



Approaching The Firm's Innovation Capability through Knowledge Management Lens

Ali Ahmad¹, Muhammad Imran Farooq², Sadam Rasool³, Omer Farooq⁴

¹ Institute of Southern Punjab, Multan, Pakistan/University of Putra Malaysia, Malaysia.

Email: aliahmad@isp.edu.pk, aliahmed.mux@gmail.com

² Institute of Southern Punjab, Multan, Pakistan. Email: imranfarooq@isp.edu.pk

³ Institute of Southern Punjab, Multan, Pakistan. Email: sadam_rasool@yahoo.com

⁴ Air University, Islamabad, Pakistan. Email: omer@aumc.edu.pk

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ABSTRACT

Firm innovation capability has attracted attention of researchers and the term innovation has been largely explained in the strategic management literature in a variety of dimensions. In this attempt, organizational knowledge strategy, a knowledge-oriented culture and knowledge management sharing have been proposed to play a key role in determining firm's innovation capability. This paper aims to draw together knowledge from two different scientific disciplines i.e. strategic management and knowledge management. A conceptual model emerges as we specifically recognize the core KM concepts as a prospective basis for explaining the phenomenon of firm innovation capability by drawing literature based definitions on knowledge strategy, knowledge centered culture and knowledge sharing. This study advances towards conceptualizing the domain of firm innovation capability by applying the 'Knowledge Management Lens' composed of knowledge strategy, knowledge oriented culture and knowledge sharing.

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Corresponding Author's Email: aliahmad@isp.edu.pk, aliahmed.mux@gmail.com

1. Introduction

In today's complex and highly competitive environment it has become necessary for organizations to continuously seek opportunities to create unique products and services. This seems only to be possible when organizations seek ways which are flexible enough to generate willingness among employees to accept new ways of delivering services or products – a phenomenon referred to as innovativeness (Liu & Phillips, 2011). Innovation is generally associated with new ideas converted into products, services and processes by firms that usually results in an increased productivity and competitiveness. This relationship has also been supported by recent empirical researches (Hashi & Stojčić, 2013; Uz Kurt, Kumar, Kimzan, & Eminoglu, 2013). Moreover on the business side, the intense global completion, greater customer demands and speedy technological changes have alarmed the organizations worldwide to continuously work on their improving competitive advantage. Innovation, in this regard, is considered as an important determinant that enables the firms to become more competitive in the market (Yeşil, Koska, & Büyükbeşe, 2013). In the realm of business, the pursuit of innovation is indispensable for fostering growth and development. It serves as a dependable strategy to enhance competitiveness in the marketplace (Bigliardi, Ferraro, Filippelli, & Galati, 2020).

To be competitive and have a steady pace of innovation, organizations need to focus on knowledge based solutions – to create and share new knowledge on continual basis through technology and knowledge sharing mechanisms. Building on the knowledge based view (KBV) of the firm (Grant, 1996), knowledge based approach is considered as a source of firm's innovation and calls for further investigation into purposeful evaluation of the KM-innovation interplay. Today, academicians as well as executives are praising the crucial role that knowledge sharing plays in determining organizational success. Knowledge is a mixture of experience, insight, and

values which enable the organizations to assess new information and experiences. On a micro level, it stems from the minds of individuals and on an organizational level, it is present in the form of organizational practices, norms, data files and repositories (H.-C. Lin, 2014). A considerable literature (Alegre, Sengupta, & Lapiedra, 2013; Brand, 1998; Carneiro, 2000) has explored the linkage between knowledge management and firm’s innovation – i.e. knowledge management as a source of firm’s innovativeness and inversely innovation as a route to refined knowledge, yet there are certain uncertainties still remain in the context of how knowledge creation, sharing or utilization could cast an influence on firm’s innovation ability.

