

## Exploration and Exploitation as Knowledge Management Strategic Approaches in Saudi Arabian SMEs

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### Abstract

*This paper reports on a study of Saudi Arabian SMEs capabilities towards exploration (an organisation's focus on creating new knowledge to establish a competitive position) and exploitation (an organisation's focus on re-using current knowledge resources to enhance competitiveness and efficiency) with respect to knowledge management (KM), in particular the association between the business's strategic approach and decisions on exploration and exploitation. The Miles and Snow typology (prospectors, defenders and analysers) was used to investigate the business strategic approach. A mixed methods approach was used involving a survey and interviews. The research found that the exploitation orientation was dominant among SMEs for many reasons including their focus on day-to-day activities and their limited resources often preventing them from exploring new knowledge. The decisions on exploration and exploitation were affected by knowledge sources and the breadth of the knowledge base. The research outcomes provide further insights into SMEs' KM strategies.*

**Keywords:** Exploration, Exploitation, SMEs, Knowledge Management

### INTRODUCTION

Despite the importance of small and medium sized enterprises (SMEs) to many economies, prior research on Knowledge Management (KM) has focused on large organisations more than SMEs and on the theoretical aspects more than empirical research. The characteristics of the SME sector are different from those of large organisations in terms of their capabilities, challenges, business strategic planning, KM practices, and IT/IS usage (Beaver & Prince, 2004; Schubert, Fisher, & Leimstoll, 2007; Supyuenyong, Islam, & Kulkarni, 2009; Thong, Yap, & Raman, 1996). These challenges, differences and characteristics can lead to different practices and orientation towards SME decisions on KM. Research examining these characteristics and the impact on SMEs exploitation and exploration capabilities is limited.

The literature relating to the influence of business strategy on KM in general is also limited (Chan & Chao, 2008; Gold, Malhotra, & Segars, 2001; Zack, 1999a); a deeper understanding and greater clarification of this influence, particularly with respect to linking business strategy to the exploitation and exploration approaches is needed. Most KM research, in either large organisations or in SMEs, has been conducted and/or applied to the Western and Asian context. There is lack of research in the Middle Eastern context in general, and a significant paucity of literature on KM in SMEs in the Saudi Arabian context in particular (Shalaby, 2004; Sohail & Alashban, 2009).

SMEs in Saudi Arabia represent almost 93% of total enterprises, 95% of commercial registrations in Saudi Arabia and 71% of industrial establishments. There are more than 700,000 active SMEs in Saudi Arabia. Of these, 47% are commercial and hotel businesses, 27% construction, 12% manufacturing industry, 6% social services and 8% from other sectors (Hertog, 2010). Despite this massive growth, SMEs only represent about 24.7% of total employment and 33% of the Saudi GDP (Hertog, 2010; Ryan, 2011). The contribution of SMEs to the Saudi Arabian GDP is still limited compared to other countries.

The lack of research in the Saudi context makes it difficult for SMEs to learn from previous research. As a result of the differences between the Saudi context and other contexts (Western and Asian contexts) in terms of economic, cultural and political factors, the applicability of previous research to the Saudis context needs to be investigated. Our research explored SMEs capabilities with respect to their exploitation and exploration practices and the factors that affect their choices and preferences, specifically, the influence on their business strategic orientation. 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). Miles and Snow's (1978) typology (prospectors, defenders and analysers) was used to measure the SMEs' business strategic orientations. The key research question therefore was: To what extent do the exploitation and exploration practices of SMEs influence business strategic orientation?

## RELATED LITERATURE

Exploitation and exploration are well known strategic approaches in the KM literature. These are concerned with an organisation's orientation towards exploration of new knowledge and exploitation of existing organisational knowledge. An exploration strategy is when an organisation focuses on creating new knowledge to establish a competitive position. An exploitation strategy aims to re-use current or existing knowledge resources to enhance organisational competitiveness and efficiency (Zack, 1999b).

