

# The role of knowledge sharing culture in business performance

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## Abstract

**Purpose** – The aim of this study is to investigate the role of knowledge sharing (KS) culture in leveraging knowledge management (KM) strategy and human resource (HR) strategy to improve business performance (BP).

**Design/methodology/approach** – A structured questionnaire survey was distributed to 120 randomly selected companies in Kuwait. A total of 392 valid responses were collected and tested using a structural equation model. Statistical analysis was conducted using SPSS and LISREL software to verify the research hypotheses.

**Findings** – The results revealed the impact of the mediating variable KS culture on the enhancement of BP. Both KM strategy and HR strategy were observed to have a positive direct effect on KS culture.

**Practical implications** – The results indicate that top management should make efforts to cultivate a KS culture to achieve better BP and future success.

**Originality/value** – The primary research contribution is the conceptual model for the role of KS culture as a mediator between KM strategy, HR strategy and BP.

**Keywords** Knowledge sharing, Knowledge management, Knowledge flows and culture

**Paper type** Research paper

## 1. Introduction

The current business environment is increasingly facing challenges and fierce competition. Thus, it is critical for organizations to create resources that are both valuable and difficult to imitate (Barney, 1991). Integrating these difficult-to-copy resources within an organization is seen as a fundamental driver of performance (Conner, 1991). In particular, knowledge is regarded as one of the most important resources for businesses – even more important than physical assets, such as land, capital and labour. For an organization to retain a sustainable competitive advantage, knowledge is essential (Chen *et al.*, 2012; Nonaka *et al.*, 2000). Therefore, implementing a knowledge management (KM) strategy is considered to be a pressing issue in modern firms. Shih and Chiang (2005) argue that KM is a strategic tool that strengthens competitive ability, as it helps organizations perform more productively. Moreover, KM helps organizations to reduce costs, raise profits, identify new markets, increase their market share, improve efficiency and meet customer needs (Civi, 2000; Stam, 2007). Importantly, KM researchers have noted that KM comprises more than software and hardware infrastructure; it also involves culture and people (Meso and Smith, 2000). Knowledge is created by and embedded in individual employees. Therefore, human resource management (HRM) policies and systems can significantly facilitate or hamper the development and transfer of organizational knowledge and, ultimately, business performance (BP) (Shih and Chiang, 2005). The real power of organizational knowledge



lies in its sharing and transmission. Knowledge sharing (KS) involves transferring knowledge between two individuals, units or entities, through a process of communication where the knowledge becomes reinterpreted and recreated. The creation of new knowledge is thus the net outcome of this process (Egbu *et al.*, 2005). KS has been shown to improve both individual and organizational performance and innovativeness (Haas and Hansen, 2007; Fukugawa, 2006). In addition, KS is argued to lead to better BP through improved decision-making and coordination (Zarraga and Bonache, 2003). If knowledge is not shared, the cognitive resources available within a group remain underutilized (Cabrera and Cabrera, 2005). An organizational context characterized by trust, open communication and the sharing of knowledge will reflect positively on BP.

We seek to enrich the discourse on the relationship between strategy (KM and HR) and BP. According to the fit-as-mediation view, when faced with keen competition, organizations often aggressively pursue intra-organizational collaboration to improve performance. Thus, we need to understand the role that KS culture plays between KM strategy and BP and HR strategy and BP. To ensure corporate survival and success, it is important for both managers and scholars to understand how these different strategies affect BP.

The research investigating various strategies and their impact on KS culture and BP is insufficient. Therefore, the current study aims to address the following questions:

- Q1. To what extent does KM strategy, HR strategy and KS culture influence business performance?
- Q2. Does the mediating variable, KS culture, play a role in improving business performance?

## 2. Research constructs

As the world moves towards knowledge-based economies, the field of KM is becoming increasingly important. According to most knowledge-based theories of the firm, knowledge exploitation is the key source of competitive advantage for organizations (Grant and Baden-Fuller, 2004). In this regard, a firm is viewed as a facilitator for the integration of the knowledge that exists in the minds of individuals. This view emphasizes the human aspects of organizational activity, including KM strategy, HRs and the cultivation of an environment that encourages employees to share their knowledge.

### 2.1 Independent constructs

**2.1.1 Knowledge management strategy.** The resource-based view perceives the firm as a bundle of resources and capabilities. Thus, to maximize value, strategy is geared towards the optimal exploitation and development of resources (Grant, 1991). In particular, an organization's KM strategy is aimed at building and managing knowledge stock through the process of effectively creating, transferring and distributing knowledge (Shih and Chiang, 2005). The KM literature identifies two major and distinctive approaches to KM: codification and personalization. Davenport and Prusak (1998) explained that the aim of codification is to place organizational knowledge into a form that makes it accessible to those who need it. In their view, this means literally turning knowledge into a code to make it as organized, explicit, portable and easy to understand as possible. Hansen *et al.* (1999) described this approach as one that