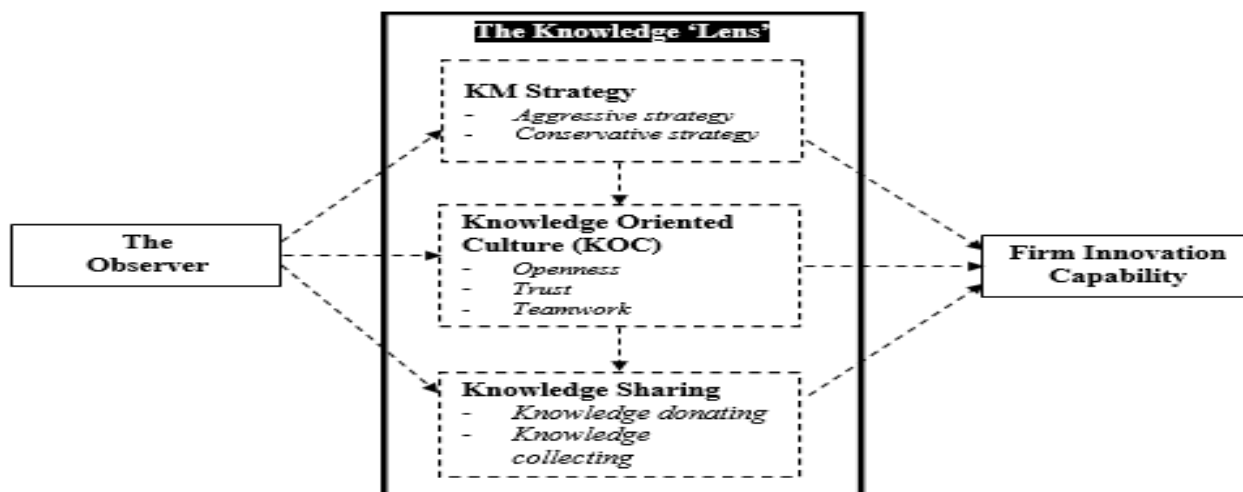
The literature calls upon a systematic route to firm’s innovation via knowledge management, for them it has to start at the strategic level i.e. linking knowledge strategy to the overall organizational strategy (Zack, 1999). However, any strategy developed itself cannot cast direct impact on the organizational performance until it is properly implemented and reflected into organizational processes and activities. A knowledge strategy will be effective if it is implemented with the right combination of organizational support and is thoroughly embedded in regular routines. This research, therefore proposes that the successful implementation of the knowledge strategy will require the establishment of a supportive value system in the shape of knowledge centered culture. Organizations nourish such an organizational culture referred to as ‘Knowledge Oriented Culture’ (KOC) that promotes effective knowledge creation and sharing practices in organizational setting (H.-C. Lin, 2014). KOC would eventually act as a purposeful climate for people to effectively create as well as share knowledge with co-members. Research has established the fact that knowledge sharing plays a strong reinforcing role in creating innovative organizations (H.-F. Lin, 2007; Monica Hu, Horng, & Christine Sun, 2009). Knowledge sharing, one of the key functions of innovative firms, is defined “as a pattern of behaviors that involve exchange of information and providing assistance to others” (Connelly & Kelloway, 2003). Built upon the literature from strategic management and knowledge management; this research attempts to formulate a conceptual framework to investigate the issue of firm’s innovation capability through the lens of knowledge management. The paper includes three further sections: the first one provides the preliminary framework for applying the knowledge lens to study firm innovation capability followed by three research models built upon the conceptualization done in second section. The final section presents the discussion and conclusion on the model and its future prospects as a research model.

2. Literature Review

2.1. Applying ‘knowledge lens’ to firm innovative capability

The intersection of various concepts and theories from different academic fields has proven to be a useful practice for the development of creative knowledge and theories in organizational studies. Combining concepts and theories from different philosophical paradigms, disciplines and fields is now considered as a popular way of making a unique contribution. In their paper, Zahra and Newey (2009) have investigated that how researchers from different fields/sciences can intersect theories or concepts from different disciplines or academic fields for a greater contribution towards organizational sciences.

Figure 1: The Knowledge Lens



Researchers often use three broad modes while combining concepts from different disciplines. These include,

1. Borrowing the concepts from one discipline or field and interconnecting with concepts of other discipline or field.
2. Borrowing the concepts from one discipline or field and interconnecting in such a manner that it gives rise to a new concept or theory.
3. Borrowing the concepts from one discipline or field and reconciling in such a way that it not only extends the core concepts but also greatly influences and transforms the core fields from which these are borrowed.

