7-15-2012

# Developing A Theoretical Framework For Knowledge Management Strategic Orientation Among Smes

Naief Azyabi
*Monash University*, naief.azyabi@monash.edu

Julie Fisher
*Monash University*, Julie.Fisher@monash.edu

Kerry Tanner
*Monash University*, Kerry.Tanner@monash.edu

Shijia Gao
*Monash University*, Caddie.Gao@monash.edu

# DEVELOPING A THEORETICAL FRAMEWORK FOR KNOWLEDGE MANAGEMENT STRATEGIC ORIENTATION AMONG SMEs

Naief Azyabi, Monash University, naief.azyabi@monash.edu

Julie Fisher, Monash University, Julie.Fisher@monash.edu

Kerry Tanner, Monash University, Kerry.Tanner@monash.edu

Shijia Gao, Monash University, Caddie.Gao@monash.edu

## Abstract

*Small and medium-sized enterprises (SMEs) make a significant contribution to national economies. They have distinct characteristics and challenges which need to be addressed differently compared to large organisations. These characteristics may lead SMEs to different practices in many areas of business. Knowledge management (KM) is one of these areas in which SMEs' practices could be different to large organisations. The aim of this paper is to present a developed framework which identifies SMEs' KM strategic orientations. Based on a wide range of literature, four main dimensions: knowledge source (external, internal), knowledge type (codification, personalisation), knowledge focus (exploration, exploitation) and knowledge breadth (narrow, broad), are identified as bases on which KM strategic orientation can be investigated. Three main strategic orientations: aggressive, conservative and balanced have also been identified based on these dimensions. These three orientations have been found related and linked to Miles and Snow's (1978) typology which classifies organisations into three strategies: prospectors, defenders and analysers.*

*Keywords: KM strategy, KM strategic orientation, business strategy, SMEs*

# 1       INTRODUCTION

Worldwide, small and medium-sized enterprises (SMEs) play a significant role in strengthening national economies. They contribute enormously through offering new jobs, increasing technological improvements and competitiveness, and providing more options of services and products (SMDC, 2012). SMEs generally have different characteristics in comparison to large organisations in many dimensions. Blili and Raymond (1993) reported that SMEs have specific characteristics towards their environment, organisational structure, decision making and information systems. According to Beaver and Prince (2004), "the management theories and enterprises research that have been developed and applied to the corporate sector are difficult to replicate in the small business context" (p.35). Schubert et al. (2007) stated that the SME sector is different and "cannot simply be regarded as a scaled-down large business" (p.1228). These specific characteristics of SMEs may lead to different strategic practices towards organisational knowledge resources. Research relating to knowledge management (KM) strategic practices in SMEs is quite limited. Developing a theoretical framework may help in better understanding the motivations and drivers behind SMEs' decisions on KM resources. A framework helps to study certain phenomena through answering research questions and identifying the dimensions and the relationships between them, which provide better understanding of the phenomena (Herek, 2011). However, it is understandable that developing a conceptual framework is one of the biggest challenges that confront the researchers. There is, however, a need for more research around KM strategic practices among SMEs from both theoretical and practical perspectives.

This paper seeks to identify the key KM strategic dimensions presented in the KM and KM strategy literature and to develop a preliminary framework for elucidating the relationship between KM strategy and business strategy.

The research described here is part of larger study exploring KM strategic dimensions and how they are influenced by business strategy and contextual factors within SMEs. The literature reported here is drawn from both large organisations and SMEs.

# 2       KM STRATEGY

By reviewing the literature on KM and KM strategy, four dimensions of KM strategy were determined as the most commonly used. These dimensions are: 1) knowledge source (internal and external); 2) knowledge type (explicit and tacit); 3) knowledge focus (exploitation and exploration); and 4) knowledge breadth (broad and narrow). Table 1 below presents our analysis of various studies regarding KM strategies. The analysis is based on identifying the underlying dimensions upon which KM strategy classifications have been based. For example, Zack (1999a) differentiated KM strategies (aggressive vs. conservative strategies) based on an organisation's attitudes towards knowledge sources (internal and external) and knowledge focus (exploration and exploitation); whilst Hansen et al. (1999) proposed KM strategies (codification and personalisation) based on an organisation's relative emphasis on knowledge type (explicit and tacit).

The table presents various selected research on KM strategies and the dimensions that were used by the researchers. Our analysis is based on the concept-centric approach of literature review as suggested by Webster and Watson (2002). Each of the KM strategic dimensions is defined and discussed below.