centres on the use of computers. They explained that knowledge is codified and stored in databases where it can be accessed and used easily by anyone in the company. Knowledge is codified using a people-to-documents approach. In other words, it is extracted from the person who developed it, made independent of that person and reused for various purposes. On the other hand, they noted that with the personalization approach, knowledge is not codified – and probably cannot be – but is transferred through brainstorming sessions and one-to-one conversations. This strategy focuses on exploiting the tacit knowledge of people as well as the combined knowledge in teams to add value to the organization (Petter, 2014). Many organizations have come to realize that it is not advisable to focus only on capturing knowledge, as much of the required knowledge is highly dynamic and may quickly become obsolete or inaccurate. Wick (2000) called this approach “socio-organizational knowledge management” and noted that it emphasizes interactions between people. Its highest priority is nurturing a KS culture by encouraging and fostering relationships between knowledge workers for the sake of innovation and generation of new knowledge. Yang (2010) examined the impact of KM strategy on strategic performance in Chinese high-technology firms. He found that the KM strategy–performance connection is contingent on both performance-driven strategies, and KM-based competencies, such as R&D from past projects, market intelligence and intra-organizational KS. Greiner *et al.* (2007) concluded that an organization whose business strategy requires process efficiency should rely primarily on a codification strategy. An organization whose business strategy requires product/process innovation should rely primarily on a personalization strategy. On the hand, Lam and Chua (2009) suggested outsourcing as an alternative strategy for KM, but highlighted two main areas of knowledge outsourcing risk, which are related to the quality of knowledge services and the effort required to manage the outsourcing relationship.

*2.1.2 Human resource management.* HRM is defined as the productive use of people in achieving the organization’s strategic business objectives (Stone, 2009). Wright *et al.* (2001) suggested that HRM practices form the basis of dynamic capability, KM and intellectual capital and, thereby, enable the achievement of core competencies. This suggests that HRM practices play an important role in creating the conditions needed for KS, as they harness core competencies and organizational performance. These practices involve employee recruitment, training and development, performance appraisal and administration of rewards. Within the HR literature, researchers have classified HR strategies according to different corporate HR arrangements. Bae *et al.* (1998) and Shih and Chiang (2005) identified the following two types of HR strategies: “buy-bureaucratic” and “make-organic”. A buy-bureaucratic HR strategy tends to define specific job contents, provide limited training, emphasize seniority in calculating compensation and limit employee participation in decision-making. In contrast, a make-organic HR strategy tends to promote middle-level managers from within, define jobs much more broadly, emphasize performance-based pay and allow more employee participation in decision-making.

### *2.2 Mediating construct: knowledge sharing culture*

There are numerous features that characterize the organizational context in which people work (e.g. leadership, structure and sharing), and they can all be classified under the general heading of culture. Culture constitutes the values, norms and ways of

behaving shared by the members of an organization. Cultural elements that are more subjective (e.g. assumptions, values and norms) reflect the way members think about and interpret their work setting (Laine-Sveiby, 1991). Although there is no shortage of information about the impact of organizational culture on KM, the term KS culture is relatively new. Early variants of the term include knowledge culture and knowledge creation culture (Janz and Prasarnphanich, 2003; Mital, 2007). Davenport *et al.* (1998) used the term long before it became popular. O'Dell and Hubert (2011) provided a practitioner account of best practices, outlining how organizations can develop and implement a KS culture. Trust, collaboration and open communication are all identified as main elements of an organization's KS culture (Marouf, 2005). McEvily *et al.* (2003) argued that the level of trust influences the extent of knowledge disclosure, as well as the degree of screening and sharing between two parties.

It is important to point out that the independent constructs (KM strategy, HR strategy and KS culture) have different elements in this study and do not refer to the same thing. The main difference is that the KM strategy refers to the approaches, techniques and tools used to elicit tacit knowledge so as to trigger the creation of new knowledge and to sub-sequentially organize the content in a systematic manner for easy retrieval and maximum use. Whereas the HR strategy focuses primarily on policies and procedures to do with recruiting, training, evaluating and rewarding employees who exhibit certain required behaviours and performances. The KS culture, on the other hand, refers or focuses on the social environment or the shared values and assumptions of organizational members. Trust is a major distinctive element of the KS culture. Moreover, open communication and whether management or leadership "walk the talk" by exhibiting a model of KS behaviour are other distinctive dimensions of a KS culture in this study.

### *2.3 Dependent construct: business performance*

According to Venkatraman and Ramanujam (1986), organizational performance is an indication of a firm's capacity to efficiently achieve independent goals. After examining ten different types of assessments, they identified three dimensions on which to assess BP: financial performance, BP and organizational effectiveness. Financial performance involves indicators of sales growth and profitability, as reflected in ratios such as return on investment, return on sales and return on equity. BP relates to operational performance (non-financial) in addition to financial performance. Organizational effectiveness refers to the impact of conflicting organizational goals and the influence of multiple stakeholders on BP. They also noted that the literature is plagued with debates on appropriate models of measurement. According to Nielsen (2006), financial performance can be measured along two dimensions: firm profitability and market performance. Huang *et al.* (2010) operationalized BP into three conceptual dimensions: business competitiveness, manufacturing performance and process efficiency. Chen *et al.* (2012) used the following three dimensions to measure how firms perform relative to the main competitor in the market: growth, profitability and overall performance.

## **3. Conceptual framework and hypotheses**

Research investigating the effects of KM on BP suggests that choosing the right KM strategy and HR strategy, as well as maintaining a KS culture, can positively affect BP. This section presents our conceptual framework and research hypothesis.

Figure 1 illustrates a positive direct effect of KM strategy, HR strategy and KS culture on BP. It also demonstrates a positive direct effect of KM and HR strategies on the KS culture. In addition, it shows the mediating role that the KS culture plays between the KM strategy and BP and the HR strategy and BP.