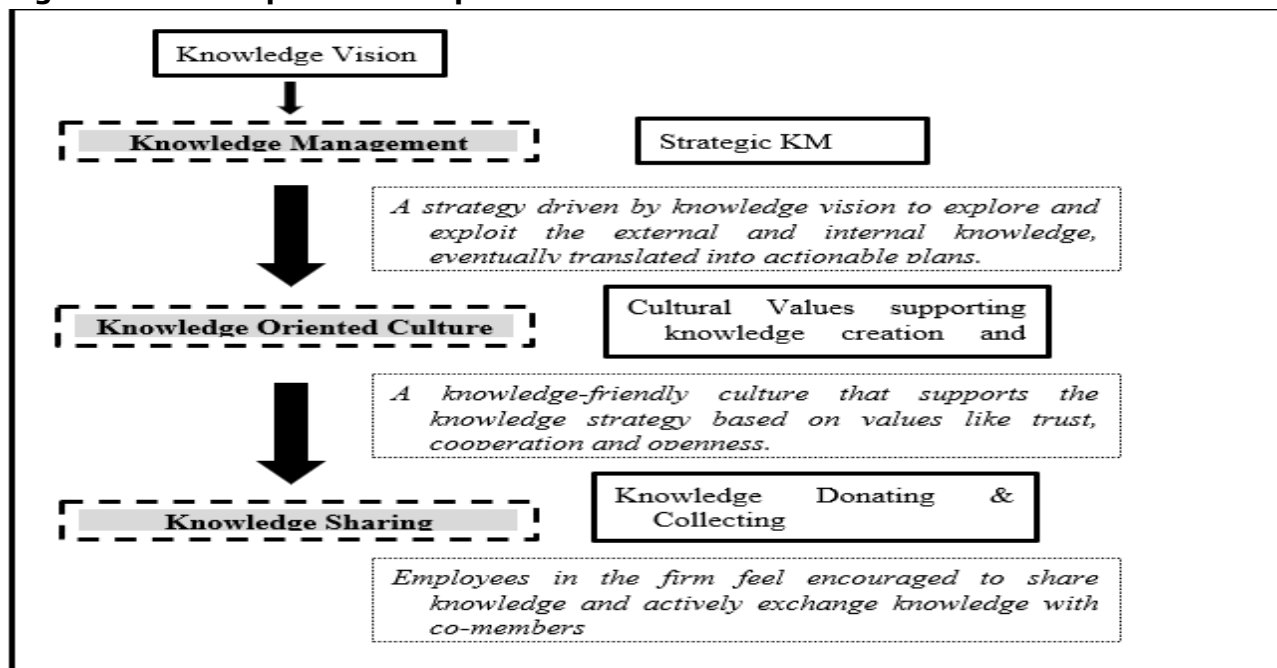
Among these three cross-field concept building/theory strategies, first and second approaches are widely used by researchers and third approach is less frequently used. This study also adopts the first approach and conceptually draws the discussion that how the innovative capability of the firm, a popular area in the domain of strategic management can be viewed through the lens of knowledge management (presented in Fig. 1 on next page). The first approach primarily relies on integrating concepts that could be brought on surface from within or across the fields to study phenomenon of interest. Similar approach has been used in which researchers have used the theories of organizational learning to study the phenomenon of international entrepreneurship (Zahra, Ireland, & Hitt, 2000). Moreover when explaining the domain of innovation, researchers have largely acknowledged the role of 'knowledge' (H.-F. Lin, 2007; Z. Wang & Wang, 2012). This shows that 'knowledge' holds central place in innovative behavior of the firm.

Literature has established that organizations do effective knowledge management through implementation of knowledge strategy. Firms that adopt a specified knowledge strategy (conservative or aggressive) typically attempt to protect their inside knowledge from being diffused outside environment. Organizations pursuing particularly aggressive knowledge strategy try to protect their knowledge sources through hiring and upraising intelligent, knowledgeable and loyal employees. For retaining and enhancing the capabilities of such employees, a supporting knowledge oriented culture must be there in place that promotes learning, openness, sense of collaborative work and commitment (Zack, 1999). For example quoting the case of Image Crop Ltd. Zack (1999) reported that the firm managed to successfully implement knowledge strategy through an appropriate knowledge friendly culture. A knowledge-oriented culture often leads to improved knowledge sharing mechanisms through which employees play their effective role thus contributing to the greater knowledge application. Such culture that promotes openness, collaboration and teamwork leads to improved knowledge sharing. The act of sharing knowledge as a result of a knowledge-oriented culture not only exerts a substantial influence on fostering an innovative culture as a result but it also leads to enhanced business performance. Knowledge intensive organizations in particular, develop and sustain such organizational culture that serves as the basis for the organizational employees to conveniently create knowledge for themselves, share their knowledge with other members and to most importantly to apply their knowledge into routine practices (Theriou, Maditinos, & Theriou, 2010). Supported by the literature, the present study combines these three related constructs of knowledge management and takes a holistic approach to develop a 'knowledge lens' and believe that it could be used effectively to examine firm's innovative capability.

