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## The Relationship between Knowledge Management Strategic Orientation and Business Strategic Orientation among SMEs

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## The Relationship between Knowledge Management Strategic Orientation and Business Strategic Orientation among SMEs

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### ABSTRACT

*Little is known about how Small and Medium Sized Enterprises (SMEs) practise Knowledge Management (KM) from both a theoretical and empirical perspective. Some research has been conducted in this field but from a western cultural perspective. Research on KM and SMEs in developing countries such as Saudi Arabia is limited. The research reported in this paper investigated KM strategic orientations and business strategic orientations in Saudi Arabian SMEs. The research involved the development of a theoretical framework relating to KM strategies and business strategies. Three KM strategies were proposed: aggressive, conservative and balanced and were linked to Miles and Snow's typology: prospectors, defenders and analysers respectively. The empirical research involved a survey of Saudi Arabian SMEs. A total of 143 SMEs, participated in the survey. The results indicate that the proposed classifications and relationships between KM strategic dimensions were valid. It further shows that there was an association between business strategy and KM strategy exists and the proposed linkage between: prospectors and aggressive KM strategy, defenders and conservative KM strategy and analysers and balanced KM strategy were mostly confirmed but with some inconsistency regarding knowledge breadth dimensions.*

#### Keywords:

KM strategic orientations, KM strategic dimensions, business strategy, SMEs

### INTRODUCTION

An organisation's ability to properly manage knowledge resources is considered a significant factor for business sustainability and success. Knowledge is one strategic asset that organisations need to create, organise, store and disseminate to be able to compete and operate effectively (Schultze and Stabell 2004). A knowledge-based view, extends the resource-based view, and considers knowledge as the most significant resource organisations have to manage and it is considered strategic for gaining competitive advantage (Grant 1996). SMEs, in particular, need to consider carefully their knowledge resources because: they often lack financial and human resources; their competition capabilities are usually based on "know-how"; and they rely mainly on some experienced people (Desouza and Awazu 2006; Metaxiotis 2009). Prior literature on KM has focused more on some aspects than others such as the technological side more than the strategic side, theoretical approaches more than empirical investigations and the corporate context more than SMEs (Merono-Cerdan et al. 2007). Large organisations differ from SMEs in terms of the external environment, internal organisational structure and culture, decision making processes and information systems capabilities (Blili and Raymond 1993). It is often inappropriate to apply and replicate research findings and management theories from large organisations to SMEs because their context is quite different (Beaver and Prince 2004). The SME sector "cannot simply be regarded as a scaled-down large business" (Schubert et al. 2007, p. 1228), thus research specific to SMEs is needed.

Our research used a conceptual framework to investigate the KM strategic orientations of Saudi Arabian SMEs and how such orientations are influenced and driven by organisational strategy. KM strategies in the framework were classified as: aggressive KM, conservative KM and balanced KM based on the organisation's orientation towards four sets of dimensions: knowledge source (internal and external), knowledge type (explicit and tacit), knowledge process (exploration and exploitation) and knowledge breadth (broad and narrow knowledge base). The framework, moreover, assumed that the orientations towards these dimensions are influenced and driven by an

organisation's business strategy, which is in line with Zack's statement (Zack 1999a) that "the most important context for guiding KM strategy is the firm's strategy" (p125). Miles and Snow's (1978) typology (prospectors, defenders and analysers) was used to measure the SMEs' business strategic orientations and how they related to KM strategic orientations.

The paper initially discusses the theoretical background on KM strategic dimensions followed by the development of the conceptual framework and the research design. After that, the research findings are presented and discussed in relation to the framework dimensions.

## KNOWLEDGE MANAGEMENT STRATEGIC DIMENSIONS

Prior literature proposes many classifications and categorisations for KM strategies. By analysing and reviewing most of these classifications, Azyabi et al. (2012) have found that four sets of dimensions are most used as bases for KM strategies classifications. These dimensions are: knowledge source (internal and external), knowledge type (explicit and tacit), knowledge process (exploration and exploitation) and knowledge breadth (broad and narrow knowledge base). Azyabi et al. (2012) argued that no previous classification considered all these dimensions together. Measuring organisations' orientations towards these dimensions will create a more comprehensive picture as well as helping to have a closer and more accurate identification regarding an organisation's KM strategic orientation. These four dimensions are discussed below.

