to realize value. According to the managing director of SMERecruit, as competition in the market was high, SMEs that did not understand the playing field in the industry were likely to fail. The managing director of SMELogistics shared his insight on innovation:

When I say "customized", it means going out of the way to tailor-make a specific solution to serve a need, building a whole team around the customers' contract, which the big boys cannot do.

To survive and succeed, SMEs needed to understand the community they served, be nimble and reponsive to develop innovative solutions to fill the gap. According to the operations manager of SMEProfessional, SMEs would be required to differentiate and innovate beyond price points to survive. The managing director of SMERecruit shared that SMEs innovate through flexibility to work with multiple partners to complement strengths and competencies in order to meet each client's requirements. Though large players had deep pockets, they were not prepared to tweak and stretch their operations as SMEs did, unless the "dollars and cents" made sense. This was because large organizations needed to finance their headcount as well as maintain an expensive infrastructure.

All four SMEs interviewed do maximize the use of free and affordable cloud and mobile applications to continuously improve their processes and exchanging ideas. SMELogistics developed a mobile application to allow customers to track and trace their deliveries, and to monitor the efficiency of staff in supporting customers. SMESchool is capturing videos of classes taught so that other teachers can learn from each other in terms of teaching methods and content. SMERecruit and SMEProfessioal used GoogleDocs to brainstorm new ideas and develop solutions with its representative offices and customers respectively.

4.3 Knowledge sharing in SMEs

4.3.1 Familiarity among SME employees bred trust to promote sharing and knowledge exchange

The interviews from this study confirmed previous research on the presence of high level of trust and socialization among employees of SMEs. Given the smaller number of people in SMEs, employees within each SME tend to be more familiar with each other compared to large organizations. The lack of trust within SMEs would impede the effectiveness of knowledge sharing, given its proximity. According to the Administrator of SMERecruit, familiarity bred trust and thus allowed more knowledge sharing to take place.

There was no "expert directory" or "people yellowpages" required in the four SMEs in view of its close proximity operating from smaller offices compared to large organizations, which could involve several levels within the same building or several countries across geographical boundaries. For SMELogistics, the contact list of "experts" (suppliers) were shared and stored in the mobile phones of each manager or through a cloud storage application such as GoogleDocs. Though each manager's list was not complete, the access to other experts' contacts could be easily obtained from another manager. There was no need for a formal list since the number of suppliers or contacts that SMEs manage were not as large as those belonging to large organizations. Moreover, the close proximity and open work spaces in SMEs allowed easy seamless exchange of information. According to a research executive from SMEProfessional:

We share a small space so every employee gets to see each other almost every day. Conversations, discussions and consultation sometimes take place openly across the floor. Even if discussion does not involve everyone, those not involved can still hear the content of the discussion and thus are aware of the ongoings.

Executives across all SMEs interviewed invariably resonate with the high level of trust and socialization as a result of daily iterations in their open work spaces. Regular weekly division meetings and monthly management discussions undertaken by all four SMEs further enhanced familiarity of functions, responsibility and process flow within the organization. These meetings and interactions created the opportunities for management and employees to raise operational issues and brainstorm collaborative ideas. The education officers of SMESchool shared that they had implemented a "work improvement" team manned by employees, with representation from each department, to help address issues of daily matters including the improvement of service delivery. Management was neither involved in this team nor supervised the knowledge exchange but merely acted as a mentor or facilitator when needed. The formation of this "work improvement" team helped to improve minor operational issues and built a better understanding of functions across departments.

4.3.2 Cross functionality and overlapping roles led to more knowledge sharing

As resources were limited in the SMEs interviewed, their employees were required to undertake more than one functional responsibility, resulting in overlapping roles with other colleagues. This provided them with more opportunities to support and back each other up to complete assignments, discuss work issues, and brainstorm solutions. For example, SMELogistics and SMERecruit, executives were each responsible for client matters, logistics and administration matters. According to a recruitment executive of SMERecruit:

We can easily undertake each other's portfolio of clients and provide support whenever a colleague goes on leave or when the volume of work exceeds one's capacity.

