Who are the Crew Members on Implementation of Knowledge Management Strategies to Enhance Innovation and Improve Organizational Performance

Laith Ali Yousif AL-Hakim
Faculty of Administration and Economics,University of Kufa,Kufa, Iraq
laitha.alhakim@uokufa.edu.iq
Shahizan Hassan
School Graduate of Business, University Utara Malaysia, 06010 UUM Sintok, Kedah, Malaysia
shahizan@uum.edu.my

Abstract
The purpose of present study is to determine the role of mid-level managers in implementation of knowledge management strategies toward enhancing innovation and improving organizational performance. To address this issue, an intensive literature review was used. There is only one way to survive, stability, and growth for the contemporary organizations. Successful implementation of knowledge management strategies will enable innovation sustainability and organizational performance improvement. Therefore, the organizations must choose the best way to implement knowledge management strategies. However, there has been a lack of an integrated implementation framework for knowledge management strategies. The present study finds that mid-level managers could play a critical role in insuring the successful implementation of knowledge management strategies. As a result, present study proposed theoretical framework that explained how the mid-level managers influence in the implementation of knowledge management strategies. Additionally, how the successful implementation of knowledge management strategies lead to enhance innovation and improve organizational performance.
Keywords Mid-level managers' role, knowledge management strategies, innovation, and organizational performance.
Paper type Conceptual paper

1. Introduction

Numerous studies have shown that Knowledge Management (KM) strategies are able to help achieve or maintain success of contemporary organisations. Indeed, the implementation of KM strategies is said to be the best way to improve organisation's ability in various aspects such as innovation capacities (Brachos *et al.*, 2007; Chang & Lee, 2008; Chen & Huang, 2009; Jiang & Li, 2009; Liao & Wu, 2010; Sáenz *et al.*, 2009) and organisational performance (OP) indicators (Asoh *et al.*, 2007; Bierly & Daly, 2007; Choi *et al.*, 2008; Ho, 2008; Kim & Gong, 2009; Liao & Wu, 2009; Yang *et al.*, 2009; Zack *et al.*, 2009). KM strategies are broadly recognized that knowledge is a momentous resource for strategic organisation in enhancing innovation and improving OP (Rhodes *et al.*, 2008). Despite the increasing importance of knowledge as being a resource of strategic perspective, there is still lack of understanding the critical factors for the implementation of KM strategies (Garavelli *et al.*, 2004; Hwang, 2003; Maier & Remus, 2003). Although there are a large number of KM strategies frameworks, organizations still face difficulty with this part due to a lack of an integrated framework of its implementation (Chong *et al.*, 2007, 2009). Current KM strategies frameworks have neglected identifying the nature of the relationship between crew members and successful implementation of KM strategies, which is reflected in the limited studies that have investigated the relationship between mid-level managers' role and successful implementation of KM strategies (Gunther-McGrath, 2001; Huy, 2001; Janczak, 1999, 2004; Lee, 1999; Richards, 2004; Theriou & Chatzoglou, 2008; Yang *et al.*, 2009).

On other hand, a number of studies have noted that KM strategies could play a major role in increasing innovation (Darroch & McNaughton, 2002; Forcadell & Guadamillas, 2002; Rhodes *et al.*, 2008). However, there are limited empirical studies that investigate the relationship between KM strategies and innovation (Rhodes *et al.*, 2008). Therefore, there is an existing gap in the literature on KM strategies and its influence on innovation (Majchrzak *et al.*, 2004; Rhodes *et al.*, 2008). Correspondingly, several studies have indicated that KM strategies could play a major role in higher OP (Bierly & Daly, 2007; Choi *et al.*, 2008; Chong *et al.*, 2009; Schulz & Jobe, 2001; Turner & Bettis, 2002). Nevertheless, there is still a lack of studies that attempt to analyse the effect of KM strategies on OP (Choi *et al.*, 2008). In this regard, very few studies have investigated the relationship between KM strategies and the Balanced Scorecard (BSC) indicators (Chen & Mohamed, 2008; Lee & Lee, 2007; Yu & Liying, 2009). Therefore, there is also an existing gap in the literature on KM strategies and its influence on OP (Yang *et al.*, 2009; Zack *et al.*, 2009). That gap is consistent with Kalling's (2003) remark that "there are relatively few knowledge management texts that make an explicit connection between knowledge and performance." (Kalling, 2003, p. 67).