**Knowledge Sources:** This dimension refers to where organisations obtain their knowledge—from internal or external sources or both (Zack 1999b). Knowledge sources can determine the level of difficulty associated with obtaining/ accessing the knowledge and to what extent such knowledge is suitable for a particular organisational context. Different knowledge sources have different implications for an organisation's operations and could require different knowledge acquisition capabilities and strategies. Many researchers have given attention to the significance of identifying knowledge sources as a main dimension of KM strategy (Von Krogh et al. 2001; Zack 1999a). The two main knowledge sources are internal and external. According to Zack (1999a), internal knowledge is created and distributed inside an organisation (Uhlener et al. 2007) including what is in people's minds, (Zack 1999b). External knowledge is knowledge that is gathered from outside sources including through acquisitions, hiring new employees (Holsapple and Joshi 2004) or forming strategic alliances. It might also be obtained from government agencies, academic institutes, consultants, etc. (Zack 1999b). Uhlener et al. (2007) showed that KM acquisition strategy (from external sources such as suppliers, competitors, colleagues and customers) was the most significant factor positively influencing SMEs' performance and innovation. Furthermore, they found that the SMEs that share and exchange their knowledge with external entities have higher growth and turnover than the SMEs that do not. They also found that SMEs acquire knowledge from external sources more than utilising their internal sources. This is consistent with the findings of Desouza and Awazu (2006) and Robinson (1982).

**Knowledge Types:** The most widely cited classification for knowledge is the "tacit-explicit" classification (Alavi and Leidner 2001; Nonaka 1994). The tacit-explicit classification 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) using similar terms: system-oriented strategy and human-oriented strategy. With system-oriented strategy, the focus is on codifying knowledge through heavy use of IT, and knowledge sharing occurs in a formal manner. The human-oriented strategy focuses on dialogue through personal contacts and networks. Explicit knowledge is easily captured, created, stored, transferred and followed. Tacit knowledge however, is embodied in organisational processes or routines, created from experiences and practices and transferred through a learning-by-doing process (Choi and 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. Desouza and Awazu (2006) investigated the knowledge creation process among SMEs based on the model of Nonaka and Takeuchi (1995) for knowledge creation (i.e., socialisation, internalisation, externalisation and combination) and found that socialisation—which refers to converting tacit knowledge to tacit knowledge through interactions between individuals (Nonaka 1994)—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, a person-to-person approach is most common given 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 followed in SMEs compared to a personalisation (tacit-oriented) strategy (Desouza and Awazu 2006).

**Knowledge Processes:** 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.

**Knowledge Breadth:** This dimension concerns the extent to which organisational knowledge is specialised or generalised. Specialised knowledge can lead organisations to develop their core competencies. Meanwhile, generalised knowledge may lead organisations to combine related knowledge with other organisational resources and technologies. Organisations with broad knowledge have team members who are knowledgeable in one particular area and have broad knowledge about all product areas. Organisations with deep knowledge lead to team members with knowledge about a specific area but may have limited knowledge in other areas. In a highly competitive environment, organisations with a broad knowledge strategy can perform better than organisations with a specialised knowledge strategy (Turner et al. 2002). 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 new knowledge effectively. Decisions about the breadth of an organisation's knowledge are based on the availability of an organisation's resources. Organisations with limited resources may 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' employees tend to have a similar common knowledge about their organisation's situations and issues.

## DEVELOPING A CONCEPTUAL FRAMEWORK

The development of the conceptual framework consisted of two steps: identifying the relationships between KM strategic dimensions and identifying the relationships between KM strategic dimensions and business strategies.

**Relationship between KM strategic dimensions:** There are two key points regarding KM strategic dimensions. 1) the sub-dimensions are not mutually exclusive, i.e., the organisation can rely on both internal and external knowledge either with a primary focus on one side or relying on both sides equally. March (1991) believed that "maintaining an appropriate balance between exploration and exploitation is a primary factor in systems survival and prosperity... Both exploration and exploitation are essential for organisations" (p. 71). 2) The decisions on one dimension could affect the decisions on others, i.e. there are interdependency and interrelationships between these dimensions. It is admitted that there is not enough evidence from the literature on the nature of relationships between all these sub-dimensions, however, with in-depth analysis of scattered literature, initial relationships have been identified. Von Krogh et al. (2001) discussed the applicability of explicit knowledge to be easier to transfer and disseminate in order to be exploited by the organisation. Choi and Lee (2003) also, in their study, classified codification and exploitation as one strategy (system-oriented) and personalisation and exploration as one strategy (human-oriented). Conservative organisations, according to Zack (1999a), have high orientations toward exploiting their internal knowledge more than organisations which focus on both exploitation and exploration regardless of the knowledge sources (described as most aggressive). Hansen et al. (1999), in their definition of codification and personalisation strategy, linked the codification strategy to the purpose of re-using and utilising organisational knowledge (exploitation); and the personalisation strategy to the purpose of creating new ideas and solutions (exploration). These relationships between codification and exploitation and personalisation and exploration were supported by Greiner et al. (2007) as well. They added that to create new innovative ideas and solutions, an organisation needs interactions between people from diverse locations and cultural and disciplinary backgrounds.