Roles were said to be complementary rather than conflicting. Thus creating a supportive environment and a natural "back-up" should any staff leave. As such, mutual respect and understanding among employees enable a supportive environment for knowledge sharing. In SMEProfessional, all employees were trained "ground-up", which implied that everyone within the organization had to start as a researcher to gain competencies before moving up the promotion rank. As such whenever an employee resigned from the organization, the responsibilities of this resigned employee could be easily undertaken by a senior staff, who had a deeper knowledge of the resigned employee's role, and whom in turn would guide the next junior employee to take over the resigned employee's role.

Overlapping roles within SMESchool provided the opportunity for employees to convert "lunch time talk" into concrete ideas or solutions. SMESchool had broken up its marketing and sales team to form smaller teams to promote cross-functional knowledge. The intention was to form teams comprising both marketing and sales, exposing marketing staff to gain 20-30 percent of sales knowledge and vice versa. The results were positive with the organization able to better align sales and marketing together to generate more initiatives and teamwork.

4.4 Knowledge reuse in SMEs

4.4.1 Reuse of knowledge often made tacitly

Tapping on the tacit knowledge of fellow employees was common among the four SMEs as the knowledge exchange was immediate and saved time. In SMERecruit and SMESchool, roles and processes were reviewed regularly from weekly meetings and solved quickly in face-to-face consultation with fellow colleagues anytime. There was no need for a dedicated person to handle the management, collation and update of the organization's codified knowledge. This role was often decentralized to each department. According to the operations manager of SMEProfessional:

The close proximity of employees does not require them to know everything [...] we just need to open our mouth to ask each other if they know where to find what or who knows any particular industry contact.

The bulk of the organizational knowledge in SMEs were often held by the owner, who was responsible for driving the knowledge development and growth, as well as setting the flow and the KM processes in running the business. The SMEs were thus dependent on the openness and willingness of owner to share his knowledge to facilitate knowledge reuse. As SMEs had limited resources, particularly manpower, they did not have dedicated teams responsible for constructing large databases for reuse. Activities in SMEs tend to be fluid as a result of changes in the market. According to managing director of SMELogistics:

Documenting such knowledge would take much time, and information is fluid and subject to change quite frequently due to client demands. Thus documenting them would be a waste of time.

However, all four SMEs interviewed were tapping on freewares and cloud technology, such as Dropbox and Google Docs, to store work documents, management reports, past projects, multimedia and collaterals. These technologies, which were affordable and easily accessible, were used for easy retrieval of work documents and support collaboration with regional teams/agents to get work done.

4.4.2 Reuse of knowledge centered around the owner

In all the SMEs interviewed for the study, the owner controlled the organizational knowledge and only shared knowledge that was necessary for the employee to undertake his or her role, keeping most of the strategic organizational knowledge to himself. This knowledge shared by the owner to each staff could be easily duplicated through tacit knowledge sharing, thus allowing new employees to quickly pick up the necessary skills to do his or her work. New joiners to the SMEs were introduced to the organization's operations and his/her role specific to the organization's business flow. Interviews across all SMEs revealed that there was no issue on knowledge loss when employees resigned as the loss was limited.

Operating in a competitive industry segment, all SMEs interviewed unilaterally agree that SMEs were not able to operate and serve a "cookie-cutter" solution and would be required to differentiate themselves to survive. At the same time, all SMEs interviewed are dependent on their owners for directions and knowledge. According to the operations manager of SMEProfessional, the resale of reports from their past projects was limited but the industry knowledge and contacts that their researchers, and particularly the owner, had were reused almost every day to carve out new solutions for their customers. Executives from SMERecruit and SMELogistics concurred that they are reliant on their owners for guidance, particularly in addressing difficult issues.