From the gaps listed above, the issue of the relationships among mid-level managers' role, successful

implementation of KM strategies, innovation, and OP is still unclear, and there are very limited studies in this area. Therefore, present study contributes to the previous studies by proposed theoretical framework which explains the relationships among mid-level managers' role, KM strategies, innovation, and OP from the holistic theory of knowledge and learning and knowledge-based view (RBV) perspectives.

2. Literature Review

2.1 Crew Members for Implementation of Knowledge Management Strategies

In order to achieve successful implementation of KM strategies, organisations need to determine the crew members responsible for it. Therefore, this section discusses the responsible crew members for implementation of KM strategies and how they are identified. Nonaka and Takeuchi (1995) are among the first to coin the term "Knowledge Crew". This concept refers to the crew members responsible for the identification, promotion and creation of knowledge within the organisation. The knowledge crew consists of three key people in the organisation: the knowledge officers (top management), the knowledge workers (mid-level managers), and the knowledge practitioners (front-line employees). Table 1 briefly describes the roles of the knowledge crew.

Table 1

Comparison of the Three Management Models Regarding Knowledge Creation

		Top-down	**Bottom-up**	**Middle-up-down**
Who	Agent of knowledge Creation	Top management	Entrepreneurial Individual	Team (with middle managers as knowledge engineer)
	Top management role	Commander	Sponsor/mentor	Catalyst
		Information processor	Autonomous	Team leader
	Middle management role		Entrepreneur	
What	Accumulated Knowledge	Explicit	Tacit	Explicit and tacit
	Knowledge conversion	Partial conversion Focused on Combination/ Internalization	Partial conversion Focused on Socialization/ Externalization	Spiral conversion of Internalization Externalization/ Combination/ Socialization
Where	Knowledge storage	Computerized database/manuals	Incarnated in Individuals	Organisational Knowledge base
How	Organisation	Hierarchy	Project team and Informal network	Hierarchy and task Force(hypertext)
	Communication	Orders/instructions	Self organising Principles	Dialogue and use of Metaphor/analogy
	Tolerance for Ambiguity	Chaos/fluctuation not allowed	Chaos/fluctuation Premised	Create and amplify Chaos/fluctuation
	Weakness	High dependency on Top management	Time consuming cost of coordinating individuals	Human exhaustion Cost of redundancy

Source: Adopted from Nonaka and Takeuchi (1995: pp.130)

According to Nonaka and Takeuchi (1995), knowledge creation generally starts from mid-level managers who are considered the true "knowledge workers" of creating new knowledge in the organisation. They are responsible for synthesizing tacit knowledge of top management and front-line employees, and transfer it into explicit knowledge. They are also able to create a spiral of knowledge across different functional areas in the organisation structure. Accordingly, mid-level managers play a central role in KM implementation. The mid-level managers are defined as "managers occupying positions that fall within a range of two levels below the head of the organisation and one level above supervisory staff or professional employees" (Richards, 2004, p. 67).

Since early 2000s, several studies have been conducted to measure the effective role of mid-level managers in creating new knowledge. All of these studies have agreed that the role of mid-level managers has shifted from just being a link between top management and operational supervisors to a new role that seeks to create knowledge and utilize knowledge through the provision of innovative work, which is reflected in the OP (Gunther-McGrath, 2001; Huy, 2001; Janczak, 2004; Richards, 2004).

Accordingly, Janczak (2004) explored the dynamics and new roles of mid-level managers in the creation and integration of knowledge. The author noted that the mid-level managers used three behavioral roles (i.e. analytic, intuitive and pragmatic), which are integrated with knowledge modes to create new knowledge. Table 2 summarizes the relationship between mid-level managers' roles and knowledge modes.