3.1 Knowledge management strategy and performance

KM can be viewed as a set of organizational arrangements aimed at achieving specific organizational goals. According to this perspective, KM is a strategic organizational attribute (Shih and Chiang, 2005). The process of creating, acquiring and utilizing knowledge is posited to improve organizational performance (Laurie, 1997). A study by Lin and Tseng (2005) indicated that a firm’s performance is considerably affected by KM gaps. Moreover, Lee and Lee (2007) found statistically significant relationships between KM, procedures and performance. Bogner and Bansal (2007) identified three factors of KM systems that have an impact on organizational performance:

- (1) the firm’s capability to present new knowledge;
- (2) to build on that knowledge; and
- (3) to seize a high percentage of the resulting spin-offs.

Saaty (2014) investigated the effectiveness of using KM to influence an action or a decision aimed at improving organizational performance and competitiveness. He found a positive relationship between KM utilization and organizational performance. Mahapa (2013) studied the impact of KM strategies on organizational performance in the hospitality industry in Zimbabwe. He concluded that organizations which have KM strategies in place tend to develop new ideas and new products, and do things in innovative ways that lead to improved organizational performance. He advised organizations to exploit their knowledge resources to improve performance.

Hence, the following hypothesis is proposed:

- H1. The KM strategy has a positive direct effect on BP.
- H1a. The personalization approach to the KM strategy has a positive direct effect on BP.
- H1b. The codification approach to the KM strategy has a positive direct effect on BP.
- H2. HR Strategy has a positive direct effect on BP.
- H3. KS Culture has a positive direct effect on BP.
- H4a. Personalization has a positive direct effect on KS Culture.
- H4b. Codification has a positive direct effect on KS Culture.
- H5. HR Strategy has a positive direct effect on KS Culture.

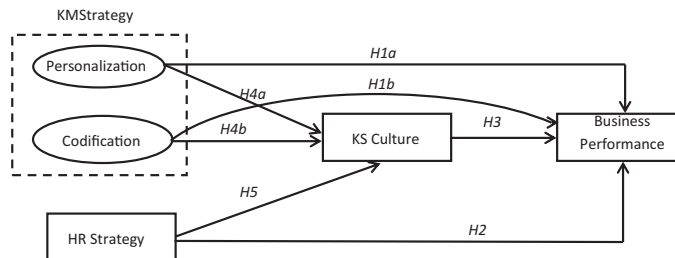


Figure 1. Proposed conceptual framework

### 3.2 Human resource strategy and performance

Many studies have shown that HR practices are positively associated with performance outcomes (Appelbaum *et al.*, 2000; Berg, 1999) and increased financial success (Bae and Lawler, 2000). Laursen and Foss (2003) investigated the link between HR practices and performance. Specifically, the HRM practices of planned job rotation, interdisciplinary teams and performance-related pay resulted in better performance outcomes. Pfeffer (1998) identified seven dimensions of effective people-oriented management that led to substantially enhanced profitability, including selective hiring, self-managed teams and organizational performance-based high compensation. Wright *et al.* (2001) suggested that HRM practices formed the basis of dynamic capability, KM and intellectual capital, leading to the achievement of core competencies. Patil and Kant (2012) used a case study method to examine how various HR activities (e.g. education, training, rewards and incentives) affect organizational performance. They found that these activities helped organizations overcome barriers to KM and, ultimately, to improve performance and achieve competitive advantage. Hamid (2013) used a universalistic approach to study the impact of HR practices on BP in 114 selected industrial firms. He focused mainly on the effect of selection, training and incentive compensation on organizational and financial performance. His results confirmed that the implementation level of certain strategic HR practices positively influences firm performance. Therefore, it is reasonable to conclude that HRM practices play an important role in harnessing core competencies and organizational performance.

Hence, the following hypothesis is proposed:

H2. The HR strategy has a positive direct effect on BP.

### 3.3 Knowledge sharing culture and performance

The management literature has generally accepted the notion that organizational culture has a positive relationship with organizational performance (Denison, 1990; Kotter and Heskett, 1992). The extent of a KS culture is often viewed as the most significant determinant of the success of KM implementation and business outcomes (Alavi *et al.*, 2006). The degree of trust and collaboration present in an organization's culture serves as a key underlying driver of KS (Alavi *et al.*, 2006; Janz and Prasarnphanich, 2003). Recent research has attempted to understand the alliance activities from a knowledge-based perspective, and has posited that KS is central to developing new processes, products or services and, thus, improving BP (Gulati, 1998; Hoang and Rothaermel, 2005).

A KS culture feels better and works better. Moreover, employees who collaborate and share their knowledge are better able to achieve their work objectives and do their jobs more quickly, resulting in increased BP (O'Dell and Hubert, 2011). Many other studies that explored the effect of KS on BP came to the same conclusion: KS has a positive effect on BP (Amir and Parvar, 2014; Huang *et al.*, 2010; Wing *et al.*, 2014). In the present study, we focus on the KS culture specifically within organizations where the sharing of knowledge is pervasive, and trust and collaboration abound.

Hence, the following hypothesis is proposed:

H3. The KS culture has a positive direct effect on BP.