2.2. A preliminary framework for knowledge driven innovation capability

The conceptual framework presented in Fig. 1(Framework) aims to study firms' innovation capability through the lens of knowledge management. It is a unique effort to integrate these dimensions of knowledge management in the context of innovative capability and no such model could be located in literature. Based on the theoretical understandings of connections between concepts of knowledge management and their application in studying the phenomenon of innovation capability, this study is first of its kind to develop a combined framework. Backed up by a blend of literature and discussion, Fig. 2 represents the conceptual framework in greater detail and depicts a combined framework that can be used to explain how KM concepts could be leveraged to explain firm's innovation capability.

Figure 2: The Proposed Conceptual Model



This proposed model outlines three distinct phases of knowledge management

Level 1: An organizational approach to bring knowledge resources and capabilities into firms’ business strategy is referred to as knowledge strategy. Firm’s knowledge strategy is a process in actual which involves creation, codification and dissemination of tacit and explicit knowledge across all the levels of the firm (Zack, 1999). This strong relationship between business strategy development and knowledge management is referred as “Strategic KM”, a term that reflects the development of elements that support the use of knowledge management in the creation of strategy and related decisions (Zack, 2002), The knowledge strategy of the firm must be incorporated into firm structure and processes in order to support creation and utilization of knowledge thus giving rise to a knowledge-friendly culture of the firm.

Level 2: A profound role of knowledge strategy would guide the whole organization towards an overall mechanism of continuous creation and sharing of knowledge, establishing value in collective norms – the creation of a knowledge friendly culture. According to McDermott and O’dell (2001), a knowledge oriented culture of a firm significantly enables knowledge creation and knowledge sharing mechanisms in an organization. Not only it acts as a source of knowledge sharing between employees, it also ensures diffusion of knowledge across all the levels of firm. Employees working in groups or teams thus having mutual trust in each other and being open to share their opinions makes a knowledge oriented culture of a firm a significant enabler of knowledge sharing behavior of employees (Theriou et al., 2010; Wong & Aspinwall, 2005).

Level 3: The outcome of a knowledge-oriented culture is such an environment in which efficient and effective knowledge sharing takes place through knowledge transfer behavior (receiving and sending) of employees (Van Den Hooff & De Ridder, 2004). S. Wang and Noe (2010) stated that when an effective knowledge sharing system is active in the firm’s setting, the knowledge application or contribution is significant that can even take shape of achievement and sustainability of competitive advantage or superior innovation performance of the firm.

This three stage framework identifies three distinct modules that explain the phenomenon of firm’s superior innovation capability through core KM concepts. Firstly, a firm when implements KM strategy concurrent to its business strategy focuses on building knowledge capabilities of the firm. Through continuous knowledge exploitation and knowledge exploration of both internal and external knowledge, a firm is better able to pave its way towards superior innovation firm performance (Zack, 1999). Secondly, when a knowledge-oriented culture thrives in a firm, it promotes a sense of openness and mutual trust among employees. This presents mainly two fold benefits, first through mutual trust, knowledge sharing among employees significantly increases, second, through openness, employees’ ability to innovate is also enhanced because of knowledge

sharing (Z. Wang & Wang, 2012). Lastly, and perhaps the most widely attributed aspect of this framework is knowledge sharing which has been largely found to be positively associated with firm superior innovation capability (H.-F. Lin, 2007).

2.3. Brief explanation of the phenomenon under observation and core KM concepts used in framework - Definitions

2.3.1. Firm innovation capability

In innovation literature, related terms like innovation, innovation capability, innovative capability, and innovation capacity have been used interchangeably but according to Lawson and Samson (2001) innovation capability and innovation are two separate entities, with innovation capability as a critical element for innovation outcome. Innovation capability is the integrated process of applying the collective knowledge, shared skills and resources of the firm to carry out innovation activities that end up in innovation outcomes. The innovations been classified in different categories, knowledge management in its holistic nature could cast effect on all major types of innovation in a firm (Huang & Li, 2009). Ngo and O`Cass defined innovation outcomes as "technical innovations that comprise products, services and process innovations or non-technical innovations that include marketing, administrative and management innovations or both (Ngo & O'Cass, 2009). So in a brief viewpoint, innovation capability is set of capabilities of a firm that result in innovation outcomes. Literature review reflects a tested connection between knowledge management and innovative capacity, mostly reflecting a strong positive connection between the two (Marques and Simon, 2006). In addition, identifying the positive impact of knowledge management on innovativeness is consistent with the results of previous studies (Andreeva & Kianto, 2011; Darroch, 2005).