5. Discussions

5.1 Overdependence on the owner to drive KM processes

The weight of KM processes within the SME seems to rest largely on the owner rather than the employees as suggested by some scholars ([22] Desouza and Awazu, 2006; [61] Wong and Aspinwall, 2004; [63] Zhang and Sundaresan, 2010). The creation of key business knowledge, maintenance of relational capital as well as development of strategies are often held at the helm by the owner ([35] Man et al. , 2002). As such, to a large extent, the success or failure of the SME is function of the knowledge, leadership and innovativeness of the owner ([1] Achanga et al. , 2006; [43] O'Regan et al. , 2006).

Previous study identified common knowledge prevalent in SMEs, providing employees with the basic knowledge of operations within the organization ([22] Desouza and Awazu, 2006). The existence of common knowledge in SMEs means that there is no loss in knowledge whenever a staff leaves the organization. However, findings from this study showed that "common knowledge" was not common among all employees in SMEs but arose from the overlapping responsibilities of employees. Thus only organizations with multiple employees having the same role, for example education officers in SMESchool, would share the same common knowledge. Still, knowledge of strategic importance was held mainly by the owner. Hence, even if an employee leaves the SME, the knowledge required for the new employee to take over could be easily acquired.

This study has shown that the SME owner is responsible for charting the strategic directions of the organization. At the same time, the owner and employees engage in a collaborative environment. An advantage of this work environment framework is that every individual, management or executives, in the SME move in one concerted direction to achieve a goal. On the other hand, employees do not have the opportunity to engage in second-order thinking nor question the assumptions made by the owner.

Such a strong reliance on the owner to drive KM processes has ramifications on leadership succession in SMEs. Past studies have shown that the demise of the owner would highly likely lead to a closure of the business ([10] Chao et al. , 2007). Likewise, any acquisition of the SME with the owner exiting would imply a significant loss of knowledge for the acquiring organization.

5.2 KM processes facilitated by shared open workspaces and close proximity

Past research identified SME's flat structure, open culture and environments of high levels of trust and sociability as factors which encourage knowledge sharing ([28] Hamdam and Damirchi, 2011; [50] Politis, 2003; [58] Tsai and Ghoshal, 1998). In addition to these organizational and cultural dimensions, this study found that physical, open workspaces SMEs compel employees to be cognizant of each other's role and responsibilities, and thus support relationship development. This in turn encourage knowledge creation, sharing and reuse. As such, SMEs do not usually see the need to have formalized

processes to support KM, in contrast to previous studies that argue for the need to have formal KM structures and policies ([55] So, 2010; [19] Davenport et al. , 1998).

The close proximity among employees in SMEs allow employees to easily resolve work issues by consulting colleagues "across the floor" for suggested solutions, and thus facilitates KM processes in exchanging and creating ideas, communicating and sharing information, and reusing knowledge of daily business operations. This is in line with previous studies where smaller working environment offers more opportunities for employees to be directly involved in the operational activities of the business ([28] Hamdam and Damirchi, 2011), raising the level of socialization, which inadvertently increases employees' knowledge through interactions and sharing within the working environment ([13] Cohen and Kaimenakis, 2007). The close proximity of employees in SMEs also allows employees to leverage on the relational capital and knowledge from fellow colleagues and business partners to identify opportunities and increase performance ([61] Wong and Aspinwall, 2004).

5.3 Prevalent use of technology to support KM processes

Extant literature reports that SMEs lack the financial strength to invest in technology ([15] Corso et al. , 2003; [22] Desouza and Awazu, 2006; [38] Montequin et al. , 2006). However, findings from this study showed that SMEs had access to a wide repertoire of technology solutions as a result of the proliferation of cloud technology. This inadvertently lowers the cost of acquisition, thus making business applications more affordable to SMEs.

There is no doubt that technology will continue to be an enabler for KM processes ([63] Zhang and Sundaresan, 2010). The prevalent use of technology among SMEs provide tools that encourage the adoption and execution of KM processes, which in turn, levels the competitive playing field for SMEs in the market ([48] Passerini et al. , 2012). Even so, the knowledge embedded within the organization's KM processes rather than the sophistication of technology adopted per se , helps ensure the organization overall performance and profitability ([36] Markus, 2001; [57] Szulanski, 2003).