Table 2

The Relationship between Mid-level Managers' Roles and Knowledge Modes

	Analyst	**Intuitive**	**Pragmatic**
Development time	Short term	Medium/long term	Long term
How people are influenced	Authoritarian logic	Emotional logic	Conciliatory logic
Result	Delivering a solution	New work method	Repositioning
Change orientation	Stability/planned	Renewal	Adaptation/incremental
Action process	Reactive	Proactive	Interactive
Nature of knowledge	Explicit	Tacit and explicit	Tacit and explicit
Knowledge initiative	Implementing imported solution	Experimenting new options	Adaptation
Knowledge approach	Collecting external knowledge	Creating and pursuing new opportunities; supporting employees' initiatives	Linking dispersed knowledge, skills, and best practices internal to or across departments.
Nature of results	Technical conformity/ standardization	Satisfaction and professional creativity	Satisfying
Feedback/evaluation	No feedback	At the end	Continuous
Knowledge goal	Truth	Pleasure	Utility
Preferred knowledge roles	Problematic searcher, passive filter	Radar, catalyst, active filter	Opportunistic searcher, connector, missionary

Source: Adopted from Janczak (2004: pp. 221)

Table 2 shows that mid-level managers have become a source of knowledge and leaders of knowledge employee (Nonaka & Takeuchi, 1995; Richards, 2004). Hence, the aim of mid-level managers is not merely creating new knowledge and transferring it between top management and the front line employees, but to achieve successful KM implementation. Furthermore, Takeuchi (2001) believes that the mid-level managers play a critical role in resolving any conflicts that may occur between top managers and front-line employees when KM is implemented.

2.2 Knowledge Management Strategies

According to Xie (2009), KM strategies are defined as the typical process of collocating, codifying and transferring explicit and tacit knowledge between employees in the right place and at the right time. There is almost an agreement among researchers on the division of KM strategies types. A better understanding of the types of KM strategies can be achieved through a review of most important contributions (see Table 3).

Table 3

Types of Knowledge Management Strategies

KM strategies	**Author and Year**
Codification and personalisation	Edvardsson (2008), Ewing and West (2000), Greiner *et al.* (2007), Hansen *et al.* (1999), Keskin (2005), Kumar and Ganesh (2011), Maier and Remus (2003), Meroño-Cerdan *et al.* (2007), Rhodes *et al.* (2008), Sobahle (2005), Xie (2009), Yu *et al.* (2006)
Cognitive model and community model	Swan *et al.* (2000)
Technocratic organisational, and spatial	Earl (2001)
Codification and tacitness	Schulz and Jobe (2001)
Systems-oriented and human-oriented	Choi and Lee (2003), Ju *et al.* (2006)
Explicit-oriented and tacit-oriented	Choi *et al.* (2008), Keskin (2005)
Exploration and exploitation	Bierly and Daly (2007)

The present study adopted two conceptualisations of KM strategies (i.e. codification and personalisation strategy). According to Choi and Lee (2003) and Meroño-Cerdan *et al.* (2007), the exploitation, explicit-oriented, cognitive model, technocratic organisational, and market-and systems-oriented strategies are classified as codification whereas exploration, tacit-oriented, community model, organisational, spatial, tacitness, and human-oriented strategies are classified as personalisation.

Codification strategy refers to extracting explicit knowledge for its storage in knowledge databases, where it can be accessed and re-used simply by employees in the organisation. The aim of this strategy is to secure knowledge for any employee through collecting, classifying, documenting, capturing, and recording processes (Greiner *et al.*, 2007; Kumar & Ganesh, 2011). Whilst personalisation strategy is closely linked with the employee who develops the knowledge and is shared mostly through direct employee-to-employee contacts. The aim of this strategy is to achieve the best informal transfer of tacit knowledge at the individual level in an organisation (Choi & Lee, 2003; Smith, 2004). According to Meroño-Cerdan *et al.* (2007), before choosing any one particular strategy above, an organisation should understand some instruments of KM strategies, as shown in Table 4.

Table 4

Instruments of Knowledge Management Strategies

Codification Strategy	**Personalisation Strategy**
Decision support systems	Spontaneous knowledge transfer initiatives
Groupware	Mentoring
Document repositories	Teams communities of practice
Knowledge maps	Groupware
Workflow	Video conferencing
Shared databases	Yellow pages
	Discussion forums

Source: Adopted from Meroño-Cerdan *et al.* (2007)

Generally, the KM instruments of codification strategy seek to make explicit knowledge available to all employees in the organisation, while the KM instruments of personalisation strategy seeks to create interaction and sharing among employees in the organisation (Meroño-Cerdan *et al.*, 2007). For more details, Hansen *et al.* (1999) summarize the difference between codification and personalisation strategies, as shown in Table 5.