### 3.4 Knowledge management and knowledge sharing culture

Teo *et al.* (2011) provided a comprehensive account of KM efforts within an organization, highlighting the themes of communication, reward and phased planning. They recognized that a persistent and integrated focus on those factors is instrumental in obtaining the desired behaviours that result in the actions, tasks and activities that characterize a KS culture. Teo *et al.* (2011) also noted the importance of leveraging organizational mechanisms and controls that support the development and sharing of knowledge and information within and across an organization. They argued that the organization's view of information systems and tools serves as a key enabler to building a KS culture. O'Dell and Hubert (2011) provided a practitioner account of best practices, outlining how organizations can develop and implement a KS culture. They suggested that cultural barriers, such as communication and knowledge hoarding, can be mitigated through strategic KM initiatives and by making KM fun. O'Dell and Hubert (2011) suggested that attempting to transform organizational culture prior to implementing a KM programme may be ineffective; instead, they recommended adopting KM programmes and projects in a deliberate and focused manner to drive the desired change in organizational culture. In other words, action produces the needed culture change.

Hence, the following hypothesis is proposed:

H4. The KM strategy has a positive direct effect on the KS culture.

H4a. The personalization approach to the KM strategy has a positive direct effect on the KS culture.

H4b. The codification approach to the KM strategy has a positive direct effect on the KS culture.

### 3.5 Human resource strategy and knowledge sharing culture

The HR strategy and organizational culture have a complex relationship (Cawood, 2008). Researchers have found that HR practices foster social climates that facilitate the development of employee-based capabilities, such as the ability to combine and exchange information to create new knowledge (Bowen and Ostroff, 2004; Collins and Clark, 2003). A KS culture is characterized by trust. Through HR practices, such as group-based incentives, as well as opportunities for training and development aimed at improving communication and interaction, firms can foster higher levels of trust between employees. Moreover, employees are more likely to trust one another if they have interacted or worked with one another (Whitener *et al.*, 1998). However, certain HRM practices can be harmful to KS (Currie and Kerrin, 2003). Thus, it is important to choose HRM practices known to facilitate KS. These include staffing, training and development, performance appraisal and compensation (Cabrera and Cabrera, 2005).

Hence, the following hypothesis is proposed:

H5. The HR strategy has a positive direct effect on the KS culture.

### 3.6 The mediating role of the knowledge sharing culture

Contingency theory has been used in many contexts, particularly in the fields of strategic actions and organizational structure. It is used to examine the effects of related variables (e.g. strategy and business model) on firm performance (Zott and Amit, 2008). We delineate a fundamental strand of contingency theory: the so-called fit-as-mediation view (Drazin and Van de Ven, 1985), which posits that managers choose or adopt

organizational structures, processes and strategies that reflect the particular circumstances of their organization (Galbraith, 1973). According to the fit-as-mediation view, inter-organizational collaboration is an effective tool to use when facing keen competition.

Hence, the following hypotheses are proposed:

H6. The KS culture mediates the relationship between the KM strategy and BP.

H7. The KS culture mediates the relationship between the HR strategy and BP.

## 4. Methodology

### 4.1 Measurements

The questionnaire items concerning the KM strategy, the HR strategy, the KS culture and BP were selected based on a comprehensive review of previous research. Consistent with previous studies, all items were measured on a five-point Likert scale, where 1 = strongly disagree and 5 = strongly agree (Appendix 1).

The initial version of this instrument was pretested for content validity by ten executive managers from companies that did not participate in the main study. Participants were asked to comment on the format, length and wording of each individual item. Ambiguous items were reworded based on the participants' feedback. Having revised the questionnaire based on the pilot, questionnaires were distributed to 120 companies. The following sections discuss each measurement in detail.

*4.1.1 Knowledge management strategy.* A firm's KM strategy aims to build and manage knowledge stock through effectively creating, sharing and distributing knowledge (Argote *et al.*, 2003). Six items adapted from Chen *et al.* (2012), Huang *et al.* (2010) and Shih and Chiang (2005) are used in this study to measure the KM strategy. KM1-KM3 relate to the codification approach, and KM4-KM6 relate to the personalization approach (Appendix 1).

*4.1.2 Human resource strategy.* Patil and Kant (2012) defined the HR strategy as "the set of interrelated HR systems of policies and practices for implementing business strategy". This study used a total of eight measurement items, adapted from Chen *et al.* (2012), Huang *et al.* (2010) and Shih and Chiang (2005). A single index of the HR strategy was created from the means of the total statements. A higher value of this index means that the organization is inclined to adopt a more "make-organic" HR strategy. A lower value means that the organization is inclined towards a more "buy-bureaucratic" strategy.

*4.1.3 The knowledge sharing culture.* A culture of shared knowledge is characterized by openness and trust. Environment attributes that promote KS include informality, richness of communication and openness to transfer of learning and knowledge absorption (McDermott and O'Dell, 2001). In this study, the KS culture refers to perceptions of KS practices and an environment of trust and openness as reported by the individuals who work in the firm. Six items adapted from O'Dell and Grayson (1998) and Sveiby and Simons (2002) are conceptualized to measure the organizations' KS culture. A single index of the KS culture was created from the means of all statements. A higher value of the index means that the organization has a more KS culture, with a lower value indicating a less KS culture.