Both exploitation and exploration have advantages and disadvantages. Focusing only on exploration is both costly and risky, while choosing only exploitation could lead organisations to fall behind their competitors (March, 1991). Exploration strategies are often implemented by organisations with low levels of knowledge compared to their competitors (Zack (1999b). In contrast, exploitation strategies are implemented by organisations where the 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).

Exploration and exploitation strategies are related to radical and incremental learning in the field of organisational learning. Radical (or explorative) learning refers to processes that change and question an organisation's basic assumptions. Incremental (or exploitative) learning relates to the gradual expansion of knowledge (Bierly & Chakrabarti, 1996). There is however a trade-off between radical and incremental learning; incremental learning is effective in the short term, radical learning is needed for long-term benefits (March (1991). These two concepts are also known as single-loop (incremental) and double-loop (radical) learning (Argyris, 1977). Some organisations focus on incremental development others have innovative and radical solutions to problems (Jordan & Jones, 1997).

These two approaches require different organisational strategies, different structures, processes and capabilities. Both have different impacts on an organisation's performance. An exploration strategy works better in a dynamic organisation and with emergent markets and technologies, the exploitation strategy works better with stable markets and technologies but requires a stable organisation structure (Cegarra-Navarro, Sánchez-Vidal, & Cegarra-Leiva, 2011; He & Wong, 2004).

There are studies that suggest that organisations, in order to perform better, have to maintain a proper balance between these two strategies (March (1991); Tushman and O'Reilly III (2006). However, it is acknowledged that few organisations have the capabilities to be successful in reaching an appropriate balance between exploration and exploitation. These two approaches are fundamentally different, requiring different strategies and structures.

In the SME context, it can be argued that the high focus on day-to-day operations could lead to the dominance of a single loop/incremental learning approach (Falconer, 2006). As exploitation strategy is concerned with improving efficiency (March, 1991), SMEs usually focus on improving the effectiveness and efficiency of their operations and on responding to the day-to-day business demands (Levy & Powell, 2000) which prevents them from identifying the problems and mistakes, and experimenting with new ways of doing business (Lewis (2000).

However, according to Cegarra-Navarro et al. (2011), balancing the explorative and exploitative approaches to learning (ambidexterity) helps SMEs to perform better than following one of these approaches. Despite the potential role exploration and exploitation can play in facilitating information sharing, an organisation's processes, operations and performance will be affected if they fail to balance the approaches appropriately (Lewis (2000). However, Macpherson and Holt (2007) argue that the majority of SMEs have a high level of openness and readiness to experience and explore new opportunities.

### Business Strategic Orientation and KM Strategic Approach

It is well-recognised that different business strategies lead to different KM strategies and practices. "The most important context for guiding KM strategy is the firm's strategy" (Zack (1999a) p. 125). 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 organisational objectives and improve performance (Tiwana, 2002). Maier and Remus (2002) suggest "there is broad agreement in the management literature that KM has to be solidly linked to business strategy and ultimately to the creation of economic value and competitive advantage in order to be a sustained effort" (p. 107). The success of any KM initiative depends on the extent to which this initiative is linked to the organisation's

objectives and strategic goals (Hussain, Xiaoyu, Si, & Ahmed, 2011). This highlights the need to investigate the extent to which business strategy drives and shapes KM strategic decisions.

The Miles and Snow (1978) typology is considered the most appropriate for investigating the influence of business strategy on KM strategy in SMEs. This is because most SMEs lack formal and explicit strategies; hence, requiring an examination of activities, practices and actions on which their strategic orientation is determined. This typology also covers many external and internal dimensions and factors providing a comprehensive view of an organisation. The typology classifies strategic orientations into: prospectors, defenders, analysers and reactors. However, there are three feasible strategies each of which can be effective: defenders, prospectors and analysers (Miles and Snow 1984).