Table 5

Differences between Codification and Personalisation Strategies

	Codification Strategy	**Personalisation Strategy**
Competitive strategy	Provide high-quality, reliable, and fast Information-systems implementation by reusing codified knowledge.	Provide creative, analytically rigorous advice on high-level strategic problems by channeling individual expertise.
Economics	Reuse economics: Invest once in a knowledge asset, reuse it many times.	Expert economics: Charge high fees for highly customised solutions to unique problems.
Knowledge Management Strategy	Use large teams with a high ratio of associates to partners; Focus on generating large overall revenues; People-to-Documents: Develop an electronic document system that codifies stores, disseminates and allows reuse of knowledge.	Use small teams with a low ratio of associates to partners; Focus on maintaining high profit margins; Person-to-Person; Develop networks for linking people so that tacit Knowledge can be shared.
Information Technology	Invest heavily in IT; the goal is to connect people with reusable and codified knowledge.	Invest moderately in IT, the goal is to facilitate conversation and the exchange of tacit knowledge.
Human Resources	Hire new college graduates who are well suited to the reuse of knowledge and the implementation of solution; Train people in groups and through computer-based distance learning; Reward people for using and contributing to document database.	Hire new MBA who like problem solving and can tolerate ambiguity; Train people through one-on-one for directly sharing knowledge with others.

Source: Adapted from Hansen *et al.* (1999)

According to Hansen *et al.* (1999), before the organisation seeks to implement one of the strategies, it has to find answers to these questions or otherwise it fails in the implementation of KM strategies (Hansen *et al.*, 1999):

1. Does the organisation's capability lead to provide standardised or customised products?
2. What are the innovative products provided by the organisation?
3. Does the organisation depend on tacit knowledge or explicit knowledge, or both?

2.3 Innovation

Innovation is defined as "the creation of new knowledge and ideas to facilitate new business outcomes, aimed at improving internal business processes and structures and to create market driven products and services." (Plessis,

2007, p. 21). Literatures on innovation indicate a variety of types of innovation (Damanpour *et al.*, 2009), ranging from incremental to radical, for example. Some researchers group the types of innovation into three main categories: administrative and technical, product and process, and radical and incremental (Yang, 2007). The reasons why organisations adopt different types of innovations are because of environmental conditions, organisational factors, generation processes of innovation, and organisational sector. Despite innovation is a multi-type activity, present study will adopt the results of previous studies that considered the technological innovation, administrative innovation, radical innovation and incremental innovation as a main reason to survival and growth organisations (Blazevic, 2003; Jaspers *et al.*, 2007; Oke, 2007).

Technological innovation is the knowledge that links methods, components, and techniques with processes to create a product or service (Popadiuk & Choo, 2006). Administrative innovation refers to the changes in organisational structure and processes, like the authority, tasks structuring, personnel recruitment, resources allocation and rewards (Lin *et al.*, 2010). Radical innovation is a main change that represents a new technological pattern (Pedersen & Dalum, 2004), and requires more organisational capabilities and superior profundity of knowledge (Darroch & McNaughton, 2003). Incremental innovation is defiend as cumulative and gradual nature of technological changes in organisation to create products or services (Pedersen & Dalum, 2004). As such, unlike incremental innovation, it does not require much organisational capability (Darroch & McNaughton, 2003).

2.4 Organisational Performance

The OP indicators have become an important issue in evaluating organisational success (Moullin, 2007). It is defined as "comparing the expected results with the actual ones, investigating deviations from plans, assessing individual performance and examining progress made towards meeting the targeted objectives." (Ngah & Ibrahim, 2010, p. 503). Based on this definition, OP indicators can provide assistance for managers to evaluate the organisational activities and maintain the competitive position or superiority over competitors (Liao *et al.*, 2009; Visser & Sluiter, 2007).