2.3.2. KM Strategy

The word strategy is derived from Greek word '*stratēgia*' that means the art of the leader of army men. It has been differently defined by different authors. In the field of strategic management, the most widely accepted definition is however given by Michael E. Porter. According to Porter (1996), a competitive strategy is,

"A competitive strategy is a pattern of set expressions that how the business will compete in the market, what its goals will be and what efforts it will undertake to achieve the set goals."

The focus here is to explain knowledge strategy but before jumping into the broad area of knowledge strategy, we highlight the importance of a knowledge vision in developing any knowledge related strategies. Strong vision and employees' adaptive behaviors and organization can ensure effective prevalence of knowledge management processes in organization. Vision is believed to be a commencing point in strategy formulation and organizational transformational process (Kantabutra & Avery, 2010). Stewart (1993) defines Vision as "the concept of creating a description of what we could be in the future." People's involvement can be increased by communicating the essential elements of a strong knowledge vision which could help in formulation of a well directed strategy. In the domain of knowledge strategy, the most influential work done by Zack (1999). According to him the knowledge strategy is,

"Knowledge strategy is an organizational approach to bring the knowledge capabilities and resources into the business strategy of the organization. In simple words, KM strategy is a stage-wise process of creating, codifying and disseminating tacit and explicit knowledge within an organization, acquiring the right information and providing it to the right person at the right place and in the right time."

2.3.3. Knowledge Oriented Culture (KOC)

Schein (2006) presented an organizational culture as,

"A culture is a set pattern of shared beliefs, basic assumptions, values and practices of an organization that organizational members learn over a period of time by solving the organizational internal problems and external problems of adaptation."

A culture in an organization is reflected in both its observable features like the mission, vision and the organizational values and in non-observable features like being rooted in employees' behaviors that how they act, interact with each other and make sense of others'

actions. More specifically, culture is grounded in the central assumptions and core values of an organization (Schein, 2006). Brdulak suggested the "culture supporting knowledge management as combination of factors creating such environment in company, in which knowledge will be actually created, spread and used" (Brdulak, 2005). Having briefly defined the organizational culture, let's see what a knowledge oriented culture actually is. According to H.-C. Lin (2014), a knowledge oriented culture is,

"The feature of organizational culture that encourages its members to create and share knowledge that ultimately brings significant enhancement in their organizational management practices."

2.3.4. Knowledge Sharing

At its core, knowledge sharing is the way through which employees of the organization conjointly share their knowledge with each other. This knowledge sharing practice of employees effectively contributes to the knowledge application of organization in the form of competitive advantage and innovation performance (S. Wang & Noe, 2010). Knowledge sharing is basically divided into two parts, sharing willingness which refers to the degree to which employees are willing to share their knowledge and sharing behavior which states the degree to which employees actually share their knowledge with each other. Most of the literature discusses the relationship between culture and knowledge sharing as the authors stress the influence of culture on knowledge development (De Long & Fahey, 2000; Nonaka & Takeuchi, 1995), on knowledge sharing (Ford & Chan, 2002) and on the link between knowledge sharing and knowledge development (Glisby & Holden, 2003). Knowledge sharing occurs at both individual level and at organizational level. At the individual level, knowledge sharing refers to helping out the other employees so that they are able to perform their tasks more efficiently, effectively and quickly while at organizational level, knowledge sharing refers to a set of activities that include capturing, organizing and disseminating the learned knowledge throughout the organization so that others may make use of it (H.-F. Lin, 2007).

3. Proposed Research Models

Backed up by literature, the proposed framework presented in Fig. 2 identified three distinct but interconnected dimensions of knowledge management i.e. knowledge strategy, knowledge-oriented culture and knowledge sharing that conceptually appear to positively impact the innovation capability of the firm. Conceptualizing the links, three different research questions need to be addressed to contribute to innovation literature through concepts of knowledge management dimension.

1. What is the influence of knowledge strategy on firm innovation capability?
2. What is the influence of knowledge-oriented culture on firm innovation capability?
3. What is the influence of knowledge sharing on firm innovation capability?

These research questions are dealt in greater detail and discussed separately in forthcoming sections.