| Author | KM Strategy Classification | KM dimensions | | | |
|---|---|---|---|---|---|
| | | K. Source | K. Type | K. Focus | K. Breadth |
| March (1991) | Exploration, Exploitation | | | ✓ | |
| Nonaka and Takeuchi (1995) | (Externalization, Internalization, Combination, Socialization) | | ✓ | | |
| Hansen et al.(1999) | Codification, Personalisation | | ✓ | | |

| Author | KM Strategy Classification | KM dimensions | | | |
|---|---|---|---|---|---|
| | | K. Source | K. Type | K. Focus | K. Breadth |
| Bierly and Chakrabarti (1996) | Explorer, Exploiter, Innovator, Loner | ✓ | | ✓ | ✓ |
| Zack (1999a) | Conservative, Aggressive | ✓ | | ✓ | |
| Swan et al. (2000) | Cognitive, Community | | ✓ | ✓ | |
| Von Krogh et al. (2001) | Leveraging, Expanding, Appropriating, Probing | ✓ | | ✓ | |
| Bloodgood and Salisbury (2001) | Creation, Transfer, Protection | ✓ | ✓ | ✓ | |
| Schulz and Jobe (2001) | Codification, Tacitness | | ✓ | | ✓ |
| Alavi and Leidner (2001) | Knowledge creation, retrieval, transfer, and application | | ✓ | ✓ | |
| Choi and Lee (2002) | Human-oriented, System-oriented | | ✓ | ✓ | |
| Scheepers et al. (2004) | Codification, Personalisation | | ✓ | | |
| McMahon et al. (2004) | Codification, Personalisation | | ✓ | | |
| Mentzas (2004) | Product-oriented, Process-oriented | | ✓ | | |
| Keskin (2005) | Tacit-oriented, Explicit-oriented | | ✓ | | |
| Merono-Cerdan et al.(2007) | Human-oriented, System-oriented | | ✓ | | |
| Greiner et al. (2007) | Codification, Personalisation | | ✓ | | |
| Bierly and Daly (2007) | Exploration, Exploitation | | | ✓ | |
| Choi et al. (2008) | Tacit-oriented, Explicit-oriented, Internal oriented, External oriented | ✓ | ✓ | | |

*Table 1: Various KM Strategies Studies and their Dimensions*

## 2.1    Knowledge Sources Dimension

The knowledge source dimension refers to where organisations obtain their knowledge—from internal or external sources or both (Zack, 1999b). Internal knowledge is knowledge that was initially created and distributed inside an organisation's boundaries; internal knowledge might include an organisation's research and development (Uhlaner, van Stel, Meijaard, & Folkeringa, 2007), knowledge contained in people's minds, or knowledge of an organisation's behaviours, procedures, software or databases (Zack, 1999b). On the other hand, external knowledge is knowledge that is imported from outside sources. This knowledge can be acquired in several ways: through imitation or acquisition , through hiring new employees or conducting customer surveys (Holsapple & Joshi, 2004), strategic alliances, and attending presentations or seminars (Beijerse, 2000). External knowledge might also be obtained from government agencies, universities, consultants, publications, software and hardware vendors and other organisations (Zack, 1999b). Researchers (Bloodgood & Salisbury, 2001; Choi et al., 2008; Jordan & Jones, 1997; March, 1991; Pai, 2005; Von Krogh et al., 2001) have used knowledge sources as a dimension upon which an organisation's KM strategy can be determined.

According to Menon and Pfeffer (2003), internal and external knowledge are different in terms of the difficulty in obtaining access. Internal knowledge is accessible, cheap, and can be easily communicated. Meanwhile, many legal and technological barriers hinder obtaining external knowledge—especially from competitors. Internal knowledge is unique, fits with an organisation's context and is difficult to imitate. However, external knowledge is often costly, exposed to competitors and may not suit an organisation's context—but may be necessary for the creation of new ideas (Zack, 1999b). Internal knowledge is considered very usable, and its flaws appear more visible than external knowledge because it can be examined closely. On the other hand, external knowledge cannot be deeply examined unless it has been brought in and applied (Menon & Pfeffer, 2003).

The source from which an organisation obtains its knowledge could affect its learning speed, i.e., learning external knowledge is usually slower than learning internal knowledge. This is because

external knowledge is difficult to interpret quickly and appropriately and the "not invented here" syndrome could occur (Bierly and Chakrabarti, 1996). Fast learning could extend the gap between an organisation and its competitors; however, slow learning has many advantages, such as enabling an organisation to evaluate knowledge in the market and to effectively integrate knowledge within the organisational context and environment.

## 2.2    Knowledge Type Dimension

The most widely cited classification for knowledge is the "tacit-explicit" classification (Alavi & Leidner, 2001; Nonaka, 1994). There are different knowledge classifications, such as declarative knowledge (know-about), causal knowledge (know-why), conditional knowledge (know-when), procedural knowledge (know-how), and relational knowledge (know-with). However, all of these types of knowledge can be either tacit or explicit.

The tacit-explicit classification is the highest level of knowledge classification and has been discussed as a KM strategic dimension by Hansen et al. (1999). They proposed two strategies for KM: codification (people-to-document approach) and personalisation (people-to-people approach). These two approaches/strategies have been investigated by Choi and Lee (2002) under similar terms: system-oriented strategy and human-oriented strategy. With system-oriented strategy (or codification strategy), the focus is on codifying knowledge through heavy use of IT, and knowledge sharing occurs in a formal manner. With human-oriented strategy (or personalisation strategy), the focus is on dialogue through person-to-person contacts and social networks where knowledge sharing occurs informally.

These two strategies (codification/personalisation) are related to the knowledge type being used by an organisation. In other words, different characteristics of tacit and explicit knowledge lead to different KM strategies based on the type of knowledge being used by an organisation. Explicit knowledge is characterised by the fact that it is easily captured, created, stored, transferred and followed. In contrast, tacit knowledge is embodied in organisational processes or routines, created from experiences and practices and transferred through a learning-by-doing process (Choi & Lee, 2003; Keskin, 2005). Explicit-oriented organisations rely heavily on IT/IS to store, share and retrieve knowledge in formal ways, while tacit-oriented organisations emphasise interpersonal communication and dialogue in a more informal manner .