Given the above dimensions are interrelated, these interrelations can be used as a basis for classifying KM strategies. Earlier work based on organisations' orientation towards these dimensions, Azyabi et al. (2012) classified KM strategies into: aggressive KM strategy (organisations that focus more on external knowledge, tacit knowledge, broad knowledge-base and on exploration), conservative KM strategy (organisations that focus more on internal knowledge, explicit knowledge, narrow knowledge-base and on exploitation), and balanced KM strategy (organisations that maintain a balance between these dimensions).

**Business Strategic Orientations and KM Strategic Orientations:** Business strategy is well recognised as the main driver for most organisations' actions and decisions. The literature reports that different business strategies

lead to different KM strategies and practices. An organisation's strategic context helps to identify KM initiatives that support its purpose or mission, strengthen its competitive position and create shareholder value. Miles and Snow's (1978) typology (prospectors, defenders, analysers) was used to measure business strategic orientations. Next we discuss the relationships between Miles and Snow's (1978) typologies and KM strategic orientations.

**Prospectors:** Organisations in this category continuously search for new ideas, products or markets. Their key people (usually executives) will come from outside the organisations more than inside the organisation (Miles and Snow 1978). They have a strong orientation towards research and development to fulfil customer needs through monitoring market development and inter-functional collaboration and participation in alliances (Langerak et al. 1999). Thus, external knowledge sources are preferable to them. Prospectors are the creators of change and uncertainty to which their competitors must respond (Miles and Snow 1978); due to their frequent changes, their existing knowledge may not suit the new contexts or circumstances and that leads them to explore new knowledge (Sabherwal and Sabherwal 2007). Among these organisations, people's experience and ideas are considered more significant than technologies (Miles and Snow 1978); thus the personalisation strategy which aims to enable knowledge transfer and communications is more applicable than the codification strategy because the organisation's objective is to generate new ideas or innovative products or services (Hansen 1999). Furthermore, Greiner et al. (2007) proposed theoretically that matching between innovation and personalisation could lead to better performance. Prospectors monitor a wide range of environmental conditions, trends, factors and events, and their planning is broad (Miles and Snow 1978). Based on this discussion, prospectors tend to be closer to the profile of aggressive KM strategy more than other strategies.

**Defenders:** In contrast to prospectors, defender organisations usually focus on enhancing efficiency, so they prefer to emphasise knowledge exploitation or application more than knowledge creation or exploration (Doty et al. 1993). Knowledge exploitation appears in routines and often relies on existing solutions to solve problems rather than discovering new solutions (Sabherwal and Sabherwal 2007). As proposed by Hansen et al. (1999) and Greiner et al. (2007), the codification strategy is more applicable for those organisations which aim to improve their efficiency and re-use their existing knowledge. Moreover, organisations with defenders characteristics use internal knowledge more than external knowledge (Zack 1999a). In terms of knowledge breadth, defenders' top managers are highly experienced in their limited area of operation and adopt intensive planning procedures (Miles and Snow, 1978); thus they develop a narrow knowledge base. Based on this discussion, defender organisations tend to be closer to the profile of conservative KM strategy more than other strategies.

**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 and 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. Zack (1999a) described the organisations that rely on both exploitation and exploration and knowledge from different sources as innovator organisations. Based on this discussion, analysers organisations tend to adopt a balanced KM strategy rather than other strategies. Figure 1 depicts the proposed relationships between business strategic orientations and KM strategic orientations.