Proposed research model 1: Investigating link between knowledge strategy and superior firm innovation capability

The first exploratory inquiry to investigate firm's superior innovation capability through knowledge strategy can address the following broad research question:

RQ1: What is the impact of knowledge strategy on firm's innovation capability?

Today business organizations have acknowledged knowledge as the most important and valuable strategic resource. Organizations are coming to realize that their intellectual resources and capabilities must be explicitly managed in order to remain competitive and as well as innovative in the market. For this reason, organizations have started to take keen interest in undertaking variety of KM programs in their organizational setting (Davenport & Prusak, 2000). Though the focus relies primarily on managing the knowledge explicitly i.e. in documented shape (Davenport, Jarvenpaa, & Beers, 1996), but few organizations still consider that their tacit knowledge is the valuable knowledge that primarily resides in the heads of individuals and can only be expressed through socialization. That is why many organizations are experimenting

different organizational practices like informal gatherings, rewards and certain others to enhance the productivity of these social relationships. The question that arises here is that what is so special about knowledge that it leads to sustainable competitive advantage which ultimately results in superior innovation performance? Answer to this is: the tacit knowledge that is deeply rooted in organizational practices, especially context-specific inclines to be unique and thus becomes inimitable. Other traditional organizational resources are mostly available in the market and can be easily purchased but this is not the case with knowledge resource. For organizations that strive for acquiring the similar knowledge, these have to be engaged in similar practices which may require significant investment, thus making knowledge as a superior strategic resource (Zack, 1999).

As soon as the discipline of knowledge management emerged, business executives begin to take key interest in applying knowledge-oriented concepts in strategic decision making. They were continuously finding ways to bridge the concepts of organizations' business strategy and its intellectual resources and capabilities it possess, however there was a missing link between knowledge-focused processes and business strategy. This gap was filled by Zack (1999) when he first developed a sound theoretical model to address the issue which he titled as 'knowledge strategy'. A proper knowledge strategy is important for ensuring that knowledge management efforts are driven and supported by the firm competitive strategy. Knowledge can be characterized in a number of ways. The most popular classification is tacit and explicit knowledge and phronesis (Nonaka, 1994). It can be general or context-specific, individual knowledge or group knowledge. Even knowledge can be categorized by type like procedural knowledge, declarative knowledge, and causal knowledge. Such distinctions are useful while managing knowledge at the process level. However for knowledge strategy, such a knowledge classification is required that is inclined towards strategy. An organization's strategic knowledge can be taxonomically classified based on its capacity to support organization's competitive position. Explicitly, knowledge can be categorized into three main types. These include core knowledge, advanced knowledge and innovative knowledge (Zack, 1999).

'Core knowledge' is the basic knowledge that is required to run the organization. It's a common knowledge that every other market player has. The limited scope of such knowledge makes it ineligible to serve as the basis for a sustainable competitive advantage.

'Advanced knowledge' makes it possible for the organization to be competitive in the market. Competitors may have the similar quality and level of knowledge but some aspects of knowledge tend to vary, leading to differentiation of knowledge. So on the basis of advanced knowledge, competition is basically driven by knowledge differentiation.

'Innovative knowledge' is the most sophisticated form of knowledge that makes it possible for the organization to significantly lead the competition. Sometimes this innovative knowledge powers the organization so much that it allows the organization to reconfigure the industrial structure. Innovative knowledge is not static, instead it's dynamic, because the knowledge that is innovative today will become core knowledge at any future point of time. Therefore for remaining competitive, organizations continuously need to replenish their knowledge pools which can only be happen through continuous learning.

Having established from the above cited literature, the following proposition can be presented,

Proposition 1: Implementation of knowledge strategy will enhance firm's innovation capability.

The question here arises that if knowledge strategy is a general construct or does it has its types? If yes than of what kind of knowledge strategy should be implemented? Now, after discussing the strategic evaluation of types of knowledge and knowledge-based resources now we discuss the two important knowledge strategies emerge out and drive firms' innovation performance.

'Aggressive strategy' is exhibited when firms tend to become boundary-less innovators, aggressively working on exploiting internal knowledge and exploring external knowledge. Firms that adopt aggressive strategy show normally more superior firm performance as compared to

those which pursue less aggressive strategy. Aggressive strategy becomes much important to implement if a firm lags behind its competitors.

'*Conservative strategy*' is exhibited when firms are more inclined toward exploiting their internal knowledge. Firms typically do not show interest in acquiring external knowledge. Here the firms overwhelmingly focus on knowledge exploitation ignoring knowledge exploration. In-depth exploration of the primary research question of this research model may also provide answer to a secondary research question based on the two types of knowledge strategy.