Schulz and Jobe (2001) argue that an explicit-orientation or codification strategy is helpful in facilitating knowledge flow between organisational units or departments, which facilitates work coordination and transmits know-how from one unit to another. On the other hand, a tacit-orientation or personalisation strategy includes developing knowledge that is difficult to imitate, which hinders the movement of knowledge outside the organisation and could lead to a competitive advantage.

## 2.3    Knowledge Focus Dimension

This dimension is concerned with an organisation's orientation towards exploration of new knowledge and exploitation of existing organisational knowledge. An exploration strategy is when the focus of an organisation is on creating new knowledge to establish a competitive position, while an exploitation strategy aims at re-using current knowledge resources in order to enhance the organisation's competitiveness and efficiency (Zack, 1999b).

Both exploitation and exploration have some advantages and disadvantages. Focusing only on exploration is both costly and risky, while choosing only exploitation could result in organisations falling behind their competitors (March, 1991). Exploration strategies, according to Zack (1999b), are often implemented by organisations with low levels of knowledge compared to their competitors. In contrast, exploitation strategies are implemented by organisations in which their level of knowledge is higher than that of their competitors. An exploration strategy can enhance organisational innovation, but can also be associated with uncertainty and can challenge an organisation's core competency. In order for companies to operate and compete effectively, they should be aware of existing knowledge that can be exploited and the knowledge that should be explored. An organisation's ability to

amalgamate existing and new knowledge is a key success factor in a competitive, knowledge-based environment (Valkokari & Helander, 2007).

These two aspects in organisational learning are presented under radical and incremental learning. Radical (or explorative) learning refers to processes that change and question the basic assumptions of an organisation. Incremental (or exploitive) learning means to gradually expand the current knowledge . March (1991) states that there is a trade-off between radical and incremental learning; while incremental learning can work effectively and profitably in the short term, radical learning is necessary for long-term benefits. These two concepts are also known as single-loop (incremental) and double-loop (radical) learning (Argyris, 1977). Some organisations may focus on incremental development while others provide innovative and radical solutions for problems (Jordan & Jones, 1997).

### 2.4 Knowledge Breadth Dimension

The knowledge breadth dimension concerns the extent to which organisational knowledge is specialised or generalised. Specialised knowledge could lead organisations to develop their core competencies. Meanwhile, generalised knowledge may lead organisations to combine related knowledge with other organisational resources and technologies . The organisations with broad knowledge have team members who are knowledgeable in one particular area and have broad knowledge about all product areas; however, organisations with deep knowledge means that each team member is very knowledgeable about one specific area but may have limited knowledge in other areas. According to Turner et al. (2002), in a highly competitive environment, the organisations with a broad knowledge strategy could perform better than organisations with a specialised knowledge strategy. Focusing on narrow knowledge could hinder absorption and recognition of new knowledge, and focusing on broad knowledge could lead organisations to be unable to understand and combine this knowledge effectively.

## 3 THE PROPOSED KNOWLEDGE MANAGEMENT STRATEGIC ORIENTATIONS

As depicted in Table 1, four dimensions have been used as a basis to classify KM strategies: knowledge source orientation, knowledge type orientation, knowledge focus orientation and knowledge breadth orientation. The orientation towards these (or some of these) dimensions determines an organisation's KM strategy.

This research uses Zack's (1999a) model for KM strategies, one of the leading studies in this field, as a starting point. Zack's model classifies KM strategies into aggressive and conservative strategies based on an organisation's orientation towards knowledge sources and knowledge focus. Those organisations which focus mainly on exploiting their internal knowledge are following the most conservative strategy, while organisations which are maintaining a balanced position between exploration and exploitation regardless of the knowledge sources are representing the most aggressive strategy.