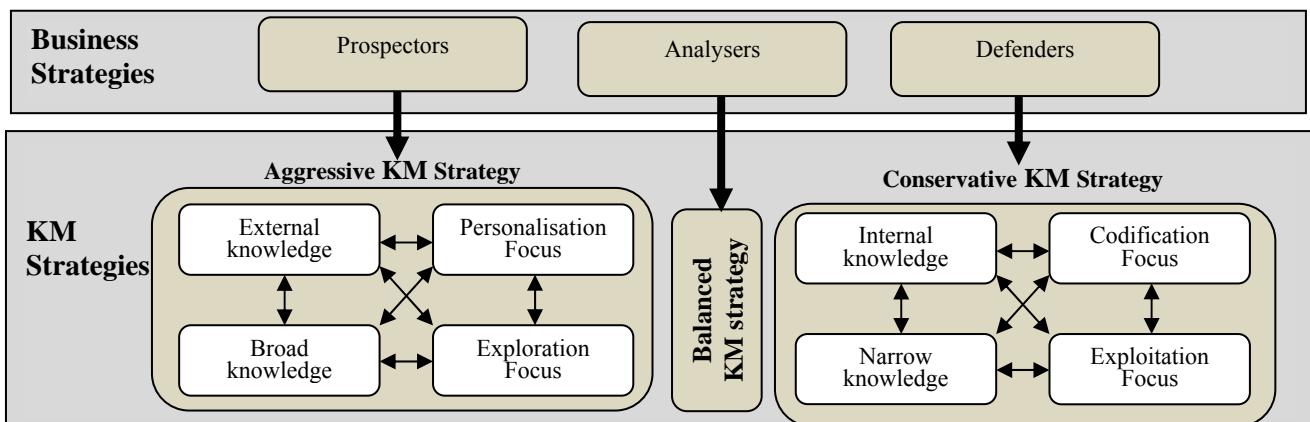


Figure 1: The Proposed Relationships between Business Strategy and KM Strategy

## RESEARCH DESIGN

This research consists of two phases. The first phase was developing a theoretical framework discussed above. This, according to (Herek 2011), helps with studying certain phenomena through answering research questions and identifying the dimensions and the relationships between them, which results in better understanding of the

phenomena. Relying on the existing literature, the dimensions of KM strategy, the relationships between them and how they are influenced by business strategy had been identified and proposed.

The second phase was an exploratory online survey undertaken to test the extent to which the proposed framework was valid. The survey approach allowed investigation of the relationships between the research entities and constructs and can provide generalisable conclusions. (Gable 1994). There were two main research constructs in this research: business strategies and KM strategies. To measure the business strategic orientation, we adopted Sabherwal and Chan (2001) survey's (17) items which had been developed on previous research. This particular research has been followed because it is leading research in business strategy and IS strategy alignment. The participants were asked to express their level of agreement with these items on a 5-point Likert scale where 1 referred to "strongly disagree", 2 to "disagree", 3 to "neutral", 4 to "agree" and 5 to "strongly agree".

For the KM strategies, 25 items were identified from the relevant literature (Asoh 2004; Bierly and Daly 2007; Choi and Lee 2003; Keskin 2005; Lee et al. 1999). These items had been previously used to investigate the same dimensions as was investigated in this research. The participants were asked to express their level of agreement with these items on a Likert type scale where 1 was "strongly disagree" and 5 "strongly agree". The statements are summarised in Table 1.

Table 1: KM instrument's items

|      |  |      |  |
|------|--|------|--|
| Ext  | <ul style="list-style-type: none"> <li>A large portion of new knowledge has been developed on customers' / suppliers' knowledge.</li> <li>A large portion of new knowledge has been developed on competitors' knowledge.</li> <li>We prefer external consulting companies' knowledge in developing new knowledge.</li> <li>A large portion of new knowledge has been developed through collaboration with external organizations.</li> </ul> | Int  | <ul style="list-style-type: none"> <li>Internal knowledge is an important resource to create new knowledge.</li> <li>Internal knowledge is frequently used for developing knowledge.</li> <li>The quantity and quality of knowledge created internally are superior to competitors.</li> </ul> |
| Pers | <ul style="list-style-type: none"> <li>Knowledge is easily acquired from co-workers.</li> <li>Informal dialogues are important for knowledge sharing.</li> <li>One-to-one mentoring is used for knowledge acquisition.</li> </ul>  | Cod  | <ul style="list-style-type: none"> <li>Knowledge can be acquired easily through formal documents and manuals.</li> <li>Results of projects and meetings should be documented in my company.</li> <li>Knowledge is shared in codified forms.</li> </ul>   |
| Expr | <ul style="list-style-type: none"> <li>We frequently experiment with radical new ideas.</li> <li>A high percentage of our company sales come from new products.</li> <li>We are usually one of the first companies in our industry to use new technologies.</li> </ul>   | Expt | <ul style="list-style-type: none"> <li>A strong emphasis is placed on improving efficiency.</li> <li>We excel at refining existing technologies.</li> <li>We frequently adjust our procedures to make things work better.</li> </ul>   |
| Bro. | <ul style="list-style-type: none"> <li>We encourage acquisition of multiple skills.</li> <li>We orientate training toward performing multiple tasks.</li> <li>We maintain multiple-function teams.</li> </ul>  | Nar. | <ul style="list-style-type: none"> <li>We encourage specialisation.</li> <li>We invest to maintain specialised skills.</li> <li>We offer high-value products.</li> </ul>   |