RQ1a: *Does an aggressive knowledge strategy warrants superior firm's innovation capability?*

Proposed research model 2: Investigating link between knowledge-oriented culture and superior firm innovation capability

The second exploratory inquiry to investigate firm's superior innovation capability through knowledge-oriented culture can address the following broad research question:

RQ2: *What is the impact of knowledge-oriented culture on firm's innovation capability?*

In a research conducted by Wong and Aspinwall (2005), the authors identified eleven critical success factors (CSFs) for adoption of KM in SMEs from UK. Out of the top three ranked important factors for implementing KM in organization, knowledge oriented culture was ranked as second most important contributor towards KM implementation. A recent study has identified eight key dimensions of KOC, these include open approach, the professional approach, learning activeness, emphasis on innovation, coordination among relationships, sharing of experience, teamwork, and trust (H.-C. Lin, 2014). However for the sake of easiness and simplicity, the present study takes only three factors into account out of these eight. These three factors include openness, trust and collaboration or team work. The rationale of taking these three factors only is also supported by the research done by Wong and Aspinwall (2005) as they have identified the mentioned three factors as important attributes of a knowledge oriented culture. For a clear understanding, these three factors are briefly defined as below:

'*Openness or Open Approach*' refers to the degree to which the organizational employees are free to share their opinions with each other and to solve their problems informally by mutual helping (H.-C. Lin, 2014; Wong & Aspinwall, 2005).

'*Trust*' is the extent to which the employees trust the abilities of each other and leverage from such abilities of others in solving their problems. Trust is the key requirement of efficient knowledge transfer. Promoting trust among employees leads to a smooth and efficient knowledge sharing process because without trust, employees will restrict their knowledge to themselves which will result in failure of knowledge management programs (Theriou et al., 2010).

'*Collaboration or Team Work*' is the degree to which employees prefer to work in teams rather than working individually (H.-C. Lin, 2014). Collaboration has been proven empirically to be an important enabler of a knowledge creating culture and for creating an effective knowledge management in an organization, a supportive and collaborative organizational culture is the key ingredient. (Theriou et al., 2010).

Organizational culture plays a key role in enabling knowledge creation, knowledge sharing and its diffusion across all the levels of organization (McDermott & O'dell, 2001). In knowledge intensive organizations, organizational culture provides an open play ground for its employees to conveniently create knowledge for themselves, share their knowledge with other colleagues and to apply their knowledge into routine practices. Such an environment guided by openness enhances the innovation capacity of the firm because more and more employees engage in innovation centered activities. The development and nourishment of such knowledge oriented culture is however, not an easy task to do and it till now it has been one of the challenging tasks while implementing KM efforts and practices in organizations (Theriou et al., 2010).

Supported by the relevant literature referred before, the next proposition can be,
Proposition 2: *Cultivation of a knowledge-oriented culture will enhance knowledge sharing in the firm that will eventually improve firm's innovation capability.*

According to McDermott and O'dell (2001) a strong culture is a function of a promised commitment and clear approach to knowledge management. Organizations that successfully implement knowledge management practices in their organizational settings do not attempt to modify their organizational culture to set fit in their knowledge management approach, instead these organizations shape their knowledge management approach to set fit in organizational culture. This is how such organizations are able to reap benefits from a knowledge friendly culture. Organizations can successfully create knowledge oriented cultures by not only integrating knowledge sharing mechanisms into its business strategy also stated by McDermott and O'dell (2001) but by also modifying employee behaviors and encouraging them to increase their willingness to share their knowledge with others (Connelly & Kelloway, 2003). In such organizations where there is an encouraging social interaction culture, the top management and employees regardless of their organizational status, socialize and interact with each other. Today, organizations have even started to provide complimentary food and drink to its employees so that the interaction among them increases (Connelly & Kelloway, 2003). One of the reasons why organizations have started to care about creating knowledge friendly cultures is that there are a number of potential benefits of a social interaction culture with regard to knowledge sharing and innovation. These primarily include an emergence of enhanced problem solving mechanisms and mutual trust building among employees due to effective knowledge sharing (Kelloway & Barling, 2000).