It is argued that this classification can be elaborated on by considering the following issues: (a) Zack's model considers only two extreme strategies (conservative and aggressive) and overlooks a third possible strategy, which could be characterized by focusing mainly on organisations exploring external knowledge with less emphasis on exploiting internal knowledge; and (b) This model does not include two significant KM strategic dimensions (as discussed above) which are: knowledge type and knowledge breadth. We believe that incorporating these two dimensions into this model creates a more comprehensive picture and yields a closer and more accurate identification regarding an organisation's KM strategic orientation. After incorporating the four KM strategic dimensions into one model, the new model renames and classifies the KM strategies into three strategies: conservative strategy, aggressive strategy and balanced strategy. The detailed characteristics of these strategies are presented in Figure 1 and Table 2.
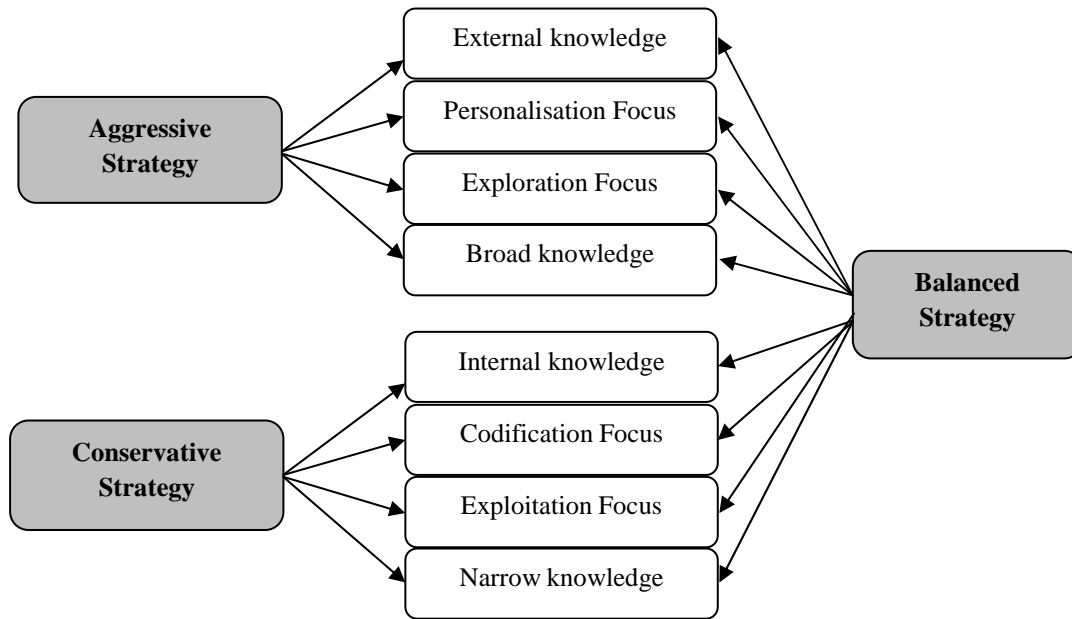
*Figure 1: the Proposed KM strategic orientations*

| KM Strategy | Dimension | Characteristics | Source |
|---|---|---|---|
| Conservative Strategy | Internal | • Knowledge is created and distributed inside an organisation<br>• Knowledge is in people's minds, organisational behaviour and procedures, software and databases<br>• Organisation has well-developed policy and procedure manuals | (Bierly & Chakrabarti, 1996; Uhlaner et al., 2007; Zack, 1999b) |
| | Codification | • Focus on codifying and storing knowledge via IT<br>• Attempts made to formally share knowledge<br>• Development of electronic documents systems | (Hansen et al., 1999; Choi & Lee, 2003; Keskin, 2005) |
| | Exploitation | • Organisation adapts incremental improvement to existing product/service<br>• Organisation learns through trial and error<br>• Organisation tends to have routines in its process<br>• Organisation concerned with improving its process through re-engineering and refinement. | (Zack, 1999b; March, 1991; Bierly & Chakrabarti; 1996; Jordan & Jones, 1997) |
| | Narrow | • Organisation has strong core competency<br>• Organisational knowledge is very deep and specialized<br>• Encourage specialisation in specific business areas<br>• Offer high-value special / brand names products | (Bierly & Chakrabarti; 1996) |

| KM Strategy | Dimension | Characteristics | Source |
|---|---|---|---|
| Aggressive Strategy | External | • Organisational knowledge is from customers, competitors, consultants, alliance, Internet and research institutions<br>• Key staff brought from outside the organisation<br>• Attend conferences and seminars | (Beijerse, 2000; Bierly & Chakrabarti; 1996; Holsapple & Joshi, 2004; Zack, 1999b) |
| | Personalisation | • Develop networks to link people together<br>• Train people through one-on-one mentoring<br>• Emphasise dialogue through social networks and person-to-person contact<br>• Attempts made to share knowledge informally | (Hansen et al., 1999; Choi & Lee, 2003; Keskin, 2005) |
| | Exploration | • Organisation creates new ideas and leaders in the market<br>• Organisation looks for highly innovative solutions<br>• Organisation questions its basic assumptions and values<br>• Error detection and correction involve questioning and changing the current policies strategies, procedures and goals | (Zack, 1999b; March, 1991; Bierly & Chakrabarti; 1996; Jordan & Jones, 1997) |
| | Broad | • Organisation is capable of integrating external knowledge<br>• Employees' knowledge is broad and can be applied in different contexts<br>• Encourage acquisition of multiple skills<br>• Orientate training towards performing multiple tasks | (Bierly & Chakrabarti; 1996) |
| Balanced | | Maintain a balance between these four dimensions | |

*Table 1: KM Strategic Orientation Classification: Dimensions and Characteristics*

### 3.1.1    SMEs and KM Strategic Orientations

Most of the literature on KM is focused on large organisations; however, some work has been done on KM in SMEs. For example, Merono-Cerdan et al. (2007) state that many SME managers lack guidelines or ways to manage their knowledge resources, and this deficit is caused by three issues: 1) there is more of a focus on the technologies of KM as a central factor than on the strategy;  2) the most investigated subjects are large companies and only a small percentage of research has been done on SMEs; and 3) there are a lack of empirical studies on KM in SMEs comparing to the theoretical works.

It is recognised that SMEs may have no formal and explicit KM strategy (Beijerse, 2000), however, SMEs practise KM but do not recognise it as such (Skyrme, 2002). KM strategic orientation can be defined and investigated in this study as the overall practised approach and actions taken by SMEs towards KM strategic orientation dimensions. This definition is consistent with Mintzberg (1987) definition of strategy as pattern (i.e., strategy is "a pattern in a stream of actions" p. 12).