\*Ext = External knowledge, Int = internal knowledge, Pers = personalisation, Cod=codification, Expr =exploration, Expt =exploitation, Bro= broad knowledge and Nar= narrow knowledge

A pilot was conducted using the survey instrument and involved four Saudi Arabian academics and practitioners. The aim of the pilot was to test the instrument on three aspects:

- 1) Were the items appropriate for the Saudi SME context?
- 2) Were the items easy to understand (avoiding technical terminology)?
- 3) Was the Arabic translation of the items accurate?

The feedback from those experts was incorporated into the final survey. An invitation was sent to Saudi Arabian SMEs and 143 responded to the survey. The demographic data is summarised in Table 2 below.

Table 2: Characteristics of Respondents

| Job title       | %     | Sector        | %     | Org. Age   | %     | Number of Employees | %     |
|-----------------|-------|---------------|-------|------------|-------|---------------------|-------|
| Owner/manager   | 69.0% | ICT           | 18.0% | < 1 year   | 8.0%  | >20                 | 44.0% |
| IT manager      | 12.0% | Manufacturing | 12.0% | 1-5 years  | 38.0% | 21-60               | 32.0% |
| Finance manager | 14.0% | Service       | 35.0% | 6-10 years | 25.0% | 61-100              | 24.0% |
| Others          | 5.0%  | Construction  | 16.0% | > 10 years | 29.0% |                     |       |
|                 |       | Other         | 19.0% |            |       |                     |       |

## RESULTS

The first step in our analysis was to find out the general orientations of Saudi SMEs towards KM strategic dimensions. Table 3 provides the output of the paired samples T-test, which measured the extent to which SMEs orientation towards KM strategic dimensions was different.

Table 3: Findings on KM Strategic Orientations

|        |                    | Mean | Paired Differences |                |                 |   |       | t     | df  | Sig. (2-tailed) |  |  |  |
|--------|--------------------|------|--------------------|----------------|-----------------|---|-------|-------|-----|-----------------|--|--|--|
|        |                    |      | Mean               | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference |       |       |     |                 |  |  |  |
|        |                    |      |                    |                |                 | Lower                                     | Upper |       |     |                 |  |  |  |
| Pair 1 | External knowledge | 3.46 | -.148              | 1.114          | .093            | -.332                                     | .035  | -1.59 | 142 | .113            |  |  |  |
|        | Internal knowledge | 3.61 |                    |                |                 |   |       |       |     |                 |  |  |  |
| Pair 2 | Personalisation    | 3.68 | .300               | 1.163          | .097            | .108                                      | .492  | 3.09  | 142 | .002            |  |  |  |
|        | Codification       | 3.38 |                    |                |                 |   |       |       |     |                 |  |  |  |
| Pair 3 | Exploration        | 3.27 | -.538              | 1.160          | .097            | -.730                                     | -.346 | -5.55 | 142 | .000            |  |  |  |
|        | Exploitation       | 3.80 |                    |                |                 |   |       |       |     |                 |  |  |  |
| Pair 4 | Broad knowledge    | 3.80 | .375               | 1.008          | .084            | .208                                      | .542  | 4.45  | 142 | .000            |  |  |  |
|        | Deep knowledge     | 3.42 |                    |                |                 |   |       |       |     |                 |  |  |  |

As Table 3 shows, the participant SMEs rely on internal knowledge slightly more than external knowledge, however, this difference was not significant. In regards to knowledge type, responding SMEs adopted a personalisation strategy significantly more (sig. =.002) than a codification strategy. An exploitation approach was followed by the participants significantly more (sig. =.000) than an exploration approach. A broad knowledge orientation was found to be preferred significantly more (sig. =.000) among the participating SMEs than a narrow knowledge orientation.