Organisations in the Prospectors category continually search for new ideas, products or markets. Often their key people are from outside organisations (Miles & Snow, 1978). They have a strong orientation towards research and development to fulfil customer needs, monitoring changes in the market and engaging in collaborative alliances (Langerak, Nijssen, Frambach, & Gupta, 1999). Knowledge structures of prospectors are different from defenders because they have a broader and more dynamic external domain and combine this with a focus on internal flexibility (Kabanoff & Brown, 2008). Prospectors are creators of change and are uncertain about how competitors might respond; due to frequent changes, their existing knowledge may not suit changed circumstances leading them to explore new knowledge (Sabherwal & Sabherwal, 2007). People's experience and ideas among these organisations are considered more significant than technologies (Miles & Snow, 1978). It can be argued that the exploration strategic approach is more aligned with a prospector's profile.

In contrast, defender organisations usually intend to maintain their efficiency and prefer to emphasise knowledge exploitation or application more than knowledge creation or exploration (Doty, Glick, & Huber, 1993). Knowledge exploitation is found in routines and often relies on existing solutions to solve problems rather than discovering new solutions (Sabherwal & Sabherwal, 2007). The opposite of prospectors, defenders tend to not look at the external environment focusing on efficiency internally (Kabanoff & Brown, 2008). An explicit-oriented strategy is more applicable for those organisations aiming to improve efficiency and re-use of existing knowledge (Greiner, Böhmman, and Krcmar (2007). Moreover, organisations with defender characteristics use internal more than external knowledge (Zack, 1999a).

Analysers are regarded as those maintaining a balanced position between prospectors and defenders, relying on internal and external sources of knowledge. They benefit from both exploitation and exploration. Analysers monitor their environment closely to discover new ideas to meet 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. This occurs cautiously and incrementally (R. Miles & Snow, 1978). Zack (1999a) described the organisations that rely on both exploitation and exploration and knowledge from different sources as innovator organisations. Analyser organisations tend to adopt a balanced KM strategy more than other strategies. Analysers have adopted both aggressive and conservative KM strategies to perform better (Al-Ammary and Fung (2008).

## RESEARCH METHOD

A mixed method approach was applied in this exploratory research. Combining different research approaches, it is suggested, this strengthens research outcomes (Venkatesh et al. 2013). There are however, challenges for researchers embarking on a mixed methods approach including how the data are integrated, "mixed methods researchers do not always bring their findings together ... the quantitative and qualitative components are treated as separate domains" (Bryman, 2007). The data collected for the research reported in this paper included survey responses and interviews with SMEs from Saudi Arabia. The results are integrated, as recommended by Bryman (2007), with the qualitative findings used to provide a deeper understanding of the quantitative survey results.

Due to the absence of any official/governmental agency of SMEs, there was no official directory for Saudi Arabian SMEs. Thus, the researcher could not obtain any contact details to communicate with the targeted SMEs directly. The researcher relied on the Internet to find contact details for the SMEs. The contact details, which were found on these websites, were mainly emails, websites and a few postal addresses. Given these practical difficulties, the researchers decided on an online-based survey sending emails containing an invitation letter and the survey's URL. The survey collected demographic information, SMEs' orientation towards exploration, exploitation and business strategy. The items used to measure SMEs' orientation towards exploitation and exploration were based on previous similar research (Choi, Poon, & Davis, 2008; Lee, Chang, & Choi, 1999). Using a 5-point Likert scale (1 "strongly disagree", to 5 "strongly agree") respondents were asked to indicate their level of agreement. The instrument was evaluated by three academics and a practitioner with previous experience with Saudi SMEs to ensure the accuracy

and relevance of the survey instrument. An online survey technique was used as there are no official or governmental agencies from which the SMEs' addresses could be obtained. Using the Internet it was possible to collect SME contact details, primarily email addresses and websites. There were 143 SME responses, Table 1 summarises the demographic data of participants.

Table 1: Characteristics of Participants

Job title	%	Industry sector	%	Organization age	%	No. 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
Other	5.0	Construction	16.0	> 10 years	29.0		
		Other	19.0				

Invitations were sent to those managers who indicated their willingness to participate in the interview phase (34 managers). Seventeen managers replied and were interviewed. One participant was interviewed from each organisation. There were: 15 managers, one marketing manager and one vice president interviewed. The SMEs were from a wide range of industry sectors (constructions, ICT, retail, manufacturing and services). The findings of these interviews were analysed using a meta-matrix to identify patterns and themes as described by Miles and Huberman (1994 p. 245-247). These were compared and linked to the survey findings providing a deeper, richer understanding of the results.