Proposed research model 3: Investigating link between knowledge sharing and superior firm innovation capability

The third and final exploratory inquiry to investigate firm's superior innovation capability through firm's knowledge sharing mechanisms can address the following broad research question:

RQ3: *What is the impact of knowledge sharing on firm's innovation capability?*

According to Van Den Hooff and De Ridder (2004), there are two fundamental dimensions of knowledge sharing i.e. knowledge donating and knowledge collecting.

'*Knowledge donating*' refers to process in which individuals communicate their personal intellectual capital to each other.

'*Knowledge collecting*' refers to the process of encouraging other employees so that they share their intellectual capital with other employees.

Literature has established that these two knowledge sharing processes lead to superior firm innovation capability. Supported by the literature, the third proposition can be,

Proposition 3: Increased knowledge sharing in the firm will result in improved firm's innovation capability.

The question at this point arises that what drives these knowledge sharing processes that lead to greater innovation ability. This has been investigated by research conducted by H.-F. Lin (2007). According to the study, three factors titled: individual factors, organizational factors and technology factors act as enablers of knowledge donating and knowledge collecting processes that result in superior firm innovation capability.

The individual factors include two elements i.e. enjoying helping others and attaining knowledge self-efficacy. Employees enjoy helping each other because of their inner motivation and because they find the problem confrontations challenging and pleasurable. Due to such internal motivation and pleasurable feeling while facing challenges, employees become more persuaded to share knowledge with other employees in terms of both knowledge donating and knowledge collecting. Second a feeling of confidence over one's ability (in this case having an expert knowledge) could become a source of motivation for knowledge sharing. Self-efficacy refers to the self-confidence that employees have which motivates them to share their knowledge with other employees. Knowledge self-efficacy generally demonstrates that employees believe in their capability that their knowledge can prove to be fruitful to other employees in solving their

problems. Employees who are high in self-efficacy are good at both receiving (collecting) and contributing (donating) knowledge. The second important element is associated with the overall organizational dynamics. The most important of the organizational elements discussed are top management support and organizational reward systems. Support and positive reinforcement from top management is essential in crafting effective knowledge sharing mechanism. As the support from top management increases, organizational knowledge sharing climate fosters both in meaning of knowledge donating and knowledge collecting. In addition to this top management support, organizational reward systems also motivate employees to share knowledge because whenever employees are rewarded both in monetary and non-monetary terms, their willingness to share knowledge with other colleagues to donate and collect knowledge increases. The final factor that contributes to knowledge sharing process is the technology factor. Information and communication technology and knowledge sharing are closely knitted because of the speedy access and usage of ICT tools. Such a rapid access enables the employees to obtain, define and seek knowledge in efficient and quick way. Detailed exploration of the primary research question of this final research model may also provide answer to the secondary research question relevant to the enabler dimensions identified above.

RQ3a: Which of the three factors (Individual, organizational and technological) significantly drives the knowledge sharing process?

4. Conclusion

Drawing literature from two different academic streams i.e. strategic management and primarily knowledge management a conceptual structure has been framed to study the phenomenon of firm innovation capability through knowledge management lens. The three core KM concepts that have been incorporated into KM lens include knowledge strategy, knowledge-oriented culture and knowledge sharing. Based on the conceptual framework that is based on the relevant literature, three research models have been presented that propose three different research directions. The first area proposed to investigate the impact of knowledge strategy on strengthening firm innovation capability. The second area proposed to conduct inquiry on studying the effect of a knowledge-oriented culture on firm's innovation capability followed by the final research area that proposed to investigate the effect of knowledge sharing on enhancing firm's innovation capability. Based on the connections present between the literature of innovation management and knowledge management, key propositions have also been presented with each aiming to study the phenomenon of innovation capability from a different knowledge management perspective. The conceptual framework developed suggests the importance of a proper knowledge strategy to establish the linkage between knowledge management and innovation as early in the business strategy development process; it results in setting a right direction for the whole organization in the context of knowledge management as sharing knowledge and fostering innovation seem to be pivotal factors in acquiring a competitive edge (Azeem, Ahmed, Haider, & Sajjad, 2021). Secondly the establishment of a knowledge strategy in general and an aggressive knowledge strategy in particular may result in establishment of knowledge oriented goals but it will also help in cultivating a knowledge oriented culture. A climate based on trust, openness and teamwork will facilitate the overall processes of knowledge management across all levels of the organization and may result in a strong commitment and cooperation among the employees. The knowledge oriented culture will drive commitment among employees and team members resulting in effective knowledge sharing – an essential activity as the most important knowledge (tacit) resides with people and requires a mechanism for sharing through social interaction and through ICT.

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