*4.1.4 Business performance.* According to Huang *et al.* (2010), BP is defined as "the measure of growth and profitability of the firm through its business endeavors". This



study uses five items to measure respondents perceptions of profitability and growth, as adapted from [Chen et al. \(2012\)](#) and [Al-bahussin and El-garaihy \(2013\)](#).

#### *4.2 Population, sample and data collection*

Data were collected from CEOs, executive managers and HR managers who were familiar with their firm's KM strategy, the HR situation, the KS climate and performance. Printed questionnaires were administered personally to 120 companies whose names were obtained from the Kuwait Chamber of Commerce and Industry and the Kuwait Stock Exchange. Five questionnaires were delivered to each of these organizations, with 600 questionnaires being distributed altogether. A total of 443 questionnaires were returned over a two-month period. Of these, 51 were answered incompletely and, thus, deemed invalid for analysis. The total number of valid questionnaires was 392, reflecting a 65 per cent response rate. Statistical summary measures are given in the next section along with a detailed discussion of the descriptive statistics of the sample.

### **5. Data analysis**

#### *5.1 Sample characteristics*

Of the sample, 79 per cent were male, and 20 per cent were female. Further, 49 per cent were middle managers, 48 per cent were executives and 1 per cent were CEOs. With regard to age, 4 per cent were under 30 years, 34 per cent were between 31 and 40 years, 35 per cent were from 41 to 50 years and 25 per cent were older than 50 years; 83 per cent had a bachelor's degree, and 14 per cent had a master's degree. The analysis revealed that approximately 9 per cent of the respondents had five years of experience or less, 25 per cent had between 6 and 10 years of experience, 37 per cent had from 11 to 20 years of experience and 25 per cent had over 20 years of experience. Most of the companies (approximately 91 per cent) were from the private sector, with around 8 per cent being from the public sector; 45 per cent of the companies had more than 500 employees, 30 per cent had from 200 to 500 employees and 29 per cent had less than 200 employees. The following section discusses the statistical summary measures of the research variables.

#### *5.2 Reliability and validity of constructs*

We conducted a factor analysis to condense the research variables and explore their internal consistency.

*5.2.1 Knowledge management strategy.* The questionnaire included a total of six statements about KM strategy. After filtering for factor selection standards and reliability testing principles, three major items were extracted. This factor explains a total of 90.546 per cent of the observed variance.

All three of these items were related to the personalization approach to the KM strategy ([Table I](#)). Thus, we decided to focus only on the personalization approach in this study. We refined *H1* as follows:

*H1a.* The personalization approach to the KM strategy has a positive direct effect on business performance.

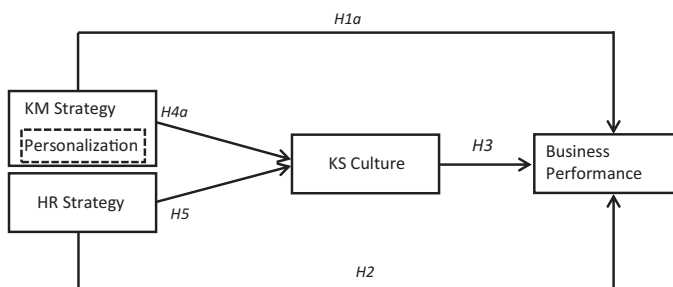
We similarly refined *H4*:

*H4a.* The personalization approach to the KM strategy has a positive direct effect on the KS culture.

[Figure 2](#) illustrates the revised conceptual framework.

Characteristics	Items	(%)
Gender	Male	79
	Female	20
Job type	Middle managers	49
	Executives	48
Age (years)	CEO	1
	Below 30 years	4
	31-40	34
	41-50	35
Education	Over 50	25
	Bachelor's degree	83
	Master's degree	14
Years of experience	5 years and less	9
	6-10 years	25
	11-20 years	37
	Over 20 years	25
Sector	Private	91
	Public	8
Number of employees	Less than 200	29
	200-500 employees	30
	More than 500	45

**Table I.**  
Sample characteristics



**Figure 2.**  
Revised conceptual framework

5.2.2 *The human resource strategy.* After filtering for factor selection standards and reliability testing principles, there were three major items extracted for the HR strategy (Table I). This factor explains a total of 90.692 per cent of the observed variance.

5.2.3 *The knowledge sharing culture.* After filtering for factor selection standards and reliability testing principles, there were three major items extracted for the KS culture (Table I). This factor explains a total of 92.463 per cent of the observed variance.

5.2.4 *Business performance.* After filtering for factor selection standards and reliability testing principles, there were three major items extracted for BP (Table I). This factor explains a total of 91.69 per cent of the observed variance.

These results confirm the distinction between the four constructs of the study.

5.4 Model fit

After selecting the most reliable and valid constructs, we used the LISREL software to fit the data to the proposed conceptual model. Several goodness-of-fit measures were calculated to assess the adequacy of the proposed model, including the normed fit index (NFI = 0.95), non-normed fit index (NNFI = 0.94), parsimony normed fit index (PNFI = 0.69), comparative fit index (CFI = 0.96), incremental fit index (IFI = 0.96), relative fit index (RFI = 0.94), critical N (CN = 69.76), root mean square residual (RMR = 0.019), standardized RMR (SRMR = 0.019), goodness-of-fit index (GFI = 0.88) and adjusted GFI (AGF = 0.80). All of these measures of fit indicate the adequacy of the proposed model to fit the data. Next, we discuss the correlation matrix between different constructs.