Wong and Aspinwall (2005) and Wong (2005) have studied the critical success factors for KM in the context of how it has been adopted in the UK,  and they found in the investigated SMEs that senior management support and commitment are among the crucial factors for any KM initiative. Similarly, Beijerse (2000) investigated the influences of an organisation's KM strategy, structure and culture on KM in SMEs. The findings showed that the absence of any explicit strategy for KM results in a lack of facilitating structure and motivating culture. Although he argued that SMEs practise KM, intended strategy, structure and culture are not developed for these practices.

The relationships between KM, innovation and performance in SMEs have also been examined by Uhlaner et al. (2007). Based on their findings, KM acquisition strategies were the most significant factors influencing SMEs' performance and innovation. Furthermore, they found using and exchanging their knowledge with external entities was associated with higher growth and turnover. Interestingly, they also found that codification of knowledge; firm-provided training and quality certification have no impact on organisation performance.

In another study by Bozbura (2007), SME managers were found to be reluctant to share knowledge. Bozbura justified this finding by noting the fear of managers about losing control over their knowledge. According to Uhlaner et al. (2007), previous research reveals that SMEs usually acquire knowledge from external sources, such as suppliers, competitors, colleagues and customers more than internal sources, which are used to a limited extent.

SMEs, more than large organisations, have a higher need and desire to exploit external knowledge (Desouza & Awazu, 2006; Robinson, 1982). Desouza and Awazu (2006) investigated the knowledge creation process among SMEs based on Nonaka and Takeuchi's knowledge creation model (i.e., socialization, internalization, externalization and combination) and found that socialization was the dominant activity among the studied SMEs. Knowledge moves in both formal and informal ways, but due to the small size of firms and the closeness of employees to their colleagues and managers, using a person-to-person approach is the dominant method. It has been found that employees of SMEs have a similar, common knowledge about their organisation's situation and objectives. Therefore, knowledge can be easily distributed. Based on that, a codification (explicit-oriented) strategy may be less significant to SMEs compared to a personalization (tacit-oriented) strategy (Desouza & Awazu, 2006).

The high focus on day-to-day operations could lead to the dominance of single loop/incremental learning (Falconer, 2006). This is the case where many SMEs focus on improving their activities' effectiveness and efficiency and on responding to their day-to-day operations (Levy & Powell, 2000). Decisions about the breadth of an organisation's knowledge are based on the availability of an organisation's resources. Organisations with limited resources should focus on a specific area of knowledge (usually core competencies) to become leaders and compete based on that knowledge . This could be the case for most SMEs that suffer from limited financial and/or human resources. Desouza and Awazu (2006) found that SMEs typically have deep knowledge, and employees tend to have a similar common knowledge about their organisation's situations and issues.

It can be concluded from the above review on the literature on KM in the SME sector that limited previous research has been done to examine the SMEs' practices towards the KM strategic dimensions. It is rare among SMEs to have explicit KM strategy; thus this framework attempts to capture the practices of SMEs towards KM strategic dimensions to identify their strategic orientations.

# 4    BUSINESS STRATEGIC ORIENTATION

It can be seen from this brief discussion about KM in SMEs that there are some dominant dimensions, such as external knowledge, personalisation, exploitation and narrow knowledge orientation. There are other factors that may influence the KM strategic orientation (KMSO) of SMEs. Among these factors, business strategy is the main driver for most organisations' actions and decisions. It is well-recognised in literature that different business strategies lead to different KM strategies and practices. Zack (1999a) states "the most important context for guiding KM strategy is the firm's strategy" (p125). An organisation's strategic context helps to identify KM initiatives that support its purpose or mission, strengthen its competitive position and create shareholder value. Furthermore, business strategy should drive the KM strategy and initiatives in order to achieve an organisation's objectives and enhance organisational performance (Tiwana, 2002).

There are many business strategy typology (Ansoff, 1965; Porter, 1980), however, in SMEs context, it is argued that Miles and Snow's (1978) typology could be the most appropriate typology to investigate the business strategic orientation (BSO). This is because most SMEs lack formal and explicit

strategies; hence, it is needed to examine the activities, practices and actions on which their strategic orientation can be decided. Moreover, Miles and Snow's typology covers many external and internal dimensions and factors that may offer a comprehensive view into an organisation. This typology classifies strategic orientation into the following four groups: prospectors, defenders, analysers and reactors. However, reactors "lacks a consistent strategy-structure relationship" (Miles and Snow, 1978, p. 29) and do not follow a certain strategy (Zahra and Pearce, 1990). Due to the absence of clear definition and characteristics and lack of strategic profile of reactors (Miles & Snow, 1978; Slater & Narver, 1993; Zahra & Pearce, 1990) , and following the same approach of many researchers (Croteau & Bergeron, 2001; Denford & Chan, 2007; Massa & Testa, 2009; Sabherwal & Chan, 2001; Sabherwal, Hirschheim, & Goles, 2001; Sabherwal & Sabherwal, 2007), reactors will be excluded from this study. The other three strategies are discussed below.