To test the validity of the proposed relationships between the KM strategic dimensions, correlation tests between these dimensions were conducted. The correlation test, as Bryman and Cramer (1994) pointed out, helps in exploring the existence of a significant relationship between two variables and the direction of this relationship.

Table 4: Correlations between KM Strategic Orientations

|  | Ext             | Int             | Cod             | Expr           | Expt            | Bro            | Nar             |
|--|-----------------|-----------------|-----------------|----------------|-----------------|----------------|-----------------|
| Int                                    |                 |                 |                 |                |                 |                |                 |
| Cod                                    |                 |                 |                 |                |                 |                |                 |
| Expr                                   |                 |                 |                 |                |                 |                |                 |
| Expt                                   |                 |                 |                 |                |                 |                |                 |
| Bro                                    |                 |                 |                 |                |                 |                |                 |
| Nar                                    |                 |                 |                 |                |                 |                |                 |
| Pers                                   |                 |                 |                 |                |                 |                |                 |
| Pearson Correlation<br>Sig. (2-tailed) |                 |                 |                 |                |                 |                |                 |
| Int                                    | -.119<br>(.157) |                 |                 |                |                 |                |                 |
| Cod                                    | -.134<br>(.111) | .504<br>(.000)  |                 |                |                 |                |                 |
| Expr                                   | .481<br>(.000)  | .026<br>(.756)  | -.106<br>(.206) |                |                 |                |                 |
| Expt                                   | -.085<br>(.310) | .479<br>(.000)  | .404<br>(.000)  | .049<br>(.560) |                 |                |                 |
| Bro                                    | .324<br>(.000)  | .229<br>(.006)  | .160<br>(.056)  | .406<br>(.000) | .332<br>(.000)  |                |                 |
| Nar                                    | -.006<br>(.946) | .428<br>(.000)  | .425<br>(.000)  | .089<br>(.289) | .636<br>(.000)  | .266<br>(.001) |                 |
| Pers                                   | .555<br>(.000)  | -.012<br>(.891) | -.049<br>(.559) | .441<br>(.000) | -.033<br>(.698) | .398<br>(.000) | -.095<br>(.261) |

It was found, as in Table 4, that the aggressive KM strategy dimensions: external, personalisation, exploration and broad knowledge dimensions were positively correlated with each other. Pearson's r measures indicated that these relationships were strong or moderate. In terms of the conservative KM strategy's dimensions: internal knowledge, codification, exploitation and narrow knowledge orientations, they were also found positively strongly correlated with each other. The strongest relationship was found between exploitation and narrow knowledge base. It is also noted that a broad knowledge orientation was correlated with some conservative dimensions (weakly with internal knowledge and narrow knowledge orientation and moderately with exploitation orientation). Based on these findings we argue that the proposed classifications of KM strategic dimensions have been mostly confirmed with minor differences and inconsistency between what we proposed and the empirical data on broad knowledge orientation.

In order to investigate the association between business strategy and KM strategy, it was essential to classify organisations based on Miles and Snow's Typology. To do such, firstly, we adopted Sabherwal and Chan's (2001) theoretical profile of this typology based on the organisations orientations toward the six dimensions presented in Table 5 below.

Table 5: Miles and Snow's Typology Profiles based on STROBE Dimensions (Sabherwal and Chan 2001)

|             | Proactiveness | Aggressiveness | Defensiveness | Risk Aversion | Futurity | Analysis |
|-------------|---------------|----------------|---------------|---------------|----------|----------|
| Defenders   | Low           | Medium         | High          | High          | High     | Medium   |
| Prospectors | High          | High           | Low           | Low           | Medium   | Medium   |
| Analysers   | Medium        | Medium         | Medium        | High          | Medium   | High     |

Secondly, by following the same procedures of Sabherwal and Chan (2001), the high, medium and low scale was converted to -1,0,1 respectively. Thirdly, the distance between each participant's answers on each of the six dimensions was calculated using the following formula:

$$\text{Distance (defenders)} = \sqrt{\sum \{(X_j - I_{j,\text{DEF}})^2\}}$$

\* $X_j$  = the participant's normalised score for the jth business strategy attribute.

\* $I_{j,\text{Def}}$  = the ideal normalised score of the jth business strategy attribute for defenders.

\*J ranges from 1 to 6 for the six business strategy attributes.

The same formula was applied to calculate the distance to prospectors and analysers' profiles. The organisations' strategic orientations were identified based on the closest strategic orientation to the participants' answers.