5.5 Correlation structure

Table II presents the pairwise correlation between the four constructs of the KM strategy, the HR strategy, the KS culture and BP. There are weak positive, but significant, correlations between the KM and HR strategies ( $r = 0.24, p\text{-value} = 0.000$ ) and between KM strategy and BP ( $r = 0.42, p\text{-value} = 0.000$ ). On the other hand, there are strong positive correlations between the KM strategy and the KS culture ( $r = 0.52, p\text{-value} = 0.000$ ), the HR strategy and the KS culture ( $r = 0.51, p\text{-value} = 0.000$ ), HR and BP ( $r = 0.61, p\text{-value} = 0.000$ ) and the KS culture and BP ( $r = 0.79, p\text{-value} = 0.000$ ).

Having fitted the model, it is also worthwhile to calculate the composite reliability and the average variance of each construct. In the following sections, the composite reliability and the average variance explained are given and discussed (Table III).

5.6 Composite reliability and average variance explained

Reliability is a measure of the internal consistency of a construct (Hair et al., 2010). It shows how a set of instruments specify the latent construct. According to Hair et al. (2010), a construct reliability of 70 per cent or more is considered acceptable. As shown in Table IV, the composite reliabilities for the constructs in this study ranged from 0.96 to 0.97, exceeding the threshold values for satisfactory convergent validity. Likewise, the variance-extracted measure is also used to assess the adequacy of the proposed model. It reflects the excess variance in the instruments accounted for by the construct (Hair et al., 2010). The higher the representation of the instruments to the latent constructs, the higher the variance extracted. The average variance extracted should be 50 per cent or higher for a construct. In this study, the average extracted variance of the constructs ranged from 88.96 to 91.27 per cent (Table V).

5.7 Discriminant validity

Discriminant validity measures the extent to which one latent construct is discriminated from another latent construct. There are several measures that can be used to calculate

**Table II.**  
Lack of discriminant validity

Dimensions	KM (%)	HR (%)	KS (%)
HR	24.86		
KS	53.92	52.60	
BP	43.54	62.89	0.81.54

**Table III.**  
Reliability and validity of research dimensions

Dimensions	Reliability (%)	Extracted variance (%)	Factor loadings
<i>KM strategy</i>	94.8	90.546	
KS is acquired from expert co-workers			0.924
It is easy to get face-to-face advice from expert co-workers			0.964
Informal discussions and meetings are used for KS			0.966
<i>Human resources</i>	92.4	90.692	
Promotion decisions are based on performance			0.952
Compensation is based on performance			0.962
Performance appraisal is used as a development tool			0.943
<i>KS culture</i>	95.9	92.463	
A climate of trust is predominant in our organization			0.969
Open communication is a characteristic of our organization			0.970
Managers share information with subordinates			0.946
<i>Business performance</i>	95.5	91.698	
Investment has been outstanding			0.950
Profitability has been outstanding			0.961
Cash flow has been outstanding			0.961
<i>Overall reliability</i>	93.6		

Effects	Path coefficient (%)	Standard error	t-value	p-value	Significance
<i>Direct effects</i>					
KM → KS	42	0.04	9.79	0.000	S
KM → BP	2	0.04	0.62	0.268	NS
HR → KS	41	0.04	9.39	0.000	S
HR → BP	28	0.04	7.42	0.000	S
KS → BP	64	0.04	15.1	0.000	S
<i>Indirect effect</i>					
KM → BP	27	0.03	8.24	0.000	S
HR → BP	26	0.03	8.03	0.000	S
<i>Total effects</i>					
KM → KS	40	0.04	9.39	0.000	S
KM → BP	29	0.04	7.00	0.000	S
HR → KS	40	0.04	9.39	0.000	S
HR → BP	54	0.05	11.72	0.000	S
KS → BP	64	0.04	15.10	0.000	S

**Table IV.**  
Path analysis and verification of research hypotheses

**Notes:** S = significant; NS = not significant

discriminant validity between a pair of constructs. In this study, we use the following formula to assess discriminant validity:  $D_{X,Y} = r_{X,Y} / \sqrt{R_X R_Y}$ , where  $r_{X,Y}$  is the correlation between the two constructs  $X$  and  $Y$ , and  $R_X$  and  $R_Y$  are the composite reliabilities of the constructs  $X$  and  $Y$ , respectively. It is common practice to consider a score of 85

**Table V.**  
Correlation structure  
between dimensions

Dimensions	KM	HR	KS	Business performance
KM	1.00			
<i>p</i> -value				
HR	0.24*	1.00		
<i>p</i> -value	0.000			
KS	0.52*	0.51*	1.00	
<i>p</i> -value	0.000	0.000		
BP	0.42*	0.61*	0.79*	1.00
<i>p</i> -value	0.000	0.000	0.000	

**Note:** \*Correlations are significant at  $\alpha < 5\%$

per cent or higher to be an indication of a lack of discriminant validity between the constructs. Table VI shows that none of the latent constructs in this study suffers this drawback.

#### 5.8 Path analysis and verification of the research hypotheses

Table II presents the direct, indirect and total effects of the constructs of the KM strategy, the HR strategy and the KS culture on BP. In addition, it presents the direct and total effects of the KM strategy and the HR strategy on the KS culture.