## 4.1 Miles and Snow's Typology and KM Strategies

Based on various literature, this section will identify the KM strategic orientations of each of Miles and Snow's strategy types.

### 4.1.1 Prospector

Prospector organisations, according to Miles and Snow's (1978) typology, have a continuous search for new ideas, products or markets. Thus, they rely more on external sources of knowledge and less on internal sources; they focus mainly on tacit knowledge (personalisation) more than explicit knowledge (codification); they benefit highly from exploring new knowledge and have less focus on exploitation. Due to their frequent changes, their existing knowledge may not suit the new contexts or circumstances and that lead them to explore new knowledge (Sabherwal & Sabherwal, 2007). They have a strong orientation towards R&D to fulfil customer needs through monitoring market development and inter-functional collaboration and participation in alliances (Langerak, Nijssen, Frambach, & Gupta, 1999).

Prospectors' key people (usually executives) come from outside organisations more than from inside the organisation. People's experience and ideas are considered more than technologies. Moreover, they are the creators of change and are uncertain about which of their competitors must respond (exploration); they monitor a wide range of environmental conditions, trends, factors and events, and their planning is broad (broad knowledge) (Miles and Snow, 1978). AlAmmary and Fung (2008) investigated, empirically, the alignment between prospectors and aggressive KM strategy and found this alignment is positively related to the organisation's performance. However, the profile of aggressive KM strategy in our research is slightly different from that of (AlAmmary & Fung, 2008).

### 4.1.2 Defender

In contrast, defender organisations usually intend to maintain their efficiency, so they prefer to emphasise knowledge exploitation or application more than knowledge creation or exploration (Doty, Glick, & Huber, 1993). Knowledge exploitation appears in routines and often relies on existing solutions to solve problems rather than discovering new solutions (Sabherwal & Sabherwal, 2007). Moreover, defenders use internal sources of knowledge more than external sources (Zack, 1999a); they focus mainly on explicit knowledge more than tacit knowledge; they benefit highly from exploitation of current knowledge more than creating new knowledge (Sabherwal & Sabherwal, 2007). Defenders have a single core technology, top managers who are highly experienced in their limited area of operation, intensive planning (narrow knowledge), and their growth occurs cautiously and incrementally. AlAmmary and Fung (2008) have proposed theoretically the relationship between defenders and conservative KM strategy, however, the alignment between them has been found to have no impact on organisation's performance in the banking sector.

*4.1.3    Analysers*

Analysers usually maintain a balanced position between prospectors and defenders. They rely highly on internal and external sources of knowledge, benefit from both exploitation and exploration, and focus on both tacit and explicit knowledge (Sabherwal & Sabherwal, 2007). Analysers monitor their environment closely to discover new ideas and fulfil their customers' needs (Langerak et al., 1999). Their planning is both intensive and comprehensive, and their growth is primarily based on new markets and products, and occurs cautiously and incrementally. Analysers have been adopting both aggressive and conservative KM strategies to perform better as investigated empirically by AlAmmary and Fung (2008).

To the best of our knowledge, there is no previous research that has investigated the relationships between business strategy and KM strategy in the SME context. This framework (theoretically based on literature of both large organisations and SMEs) aims to articulate this relationship as depicted in Figure 2 below. It shows the relationships between business strategic orientations of Miles and Snow (1978) and the proposed KM strategic orientations. These profiles of business strategic orientations are not mutually exclusive, i.e., prospectors may have internal knowledge, codification, exploitation and narrow knowledge focus, but with lower levels compared to their focus on the opposite dimensions as well as the defenders.
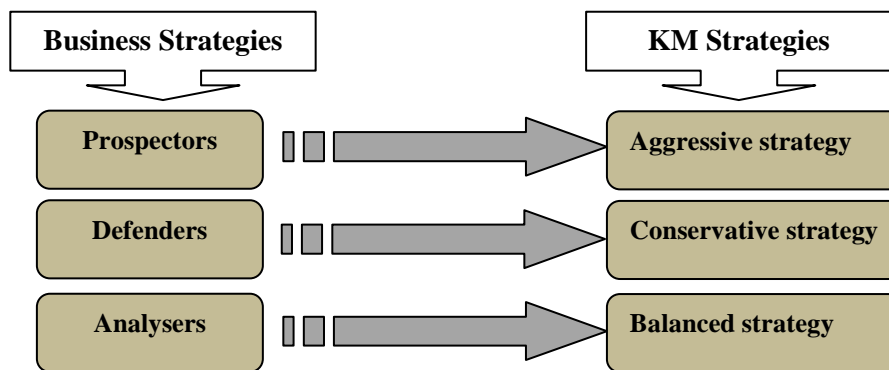


Figure 2: The Relationships between Business Strategy and KM Strategy

# 5    CONCLUSION

This paper proposes a new classification for the KM strategy based on four dimensions: knowledge source, knowledge type, knowledge focus and knowledge breadth. It classifies the KM strategies into aggressive strategy (focus more on external knowledge, tacit knowledge, exploring new knowledge and broad knowledge); conservative strategy (focus more on internal knowledge, explicit knowledge, exploiting the existing knowledge and narrow knowledge) and balanced strategy (maintain a balance between the KM strategic dimensions). These three KM strategies are proposed to be linked to Miles and Snow's business strategic orientations (prospectors, defenders and analysers) respectively. This paper contributes to theory through providing a more comprehensive view for the KM strategic orientation and its relationship to business strategy. This model could be useful for practitioners as well by providing guidelines for developing a KM strategy that better matches their business strategy.