In this regard, the BSC approach is one of different well-known ways for evaluating the knowledge management and innovation performance by examining the gap between a target and an actual performance of the organisation (Bose & Thomas, 2007; Gonzalez-Padron *et al.*, 2010; Wegmann, 2008; Yu & Liying, 2009). According to Lee and Lee (2007), several assessment methods are included in the knowledge management performance. These methods can be classified into four groups (financial measures, intellectual capital, tangible and intangible benefits, and balanced scorecard), but the BSC is considered to be more useful than intellectual capital or tangible and intangible approaches because it provides a comprehensive view of the organisation's actual performance. In a similar context, Wegmann (2008) indicated that the BSC approach is compatible with knowledge management. It is the best approach to evaluate knowledge management within any organisation (Hongmei & Yujun, 2010). On the other hand, Yu and Liying (2009) claimed that BSC has become the main approach and a prerequisite for assessing innovation performance. Furthermore, Kaplan and Norton's (2006) BSC provides the evaluation of innovation performance as the first priority in its approach.

Kaplan and Norton developed the first BCS in the early 1990s, which encompassed financial and non-financial measures. The original BSC recommends that an OP should be assessed from four perspectives (Creamer & Freund, 2010, p. 365):

1. The financial perspective emphasizes the long-term objectives of the organisation in terms of revenue growth and productivity improvement. The financial objectives should be the final goals for the other perspectives.
2. The customer perspective emphasizes the lifetime relationship and service delivery with customers.
3. The internal process perspective focuses on the use of customer information to sell new services according to their needs.
4. The learning and growth perspective is the foundation of the BSC; this perspective looks at the motivation, training, and capacity to innovate that employees need in order to implement organisational objectives.

2.5. Knowledge Management Strategies and Innovation

In general, Darroch and McNaughton (2002) emphasized that increased innovation requires different knowledge resources and, hence, different KM strategies. In this context, Majchrzak *et al.* (2004) demonstrated that the KM implementation is a strategy to improve innovation. They recommended a significant and positive effect of explicit knowledge reuse (which considered a codification strategy) on radical innovation. In the same vein, Rhodes *et al.* (2008) argued that the effect of codification and personalisation strategies that regarded as a knowledge transfer strategy leads to enhanced innovative capabilities, including product innovation and process innovation. According to the results, only the personalisation strategy is significantly and positively related to product innovation and process innovation. Due to the lack of empirical studies investigating the relationship between KM strategies and innovation, the researchers suggested that further research be conducted in other industries, which the present study does. As the discussion thus far indicates, few researchers have attempted to analyse in depth the relationship between KM strategies and innovation; consequently, this relationship is not yet

well understood.

2.6 Knowledge Management Strategies and Organisational Performance

In this context, Schulz and Jobe (2001) mentioned that achieving high results in OP improvement depends on KMSs. Their results showed that business units with a matched codification focus have higher OP than business units with an unmatched codification focus. Moreover, the results indicate that the codification strategy is an important recourse of superior OP. Thus, the researchers suggested that further studies examine the relation between codification strategy and OP. Similarly, Bierly and Daly (2007) emphasized that KMSs play an important role in improving OP from the KBV perspective, but limited studies have sought to examine their effects. The researchers revealed that only exploration strategy (personalisation strategy) has a positive related to OP. Therefore, they suggested that organisations give more attention to applying KMSs and recommended more studies to confirm their results.

In the same vein, Choi *et al.* (2008) noted the lack of empirical studies examining the relationship between KMSs and OP. These researchers examined the interrelationship between KMSs and their effects on OP. KMSs were measured in two dimensions: (i) explicit-oriented (codification strategy) and (ii) tacit-oriented (personalisation strategy). The results supported a complementary relationship between KM focus (i.e. explicit-oriented, tacit-oriented) and KM source (i.e. external-oriented, internal-oriented), which leads to a positive relationship with OP. They further suggested the need for more studies in this area.

Besides, Keskin (2005) explored the relationship between KMSs and OP from the KBV perspective. KM strategies were divided into explicit-oriented (codification strategy) and tacit-oriented (personalisation strategy) strategies based on knowledge characteristics. The results indicate that KMSs have a significant and positive effect on OP (including the organisation's success, market share, growth, profit, innovation, and size); the effect on OP is higher with the explicit-oriented strategy than the tacit-oriented one. In the same manner, Choi and Lee (2003) recommended that the system-oriented (codification strategy) and human-oriented (personalisation strategy) strategy be considered as two critical factors in building a high OP. Yu *et al.* (2006) also explored the relationship between KMSs, including the codification strategy and personalisation strategy with OP, which includes market performance, human resource efficiency, and successful new product/service. The researchers found that codification strategy has a significant and positive effect on OP while personalisation strategy has a significant and negative effect on OP. Further research in this area should focus on more variables in the link between KMSs and OP. Although some empirical studies have examined the relationship between KM strategies and OP, the results to date remain uncertain.