**5.8.1 Direct effects.** There is no direct effect of the KM strategy on BP (path coefficient = 2 per cent, *p*-value = 0.268), which disproves research *H1*. On the other hand, there is a significant positive and direct effect of the HR strategy on BP (path coefficient = 28 per cent, *p*-value = 0.000), which validates *H2*. Moreover, the KS culture has a significant, positive and direct effect on BP (path coefficient = 64 per cent, *p*-value = 0.000), which supports *H3*. Further, the KM strategy has a significant, positive and direct effect on the KS culture (path coefficient = 42 per cent, *p*-value = 0.000), which supports *H4*. Finally, the HR strategy has a significant, positive and direct effect on the KS culture (path coefficient = 41 per cent, *p*-value = 0.000), which confirms *H5*.

**5.8.2 Indirect effects.** As shown in Table II, the KM strategy has a positive and significant indirect effect on BP (path coefficient = 27 per cent, *p*-value = 0.000). The HR strategy also has a positive and significant indirect effect on BP (path coefficient = 26 per cent, *p*-value = 0.000).

**5.8.3 Total effects.** The KM strategy has a positive and significant total effect on BP (path coefficient = 29 per cent, *p*-value = 0.000). The HR strategy also has a positive and significant total effect on BP (path coefficient = 54 per cent, *p*-value = 0.000).

Dimensions	Composite reliability (%)	Extracted variance (%)
KM strategy	96.02	88.96
HR strategy	97.05	91.65
KS culture	96.85	91.12
BP	96.91	91.27

**Table VI.**  
Composite reliability  
and variance  
extracted

#### 5.8.4 Role of the mediator variable and verification of research H6 and H7

Verification of *H6*. From a mediation perspective, we can decompose the effects that the KM strategy has on BP into direct effects and indirect effects (Venkatraman, 1989). Tests of mediation are usually carried out within a path-analytic framework (Alwin and Hauser, 1972). When the direct effect is not statistically significant, and the indirect effect is statistically significant, this is termed a *complete mediational model* (Venkatraman, 1989).

Path analysis showed that the direct effect of the KM strategy on BP is not significant ( $p$ -value = 0.268) and that the indirect effect of the KM strategy on BP is significant ( $p$ -value = 0.000). This implies that the KS culture has a complete mediating effect between the KM strategy and BP. Accordingly, *H6* is fully supported.

Verification of *H7*. Alternatively, when both the direct and indirect effects are statistically significant, this implies a *partial mediational model* (Venkatraman, 1989).

Path analysis showed that the direct effect of the HR strategy on BP is significant ( $p$ -value = 0.000) and that the indirect effect of the HR strategy on BP is also significant ( $p$ -value = 0.000). This implies that the KS culture has a partial mediating effect between the HR strategy and BP. Nevertheless, *H7* is supported.

On the other hand, when the direct effect is significant and the indirect effect is not significant, this implies that the mediator variable plays an insignificant role, suggesting *no mediating effect* (Venkatraman, 1989). This is not the case in the present study.

## 6. Discussion

The empirical evidence showed that the personalization approach to the KM strategy has a positive direct effect on KS and a positive indirect effect on BP, with the KS culture proving to be a powerful mediator. Knowledge is created by and resides within people. A KM strategy that encourages and emphasizes employee interactions through informal channels and that is not dependent on systematized, standard processes will facilitate learning and sharing of expertise through social interactions and collaboration, thus creating an environment where KS is the norm. The personalization approach to the KM strategy focuses on developing networks for linking people so that tacit knowledge can be shared. According to Hansen *et al.* (1999), this approach enables the knowledge that has not been codified – and probably cannot be – to be transferred in brainstorming sessions and one-to-one conversations. Wick (2000) referred to the personalization approach as “socio-organizational knowledge management”, noting that it emphasizes interactions between people. Its highest priority is nurturing a KS culture by encouraging and fostering relationships between knowledge workers for the sake of innovation and the generation of new knowledge.

Tacit “non-codified knowledge” may be of more value to the innovation process than is explicit “codified” knowledge (Grant, 1996). Accordingly, firms are increasingly focusing on cultivating a KS culture, as tacit non-codified knowledge cannot be communicated, understood or used without the “knowing subject” (Nonaka *et al.*, 2000). Individuals’ knowledge serves as the basis for innovation; that knowledge has to be shared and merged with the knowledge of others for innovation to take place. Therefore, interacting with others is essential to innovation and, thus, to BP (Prajogo, 2006).

The results also indicate that the HR strategy has a positive direct effect on the KS culture and BP. HR practices significantly affect organizational members’ attitude, beliefs and value system (Marshall *et al.*, 1996). Organizations that tend to promote,

compensate and evaluate based on performance usually have higher levels of cross-functional communication and problem-solving through team effort (Bae *et al.*, 1998) and, thus, more opportunities for interpersonal connections among employees. Moreover, such an HR strategy encourages employees to share their knowledge. These results also reveal that organizations which adopt and emphasize HR practices such as performance-based promotion and pay (Bae *et al.*'s (1998) make-organic HR strategy) are likely to see increases in both growth and profitability.