This research forms the basis for further research on the different dimensions and will involve an empirical investigation to establish the extent to which this framework is valid in the context of SMEs. There are many factors other than business strategy which could influence SMEs' KM strategic orientations such as industry sector, organisations' age and organisations' size which are worthy of further investigation. Moreover, the proposed framework could be used in large organisations in order to discover the differences and similarities between the SMEs and large organisations.

# 6    REFERENCES

AlAmmary, J., & Fung, C.C. (2008). Knowledge Management Strategic Alignment in the Gulf Cooperation Council Countries. Electronic Journal of Knowledge Management, 6(2), 75-84.

Alavi, M, & Leidner, DE. (2001). Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. MIS Quarterly, 107-136.

Ansoff, HI. (1965). Corporate strategy: An analytic approach to business policy for growth and expansion: McGraw-Hill Companies.

Argyris, C. (1977). Organizational learning and management information systems. Accounting, Organizations and Society, 2(2), 113-123.

Beaver, G, & Prince, C. (2004). Management, strategy and policy in the UK small business sector: a critical review. Journal of Small Business and Enterprise Development, 11(1), 34-49.

Beijerse, URP. (2000). Knowledge management in small and medium-sized companies: Knowledge management for entrepreneurs. Journal of Knowledge Management, 4(2), 162-179.

Bierly, P, & Chakrabarti, A. (1996). Generic knowledge strategies in the U.S. pharmaceutical industry. Strategic Management Journal, 17(Special Issue), 123-135. Retrieved from http://www.jstor.org/stable/2486995

Bierly, PE, & Daly, PS. (2007). Alternative knowledge strategies, competitive environment, and organizational performance in small manufacturing firms. Entrepreneurship Theory and Practice, 31(4), 493-516.

Blili, S. , & Raymond, L. (1993). Information technology: Threats and opportunities for small and medium-sized enterprises. International Journal of Information Management, 13(6), 439-448.

Bloodgood, JM, & Salisbury, WD. (2001). Understanding the influence of organizational change strategies on information technology and knowledge management strategies. Decision Support Systems, 31(1), 55-69.

Choi, B, & Lee, H. (2002). Knowledge management strategy and its link to knowledge creation process. Expert Systems with Applications, 23(3), 173-187.

Choi, B, & Lee, H. (2003). An empirical investigation of KM styles and their effect on corporate performance. Information & Management, 40(5), 403-417.

Choi, B, Poon, SK, & Davis, JG. (2008). Effects of knowledge management strategy on organizational performance: A complementarity theory-based approach. OMEGA International Journal of Management Science, 36(2), 235-251.

Croteau, AM, & Bergeron, F. (2001). An information technology trilogy: Business strategy, technological deployment and organizational performance. The Journal of Strategic Information Systems, 10(2), 77-99.

Denford, J, & Chan, Y. (2007). Reconciling IS Strategic Alignment Approaches. AMCIS 2007.

Desouza, KC, & Awazu, Y. (2006). Knowledge management at SMEs: Five peculiarities. Journal of Knowledge Management, 10(1), 32-43.

Doty, DH, Glick, WH, & Huber, GP. (1993). Fit, equifinality, and organizational effectiveness: A test of two configurational theories. Academy of Management Journal, 36(6), 1196-1250.

Falconer, L. (2006). Organizational learning, tacit information, and e-learning: a review. The Learning Organization, 13(2), 140-151.

Greiner, ME, Bohmann, T, & Krcmar, H. (2007). A strategy for knowledge management. Journal of Knowledge Management, 11(6), 3-15.

Hansen, MT, Nohria, N, & Tierney, T. (1999). What's your strategy for managing knowledge? Harvard Business Review, 77(2), 106-116.

Herek, Gregory M. (2011). Developing a Theoretical Framework and Rationale for a Research Proposal. In Willo Pequegnat, Ellen Stover & Cheryl Anne Boyce (Eds.), How to Write a Successful Research Grant Application (pp. 137-145): Springer US.

Holsapple, CW, & Joshi, KD. (2004). A formal knowledge management ontology: Conduct, activities, resources, and influences. Journal of the American Society for Information Science and Technology, 55(7), 593-612.

Jordan, J, & Jones, P. (1997). Assessing your company's knowledge management style. Long Range Planning, 30(3), 322-398.

Keskin, H. (2005). The relationships between explicit and tacit oriented KM strategy, and firm performance. Journal of American Academy of Business Cambridge, 7(1), 169-175.

Langerak, Fred, Nijssen, Ed, Frambach, Ruud, & Gupta, Ashok (1999). Exploratory results on the important of R&D knowledge domains in businesses with different strategies. R & D Management, 29(3), 209-217.

Levy, M., & Powell, P. (2000). Information systems strategy for small and medium sized enterprises: An organisational perspective. The Journal of Strategic Information Systems, 9(1), 63-84.

March, JG. (1991). Exploration and exploitation in organizational learning. Organization Science, 2(1), 71-87.