3. Theoretical Framework

The relationship between the mid-level managers' role and KM strategies has been developed based on holistic theory of knowledge and learning. This theory was established on a dialectical view of the character of knowledge and adult learning practice. Holistic theory defines knowledge as a social construct with three distinctive and interrelated facets—explicit, implicit, and emancipatory knowledge (Yang *et al.*, 2009). Indeed, it explains the individual behavior has direct effect on successful implementation of KM strategies. From the previous argument, the mid-level managers' role that consists of analyst, intuitive and pragmatic is regarded as the best way to implement KM strategies (Janczak, 2004, 1999). On the other hand, the relationships between KMSs and innovation, as well as the relationship between KMSs and OP have been developed based on KBV. Within theoretical perspective of KBV, knowledge has become the main strategic significant source for all successful organisations and not land, labor, capital or the production of other elements. The success of organisations is argued to depend on the efficient management of internal and external knowledge sources to adapt to the change that occurs in the environment. The ability to adapt to these changes is purported to enhance innovation and superior performance (Asare, 2008; Kiessling *et al.*, 2009; Pathirage *et al.*, 2007). Figure 1 shows the theoretical framework of the relationships among study's variables.

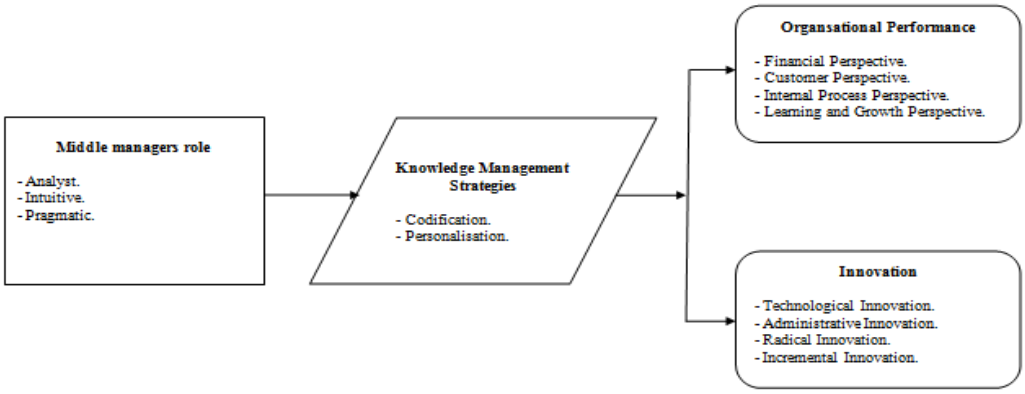

Figure 1

Theoretical framework

As contributions to the body of knowledge, the theoretical framework of the present study is developed based on holistic theory of knowledge and learning and KBV theory perspectives. The proposed theoretical framework shown in Figure 1 describes the causal relationships among four variables of the mid-level managers' role, KMSs, innovation, and OP. Undoubtedly, the independent variables in this framework is the mid-level managers' role (i.e. analyst, intuitive, and pragmatic). Additionally, the dependent variable are innovation (i.e. technological innovation, administrative innovation, radical innovation, and incremental innovation) and OP (i.e. financial perspective, customer perspective, internal process perspective, and learning and growth perspective). On the other hand, KMSs (i.e. codification and personalization) acts as the mediating variable between the mid-level managers' role, innovation, and OP.

4. Conclusion

In today's business environment, KMSs have become a lifeline for contemporary organizations. Nevertheless, the complexity of KMSs has increased gradually due to the lack of comprehension of the critical factors for successful implementation. Consequently, understanding the role of mid-level managers in the context of KMSs is uncertain of the organizations. Furthermore, there is still a lack of studies that attempt to analyse the effect of KM strategies on innovation and OP in a single research. Present study provides an integrative theoretical framework, which was developed based on the intensive literature review. From the perspective of both holistic theory of knowledge and learning and KBV theories, the theoretical framework describes the relationships among mid-level managers' role, KMSs, innovation, and OP. Therefore, there are considerable opportunities for further empirical research in this area.

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