## RESEARCH FINDINGS

### The Exploration Approach

Table 2 shows the quantitative findings of the SMEs' practices, indicating their orientation towards an exploration approach. These findings suggest that experimenting with new ways of doing things was the most common approach of the three items with a mean of 3.45. 51% of respondents agreed (34.27%) or strongly agreed (17.48%). In terms of launching new products/services or being among the early adopters of new technologies, there was less agreement.

Table 2: Respondents' Orientation towards the Exploration Approach

Exploration Approach Statements	SD	D	N	A	SA	Total	Mean	Std. Dev.
We usually experiment with radical new ideas (or ways of doing things)	9	17	43	49	25	143	3.45	1.10
	6.3%	11.9%	30.1%	34.3%	17.5%	100%		
A high percentage of our company sales come from new products/services launched within the past recent years	5	39	40	44	15	143	3.17	1.05
	3.5%	27.3%	28 %	30.8%	10.5%	100%		
We are usually one of the first companies in our industry to use new and breakthrough technologies	11	26	42	53	11	143	3.19	1.06
	7.7%	18.2%	29.4%	37.1%	7.7%	100%		
Exploration (Overall)							3.27	.91

More than 58% of respondents did not agree (3.5% + 27.27%) or were neutral (27.97%) with the statement that a high percentage of their company's sales came from new products/services launched within recent years; more than 55% did not agree (7.69% + 18.19%) or were neutral (29.37%) with being one of the first companies in their industry to adopt new and breakthrough technologies. The overall mean of the exploration approach (3.27) was ranked the lowest among all the eight KM strategic dimensions. March (1991) suggests that "exploration includes things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery,

innovation. Exploitation includes such things as refinement, choice, production, efficiency, selection, implementation, execution” (p.71). These concepts and differences were used in analysing the interview data to explore the SMEs’ activities that could determine the organisation’s orientation towards these two approaches. Three findings emerged relating to exploration activities:

**1) New ideas/suggestions were welcomed:** The qualitative data confirmed the quantitative findings that the majority of the participating SMEs were keen to explore new ideas or different ways of doing things. Many SMEs were encouraging innovative ideas and searching for new solutions, however they were different in the extent to which they were willing to convert these ideas into action. Furthermore, it was observed that the main purpose of exploring new ideas and knowledge was to improve business efficiency. *“We encourage new ideas and have regular meetings with all employees in which we reward those who contributed to the business improvement with new ideas or initiatives. [Logistics Services]”*

Even though new ideas were encouraged and rewarded, implementation was carefully considered. In order to adopt a new idea, the idea had to not require entering a totally new domain, business or product. The limitation of SMEs’ financial resources led them to be very cautious in their decisions of implementing new ideas, solutions or techniques. They wanted to make sure that the risk was at a very low level. *“We encourage new ideas and study some of them seriously. However, it is not easy to implement any new idea without making sure that it is workable and less risky. This is because we are really careful about our financial investment. In addition to that, entering new areas will affect somehow the efficiency and quality of our current service. [Computer Training]”*

**2) Some SMEs took larger risks:** A limited number of SMEs (three) could be described as risk-takers. However, their movements and changes were within their business field. The reason was that these SMEs had a clear goal to lead their markets. For example *“We take risks and are open-minded to enter into any new initiative. For example, we introduced a new card reader system to support the Arabic language and Arabic naming style. We invested a lot in this project but, unfortunately, it was not successful as we anticipated. We know it is risky and may affect our business but we take the risk to be unique and to lead the market. [Advertising Agency]”*

**3) There was internal and external exploration:** The previous findings revealed that most of the exploration activities occurred within an organisation’s borders; however, there was exploration of external sources. The Internet and alliances, for example, were external sources SMEs relied on to explore new ideas/techniques or even services.