To identify if there is an indication for the existing of association between business strategy and KM strategy, we calculated the mean of each KM strategic dimension in each business strategy as presented in Table 6. The overall means of aggressive strategy and conservative strategy were calculated based on the dimensions of each.

Table 6: Business Strategy and KM Strategic Dimensions

| Business strategy |           | Ext  | Int  | Pers | Cod  | Expr | Expt | Bro  | Nar  | Aggressive KM Strategy | Conservative KM Strategy |
|-------------------|-----------|------|------|------|------|------|------|------|------|------------------------|--------------------------|
| Prospectors       | Mean      | 3.77 | 3.19 | 3.58 | 2.92 | 3.65 | 3.17 | 3.67 | 2.55 | 3.67                   | 2.96                     |
|                   | Std. Dev. | 0.76 | 0.75 | 0.88 | 0.98 | 0.81 | 0.84 | 0.55 | 1.07 |                        |                          |
| Analysers         | Mean      | 3.61 | 3.67 | 3.29 | 3.49 | 3.29 | 3.93 | 3.91 | 3.48 | 3.52                   | 3.64                     |
|                   | Std. Dev. | 1.00 | 0.56 | 1.05 | 1.02 | 1.06 | 0.66 | 0.69 | 0.70 |                        |                          |
| Defenders         | Mean      | 3.07 | 3.81 | 2.91 | 3.44 | 2.86 | 3.98 | 3.73 | 3.83 | 3.14                   | 3.76                     |
|                   | Std. Dev. | 0.56 | 0.68 | 0.92 | 0.84 | 0.79 | 0.68 | 0.68 | 0.84 |                        |                          |

The collected data (as in Table 6) shows that the prospector organisations agreed with the dimensions of aggressive KM strategy more than the dimensions of conservative strategy. Conversely, defenders agreed with the dimensions of conservative strategy more than aggressive strategy. Analysers were in the middle between prospectors and defenders, adopting an aggressive strategy more than defenders and a conservative strategy more than prospectors. However, analysers adopted conservative strategy slightly more than aggressive strategy.

Table 6 further shows the associations between business strategies and each of the KM strategic dimensions. As proposed, prospectors were found to be more external-oriented than internal-oriented, focused more on personalisation than on codification, focused on exploration more than on exploitation and adopting a broad knowledge-base more than a narrow knowledge-base. In contrast, defenders were more internal-oriented than external-oriented, focused on codification more than on personalisation, more exploitation-oriented than exploration-oriented and more oriented towards a narrow knowledge-base than a broad knowledge-base. Even though analysers were in the middle position between defenders and prospectors in many dimensions, it is noticed that analysers were more codification-oriented than defenders and more oriented towards broad knowledge-base than prospectors.

To statistically test the associations between business strategy dimensions and KM strategic dimensions, Pearson Correlation tests were conducted. The results are presented in Table 7.

Table 7: Association between Business Strategy Dimensions and KM Strategic Dimensions

|  |                | Ext             | Int             | Cod             | Pers            | Expr            | Expt            | Bro            | Nar             |
|--|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|-----------------|
| Pearson Correlation<br>Sig. (2-tailed) | Proactiveness  | .352<br>(.000)  | -.021<br>(.802) | -.064<br>(.449) | .443<br>(.000)  | .563<br>(.000)  | -.043<br>(.609) | .250<br>(.003) | -.116<br>(.169) |
|  | Aggressiveness | .255<br>(.002)  | -.133<br>(.113) | -.141<br>(.094) | .229<br>(.006)  | .290<br>(.000)  | -.131<br>(.119) | .127<br>(.130) | -.206<br>(.013) |
|  | Defensiveness  | -.021<br>(.807) | .196<br>(.019)  | .048<br>(.568)  | .067<br>(.427)  | -.025<br>(.771) | .417<br>(.000)  | .174<br>(.037) | .504<br>(.000)  |
|  | Futurity       | .005<br>(.954)  | .251<br>(.003)  | .186<br>(.026)  | .023<br>(.788)  | -.023<br>(.783) | .199<br>(.017)  | .236<br>(.004) | .473<br>(.000)  |
|  | Analysis       | .024<br>(.774)  | .263<br>(.001)  | .268<br>(.001)  | .026<br>(.761)  | -.029<br>(.735) | .300<br>(.000)  | .253<br>(.002) | .329<br>(.000)  |
|  | Risk Aversion  | -.074<br>(.378) | .365<br>(.000)  | .335<br>(.000)  | -.111<br>(.189) | -.190<br>(.023) | .502<br>(.000)  | .134<br>(.110) | .453<br>(.000)  |