Massa, S., & Testa, S. (2009). How do Miles and Snow's strategic types differ in their knowledge assets? Evidence from Italian SMEs. Knowledge Management Research & Practice, 7(4), 377.

McMahon, C, Lowe, A, & Culley, S. (2004). Knowledge management in engineering design: Personalization and codification. Journal of Engineering Design, 15(4), 307-325.

Menon, T, & Pfeffer, J. (2003). Valuing internal vs. external knowledge: Explaining the preference for outsiders. Management Science, 49(4), 497-513.

Mentzas, G. (2004). A strategic management framework for leveraging knowledge assets. International Journal of Innovation and Learning, 1(2), 115-142.

Merono-Cerdan, AL, Lopez-Nicolas, C, & Sabater-Sánchez, R. (2007). Knowledge management strategy diagnosis from KM instruments use. Journal of Knowledge Management, 11(2), 60-72.

Miles, R, & Snow, C. (1978). Organizational Strategy, Structure and Process, New York: McGraw-Hill.

Mintzberg, H. (1987). The strategy concept 1: five p's for strategy. California Management Review, 30(1), 11-24.

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. Organization Science, 5(1), 14-37.

Nonaka, I, & Takeuchi, H. (1995). The knowledge-creating company: How Japanese companies create the dynamics of innovation: New York: Oxford University Press.

Pai, DC. (2005). Knowledge strategies in Taiwan's IC design firms. Journal of American Academy of Business Cambridge, 7(2), 73-77.

Porter, ME. (1980). Competitive strategy: Techniques for analysing industries and competitors. New York, NY: The Free Press.

Robinson, J. R. (1982). The importance of "outsiders" in small firm strategic planning. Academy of Management Journal, 25(1), 80-93.

Sabherwal, R, & Chan, YE. (2001). Alignment between business and IS strategies: A study of prospectors, analyzers, and defenders. Information Systems Research, 12(1), 11.

Sabherwal, R, Hirschheim, R, & Goles, T. (2001). The dynamics of alignment: Insights from a punctuated equilibrium model. Organization Science, 12(2), 179-197.

Sabherwal, R, & Sabherwal, S. (2007). How do knowledge management announcements affect firm value? A study of firms pursuing different business strategies. IEEE Transactions on Engineering Management, 54(3), 409-422.

Scheepers, R, Venkitachalam, K, & Gibbs, MR. (2004). Knowledge strategy in organizations: Refining the model of Hansen, Nohria and Tierney. The Journal of Strategic Information Systems, 13(3), 201-222.

Schubert, P, Fisher, J, & Leimstoll, U. (2007, 7-9 June). ICT and innovation in small companies. Paper presented at the 15th European Conference on Information Systems, St. Gallen, Switzerland.

Schulz, M, & Jobe, LA. (2001). Codification and tacitness as knowledge management strategies: An empirical exploration. Journal of High Technology Management Research, 12(1), 139-165.

Skyrme, D. (2002). Knowledge management: approaches and policies. Paper on policy issues affecting small and medium sized enterprise in Europe. Retrieved from http://www.providersedge.com/docs/km_articles/KM_-_Approaches_and_Policies.pdf

Slater, Stanley F., & Narver, John C. (1993). Product-market strategy and performance: An analysis of the. European Journal of Marketing, 27(10), 33.

Swan, J, Newell, S, & Robertson, M. (2000). Limits of IT-driven knowledge management initiatives for interactive innovation processes: Towards a community-based approach. Paper presented at the Proceedings of the 33rd Hawaii International Conference on System Sciences.

Tiwana, A. (2002). The knowledge management toolkit: orchestrating IT, strategy, and knowledge platforms: Prentice Hall.

Turner, SF, Bettis, RA, & Burton, RM. (2002). Exploring depth versus breadth in knowledge management strategies. Computational & Mathematical Organization Theory, 8(1), 49-73.

Uhlaner, L., van Stel, A., Meijaard, J., & Folkeringa, M. (2007). The relationship between knowledge management, innovation and firm performance: Evidence from Dutch SMEs. Scientific Analysis of Entrepreneurship and SMEs.

Valkokari, K, & Helander, N. (2007). Knowledge management in different types of strategic SME networks. Management Research News, 30(8), 597-608.

Von Krogh, G, Nonaka, I, & Aben, M. (2001). Making the most of your company's knowledge: A strategic framework. Long Range Planning, 34(4), 421-439.

Webster, J, & Watson, RT. (2002). Analyzing the past to prepare for the future: Writing a literature review. MIS Quarterly, 26(2), 13-23.

Wong, K. (2005). Critical success factors for implementing knowledge management in small and medium enterprises. Industrial Management + Data Systems, 105(3/4), 261.

Wong, K, & Aspinwall, E. (2005). An empirical study of the important factors for knowledge-management adoption in the SME sector. Journal of Knowledge Management, 9(3), 64-82.

Zack, MH. (1999a). Developing a knowledge strategy. California Management Review, 41(3), 125-145.

Zack, MH. (1999b). Managing codified knowledge. Sloan Management Review, 40(4), 45-58.

Zahra, Shaker A., & Pearce, John A., II. (1990). Research evidence on the Miles-Snow typology. Journal of Management, 16(4), 751-768.