5.4 Innovation supported by KM processes

While innovation is often recognized to be important to organizational growth and performance ([4] Baregheh et al. , 2009; [24] Drucker, 1998), this study showed that the quest to innovate amongst SMEs are fraught with challenges. Apart from financial and resources constraints, challenges to innovation include the efficacy of KM processes which are largely orchestrated by the owner. The onus is thereafter on the owner to ensure that KM processes are geared towards innovation.

This study highlighted that SMEs could not afford to invest in novel ideas, products or services that have long gestation periods to realize value. Hence, they need to be innovative to survive. For example, in knowledge creation, SMEs created and customized their solutions to meet with clients' needs. In knowledge sharing, the close proximity and open spaces encouraged the exchange of organizational knowledge, which bred familiarity of process flows, thus raising the level of efficiency within the organization. As for knowledge reuse, one example was the reuse of previous contacts and content within its organizational knowledge by employees to create new solutions for clients. These are examples of how KM processes supported innovation. In SMEs, the implication of owners controlling most knowledge and business decisions, and relegating less important tasks to employees, is that the owner drives innovation that yields strategic outcomes while employees assist with incremental improvement of business operations.

Literature on innovation and performance shows that the relationship between innovation and performance is dependent on contextual factors such as the age and culture of the organization as well as the type of innovation ([54] Rosenbusch et al. , 2011). In the context of SMEs, this study highlighted additional factors, namely, the importance of leadership and the level of knowledge and creativity of the owner, who holds the bulk of the organizational knowledge.

6. Conclusion

This paper seeks to examine the peculiarities of KM processes from three perspectives, namely, knowledge creation, knowledge transfer and knowledge reuse in SMEs. In addition, it seeks to identify the enablers and impediments to these KM processes that influence the competitiveness of SMEs. On

the basis of the data collected, the SME owner was found to be the key source and creator of knowledge and the sole driver of the KM processes, not the employees. Knowledge creation takes the form of innovative customized solutions to meet the changing needs of customers. From the knowledge sharing perspective, SMEs enjoy a high level of trust that promoted knowledge exchange. Knowledge sharing is further enhanced by cross functionality, overlapping roles, and facilitated by close physical proximity in open workspaces. Finally, knowledge reuse is prevalently embedded within the KM processes of SMEs. While resources is limited in SMEs to build large databases, the lower cost of ownership and advancement in technology provided SMEs to embrace KM processes more effectively.

The findings of this study showed that the enablers and impediments of KM processes are diametrically opposed notions. The enablers of knowledge creation process rested largely on the owner's innovativeness, creativity and ability to acquire knowledge of the industry. Knowledge sharing processes is enabled by the awareness of roles, mutual respect and the level of trust among employees within the SME while knowledge reuse is fostered by close proximity of employees and the willingness and openness of the owner to impart his knowledge. The lack of the above enablement factors mentioned will hinder these KM processes. SMEs do not usually see the need to have formalized processes to support KM. The study also identified technology an enabler of KM processes, however, the knowledge embedded within the organization's KM processes played a more important role for the organization overall performance.

This study is limited by the fact that data was collected from four SMEs in Singapore. Furthermore, only a sample of staff from these SMEs was interviewed. Hence, the findings need to be interpreted in light of such a scope.

This paper offers insights into the distinctiveness of KM processes in SMEs. For SMEs, it provides perspectives on the factors influencing KM processes, in particular, the importance of the owners's knowledge and leadership, the flexibility and adaptability of the organization, and open culture to enable the capitalization of its knowledge assets to survive and stay competitive. For practitioners, this paper reinforces the importance of the owners' innovativeness, initiatives and support, and the level of social interaction and trusts among employees in the SMEs to enable effective KM processes in SMEs.

Further research on the key factors influencing the competitiveness of SMEs in regards to KM processes for SME could be considered ([35] Man et al. , 2002). Moreover, research can be undertaken to examine the impact of government intervention in terms of subsidies and financial support on SMEs ([39] Ngah and Ibrahim, 2009). Such a line of inquiry is likely to be of growing interest given that the role of SME to the economy is gaining recognition.

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