*Customers are one important source for our knowledge. They ask about certain products which are not available. Then we search about these products and how to be prepared either on the Internet or through asking our friends. [Café]*

*We used the Internet to search for information and updates about the courses we provide. Sometimes we use it for advertising and marketing purposes. [Computer Training]*

## The Exploitation Approach

Table 3 provides the survey results on the exploitation dimension. As can be observed, the level of agreement was higher than disagreement on all items. More than 64% of respondents agreed (44.06%) or strongly agreed (20.28%) that their emphasis was on improving their efficiency; more than 72% of them agreed (53.15%) or strongly agreed (19.58%) on their efforts to refine their existing technologies to suit their operations; and more than 74% agreed (56.64%) or strongly agreed (18.18) that they adjusted their procedures, rules, and policies to enhance their work.

In the analysis of the qualitative data based on the concepts of exploitation (March 1991) two findings emerged:

**1) The knowledge of employees was highly exploited:** It is recognised that exploitation is related to internal knowledge, such as employees’ knowledge of databases, work manuals and procedure guides. Our survey confirmed this. The main exploitation process was re-using the knowledge, experience and skills of employees. *“Our employees know exactly how we can improve the work because they know all the related aspects. This is why we want them to think and be involved in suggestions. [Logistics Services]”*

The absence of other internal sources such as electronic knowledge-bases, work manuals and the lessons learned from previous projects made it hard for SMEs to learn from previous knowledge. This suggests why SMEs relied mainly on their employees’ individual memory rather than developing organisational memory.

Table 3: Respondents' Orientation towards the Exploitation Approach

Exploitation Approach Statements	SD	D	N	A	SA	Total	Mean	Std. Dev.
At our company, a strong emphasis is placed on improving efficiency	0	7	44	63	29	143	3.80	.818
	0%	4.9%	30.8%	44.1%	20.3%	100%		
Our company excels at refining existing technologies to suit our operations	0	16	23	76	28	143	3.81	.880
	0%	11.2 %	16.1%	53.2%	19.6%	100%		
We frequently adjust our procedures, rules, and policies to make things work better	0	16	20	81	26	143	3.82	.861
	0%	11.2 %	14%	56.6%	18.2%	100%		
Exploitation (Overall)							3.80	.755

**2) Improving business efficiency was a priority:** This was a concern of many. They wanted to be unique and have a competitive advantage in their markets. For example: *"Last year we had a problem with business volume which became huge and some requests might be skipped or forgotten. One of our employees was assigned to provide a solution, and then he developed an Excel sheet to record each transaction and the status of it and put it on the server. This sheet was added-value to our operation and becomes essential to follow up each transaction. [Insurance Broker]"*

### Business Strategy and KM Strategic Approaches

Table 4 summarises the descriptive findings of each business strategy in relation to their exploration and exploitation approaches.

Table 4: Summary of the ANOVA Test of the Relationship between Business Strategy and KM Processes

KM Processes	Business Strategy	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Exploration	Prospectors	32	3.64	.807	.142	3.35	3.93
	Analysers	63	3.31	.804	.101	3.11	3.52
	Defenders	43	2.87	1.051	.160	2.55	3.19
	Total	138	9.82	2.662	0.403	9.01	10.64
Exploitation	Prospectors	32	3.26	.837	.147	2.95	3.56
	Analysers	63	3.94	.677	.085	3.77	4.11
	Defenders	43	4.00	.658	.100	3.79	4.20
	Total	138	11.2	2.172	0.332	10.51	11.87

Regarding the exploration approach, the mean of prospectors (3.64) was greater than the mean of analysers (3.31) and defenders (2.87). However, with the exploitation approach, the mean of defenders (4.0) was the greatest, followed by the mean of analysers (3.94) and the mean of prospectors (3.26). The mean of analysers, as expected, fell between prospectors and defenders in relation to both exploration and exploitation. Based on these findings, prospectors tended to follow the exploration approach more than defenders and analysers, and defenders tended to adopt the exploitation approach more than prospectors and analysers.

Table 5 presents a summary of the differences between prospectors, defenders and analysers.