As portrayed in Table 7, proactiveness and aggressiveness dimensions which were ranked “high” dimensions amongst prospectors (as in Table 5) were found correlated positively with most of the aggressive KM strategy dimensions except for the correlation between aggressiveness and knowledge breadth. In contrast, dimensions which were ranked “high” amongst defenders (defensiveness, futurity and risk aversion) were positively correlated mostly with the dimensions of conservative KM strategy with minor inconsistency in regards to the knowledge

breadth dimension. Due to the similarity between analysers and defenders in terms of the aggressiveness dimension (both medium) and risk aversion dimension (both high), there were some similarities in terms of their KM strategic profile as well.

## DISCUSSION

The results indicate that the Saudi SMEs studied rely on internal knowledge more than external knowledge and adopt a personalisation approach more than codification. This was inconsistent with what was found by Desouza and Awazu (2006) and Robinson (1982), in terms of that SMEs acquire knowledge from external sources more than utilising their internal knowledge, and consistent in terms of that SMEs tend to be more personalisation-oriented. It is well known that SMEs generally suffer limited resources including both human and technological resources. This limitation leads SMEs to rely on external sources and to be unable to adopt a codification approach which requires a high investment in IT. In regards to knowledge sources, it should be mentioned that external and internal knowledge are not mutually exclusive. In other words, SMEs can rely, highly, on both types of knowledge. Even though SMEs acquire and utilise the knowledge from external sources, employees' knowledge and experience are essential to succeed in such acquisition and utilisation. Thus, internal knowledge cannot be discussed or investigated in contrast to external knowledge, but the extent to which SMEs obtain knowledge from external sources should be considered. There is no external knowledge utilisation without internal knowledge involvement. Based on this, any external knowledge utilization or acquisition can be considered internal knowledge utilization and exploitation. This justifies why the participant SMEs considered their internal knowledge as more important than external sources.

The findings of this research show that SMEs adopt personalization more than codification. This finding is not a surprise because SMEs, mostly, are unable to afford the technological and human resources required for knowledge codification. However, further investigation is needed to explore what kind of knowledge they endeavour to codify, what technologies and techniques they use and, most importantly, to what extent they use the codified knowledge in their operations.

It has been further found that exploitation strategy is more followed in Saudi SMEs than exploration. Given SMEs limited resources and their focus on day-to-day operations, the exploitation strategy (or single loop/incremental learning) is often the dominant strategy (Falconer 2006). Levy and Powell (2000) stated that the dominant strategic approach of SMEs is to improve their effectiveness and efficiency to be able to respond to their day-to-day operations; thus the exploitation strategy could be more applicable. The findings of this research were consistent with this situation. As expected, SMEs tend to utilise their limited personnel and prepare them to be multi-skilled rather than specialised in certain area of business.

It can be noticed that most of the proposed interrelationships between KM strategic orientation and their relationships with business strategies were confirmed, however there were some exceptions, especially with the knowledge breadth dimension. SMEs' decisions on the extent to which their knowledge base can be broad or narrow need to be further investigated. One justification for this is the existence of other factors beside business strategy that affect SMEs' KM strategic orientations. SMEs characteristics such as small size, resources limitation and vulnerability to customers and suppliers are all factors that could influence their decisions and choices towards KM strategic dimensions.

## CONCLUSION

This research investigated the KM strategic orientations in terms of SMEs' orientations towards: external knowledge, internal knowledge, tacit knowledge, explicit knowledge, exploration, exploitation, broad knowledge base and narrow knowledge base. It further explored the extent to which these dimensions are influenced by the organisation's strategy. The findings of this research confirmed, not fully, that the KM strategic dimensions are interrelated and the proposed classifications of KM strategies were mostly valid. The findings further confirmed the proposed relationships between KM strategies and Miles and Snow's (1978) typology.

The research contributed to theory by introducing theoretical KM strategic profiles for different business strategies, and contributed to practice by empirical investigation on such profiles. However, business strategy may not be the only factor that shapes KM strategic decisions, thus further research is required to explore these factors and how they influence KM strategic decision in SMEs. More research is required as well to find out the extent to which these findings on the Saudi SME sector can be replicated in different contexts and what the motivations and drivers for such orientations are.

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