Table 5: ANOVA Summary of the Relationship between Business Strategy and KM Processes

		Sum of Squares	df	Mean Square	F	Sig.
Exploration	Between Groups	11.311	2	5.656	7.152	.001
	Within Groups	106.753	135	.791		
	Total	118.064	137			
Exploitation	Between Groups	12.397	2	6.199	12.229	.000
	Within Groups	68.431	135	.507		
	Total	80.829	137			

The findings show that there were significant differences between the different business strategies with both the exploration (sig. = .001) and exploitation approaches (sig. = .000). The results confirm the relationship between business strategies and the exploration and exploitation approaches. Prospectors were found to adopt an exploration approach more than defenders and analysers. The difference between prospectors and defenders was significant (sig. = .002), while it was not significant between prospectors and analysers. On the exploitation approach, prospectors were significantly lower than both analysers (sig. = .001) and defenders (sig. = .000).

Table 6: Multiple Comparisons of the Relationship between Business Strategy and KM Processes

Dependent Variable	(I) Business Strategy	(J) Business Strategy	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Exploration	Prospectors	Analysers	.328	.175	.182	-.10	.75
		Defenders	.769*	.214	.002	.24	1.29
	Analysers	Prospectors	-.328	.175	.182	-.75	.10
		Defenders	.441	.189	.066	-.02	.90
Exploitation	Prospectors	Analysers	-.686*	.170	.001	-1.10	-.26
		Defenders	-.739*	.178	.000	-1.17	-.30
	Analysers	Prospectors	.686*	.170	.001	.26	1.10
		Defenders	-.052	.131	.970	-.37	.26

\*The mean difference is significant at the 0.05 level.

Prospectors are characterised as having the readiness and desire to implement new ideas and enter new areas of businesses or products, thus the prospectors in this research were driven to explore new knowledge, ideas or techniques. This suggests why they were the highest in terms of exploration and the lowest in terms of exploitation. On the other hand, defenders are characterised as having a highly focused domain of business or products, and ignore changes; thus the defenders in this research tended to focus on this domain and exploit their internal knowledge and experience for this purpose.

The qualitative findings confirmed that the business strategic objectives influence the level of exploration and exploitation. In terms of exploration, SMEs aim to be leaders in the market, motivated to explore new knowledge and ideas. An SME's manager who wanted his business to be dynamic and to change its direction mentioned that they encourage exploration processes. *"We highly support new ideas and encourage thinking out of the box. We do not mind applying new ideas if we think that will give us more market share or financial income. This is why we keep looking for new activities that we may be able to do. [Tile Supplier]"*

SMEs aiming to improve their business efficiency were more reliant on their internal knowledge, their employees, to achieve that. They believed that their employees knew the organisation's situation better than any external entity.

*“Our employees know exactly how we can improve the work because they know all the related aspects. This is why we want them to think and be involved in suggestions. [Logistics Services]”*

## DISCUSSION

The survey data indicated that the exploration orientation was lower than exploitation. The difficulties and risks with taking an exploration approach was a deterrent to many SMEs. Exploration means not only accessing new knowledge, but also the extent SMEs can use this knowledge within their operations and business. Making sense of new knowledge requires a broad knowledge-base that includes knowledge about different areas and an understanding of how to apply new knowledge in new contexts. This is in contrast to previous research which reports that SMEs are usually oriented towards exploring new knowledge and are ready to enter new business domains (Desouza & Awazu, 2006; Macpherson & Holt, 2007; Robinson, 1982). In this research, the prospectors –classified as risk takers and ready to enter new areas of business– represented only 32% of the respondents’ SMEs.

Most Saudi SMEs are consumed by their day-to-day operations and transactions and lack sufficient resources to explore new knowledge and experiment with new business approaches. The associated risks and costs with exploring new business domains prevented SMEs from exploring new techniques or knowledge. These findings are consistent with other research in that a single loop or incremental learning approach is often the dominant approach taken by SMEs due to their limited resources and their focus on day-to-day operations (Falconer (2006). Levy and Powell (2000), report that the dominant strategic approach of SMEs is to improve their efficiency, to be able to respond to their day-to-day operations and thus they are more likely to adopt an exploitation strategy.

It should be noted that implementing exploration activities without exploitation activities is difficult. Employees were encouraged to suggest new ideas and innovative solutions. In such cases, SMEs explored new knowledge and tried to implement them. However, utilising employees’ knowledge and experience in such exploration processes could be considered as exploitation as well. Exploiting employee knowledge was essential in any exploration process. The following quote illustrates the interrelation between exploration and exploitation in this research.

*We have a small department (product development) which is responsible for searching for new ideas and projects. Since we are still in the start-up stage, we have limited capabilities in terms of doing market research and discovering the exact market’s needs and that affects our growth. [Financial Investment]*

In order to exploit existing knowledge, it is essential to identify this knowledge first an activity identified by Zack (1999a). The participating SMEs often lacked a well-structured or organised knowledge-base that could be exploited. In this research, even though the exploitation approach was ranked the highest among all other KM strategic dimensions, employees’ knowledge was the most exploited knowledge with SMEs reliant on employees to incrementally, improve their operations.

Where employee knowledge and experience was lacking, most SMEs, explored knowledge from external sources such as the Internet however this was seldom utilised or implemented. This highlights that KM processes have a relationship with both knowledge sources and the knowledge-base breadth dimensions. In terms of knowledge sources, exploitation is about re-using internal knowledge to improve organisational efficiency. The dominance of the exploitation approach in SMEs was because employees were familiar with internal knowledge and so were less likely to have a “not invented here” syndrome. Even though SMEs had access to external knowledge they had difficulties in appropriating this knowledge in their organisations. Organisations with a broad knowledge-base (having knowledge in more than one area of business) were able to explore external knowledge better than organisations with a limited knowledge-base (having knowledge in one area of business). This contributes to our understanding of how the source of knowledge and the breadth of the organisational knowledge-base impacts on the KM process approach.

This research confirmed the influence of business strategy on KM processes, as the data showed that there was a significant difference between the business strategies (prospectors, defenders and analysers) in terms of their exploitation and exploration orientation. The importance of the organisation’s age was reflected in that the knowledge and experience of SMEs’ employees needed time to evolve. A key factor impacting on the exploitation and exploration orientation in Saudi SMEs was the SME’s manager/owner. Managers/owners in SMEs, are usually the gatekeepers in dealing with the external environment. They interact intensively with their customers, suppliers and consultants; thus external knowledge mostly passes through them. Moreover, in regard to decisions on strategic alliances, collaboration networks, and outsourcing, they make these key decisions. Managers therefore determine the



external knowledge the organisation can acquire, and at the same time, represent a key internal source of knowledge for their employees. The importance of SME managers is greater in small organisations with few employees.

## CONCLUSION

Our research has identified that the exploitation orientation is dominant among Saudi SMEs for many reasons, including their focus on the day-to-day activities and their limited resources. Further, the decisions on exploration and exploitation were affected by the knowledge sources and the breadth of the knowledge-base. SMEs with a narrow knowledge-base were unable to absorb external knowledge and apply it within their organisations, they relied on internal knowledge. The business strategy impacted on SMEs' orientation towards both the exploration and exploitation orientations. Prospectors were found to be exploration-orientated more than other defenders and analysers; while defenders were more exploitation-oriented. Not surprisingly SMEs managers/owners played a significant role in decisions on both exploration and exploitation orientations. They were the gatekeepers determining the external entities with which the SME would interact, such as alliances, suppliers and consultants.

It should be noted that there are limitations to this research. Although the survey participants covered a wide range of industry sectors and geographic areas more research is needed with SMEs. Based on the findings of this research, interviews with a wider group of SMEs would also be of value.

Our research contributes to the body of knowledge on SMEs' strategic approaches towards exploration and exploitation with empirical evidence confirming the association between the exploitation and exploration. Further, this research contributes to the literature in the Saudi Arabian SME context where there is a paucity of research, in general, and in KM in particular. Although this research was conducted in the Saudi context, the findings are applicable for similar business contexts, particularly in the countries of the Gulf Cooperation Council.

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