In addition, it was found that the KS culture has a positive direct effect on BP. The KS culture functions as an action-based platform to facilitate knowing and learning through social interaction, communication and collaboration with peers and experts, resulting in improved individual abilities to execute managerial and operational processes. These improved individual abilities provide a foundation for enhanced organization-level, knowledge-based capabilities as indicated by higher BP (Foss and Mahoney, 2010; Teece, 2007). When KS becomes the norm in an organization's culture, it reflects positively on BP because KS prevents the "reinvention of the wheel" (i.e. redundancy in knowledge production, leading to costly duplications), ensures the speedy dissemination of best practices and makes private knowledge available in problem-solving and decision-making processes (Duffy, 1999). Ultimately, KS leads to a synergistic cost advantage, as it provides a shared resource at a low cost. It also allows employees to obtain more comprehensive knowledge and information, which enables them to make better-informed decisions (Yeşil and Bengü, 2013).

The results from this study offer both theoretical and practical implications. Theoretically, they contribute to the KM literature by providing answers to a number of research questions that have not been addressed thus far. This study provides fresh insights into the investigation of patterns of association and prediction, and contributes to the empirical methods that seek to illuminate this area. It proves that a KS culture is a mediating variable through which KM and HR are connected to BP. For practitioners, the development of KM and HR strategies may not be effective unless managers understand the importance of cultivating a KS culture. Understanding these associations is crucial for better BP. The results may assist organizations in rethinking their KM and HR strategies, and provide the basis on which to invest in promoting KS and aligning KM and HR strategies for increased innovation and performance. Employees in organizations adapting the "personalization approach" as their KM strategy are expected to interact extensively with their colleagues to obtain such tacit knowledge. To facilitate this process, managers can extensively use task force groups, emphasize learning through supporting communities of practice and encourage brainstorming sessions instead of investing on standardized database infrastructure. On the other hand, their HR practices should be compatible with their KM strategy. In other words, HR policies and practices should highlight worker's development and training, recruitment should focus on innovative employees and performance evaluation should be process-oriented and used as basis for employees development as opposed to relying on seniority in calculating compensations. Recognizing and rewarding a KS behaviour leads to establishing a workforce with higher level of trust which in turn influences the norms and behaviour of KS among employees. The existence of a KS culture has been found to positively affect performance in organizations. Thus, managers are encouraged to explicitly connect their strategies with

each other to enhance their KS culture and accordingly facilitate the attainment of organizational goals in the form of better performance.

### 7. Limitations and future research

Despite its contributions, this study has some limitations that should be addressed in the future to enhance the robustness of the findings. The findings of this study were derived from a specific geographical region, Kuwait. Thus, the generalizability of the findings could be increased in future studies through the use a larger sample that represented different cultural backgrounds. Second, this study focused on one approach for the KM strategy and one approach for the HR strategy; future studies could examine other approaches to the KM strategy, such as the codification approach, and other approaches for the HR strategies like a more bureaucratic approach, as well as a wider range of organizations with different business strategies. Third, the data were assessed using perceptual, self-reported measures. Future studies could address this limitation by measuring the actual KS behaviour instead of perceptions of KS only. Subjective measures are widely used in the literature; in the absence of objective data, self-reported measures can constitute an acceptable substitute and can be equally reliable (Delaney and Huselid, 1996). Future research could also use a different method for data collection like structured interviews so as to reduce the wrong interpretation of the research constructs and to explain clearly the differences between them. Future studies could also integrate other factors, such as organizational learning and information technology, to develop a more comprehensive model.

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### Further reading

- Choi, B., Poon, S.K. and Davis, J.G. (2008), "Effects of knowledge management strategy on organizational performance: a complementarity theory-based approach", *Omega*, 36 No. 2, pp. 235-251.

Item construct	Item code	Item wording	References
KM strategy	KM1 <sup>a</sup>	Our knowledge (know-how, technical skill, problem-solving method) is well documented	Adapted from <i>Chen et al. (2012)</i>
	KM2 <sup>a</sup>	Knowledge needed to run our business is acquired through formal documents	
	KM3 <sup>a</sup>	Lessons learned from projects are documented	
	KM4	Knowledge needed to run our business is often acquired from co-workers who are experts in their own field	
	KM5	It's easy to get verbal, face-to-face advice from experts	
	KM6	Informal dialogues and meetings are used for knowledge sharing	
HR strategy	HR1 <sup>a</sup>	We recruit talented employees with skills	Adapted from <i>Shih and Chiang (2005), Chen et al. (2012)</i>
	HR2 <sup>a</sup>	We rarely terminate employees	
	HR3 <sup>a</sup>	We provide extensive training to workers	
	HR4 <sup>a</sup>	Job rotation is a common practice	
	HR5 <sup>a</sup>	We have clear job descriptions	
	HR6	Our promotion decisions are mainly based on performance	
	HR7	In our organization, compensation is tightly connected to employee performance	
KS culture	HR8	Our performance appraisal is largely used as a development tool	Adapted from <i>O'Dell and Grayson (1998)</i>
	KSC1 <sup>a</sup>	Sharing knowledge is encouraged by our organization	
	KSC2	A climate of trust is predominant in our organization	
	KSC3	Open communication is a characteristic of our organization	
	KSC4 <sup>a</sup>	Employees are encouraged to express their opinions and ideas	
BP	KSC5	Managers in this organization often share important information with their subordinates	Adapted from <i>Chen et al. (2012), Al-Bahussin and El-garaihy (2013)</i>
	KSC6 <sup>a</sup>	Employees are encouraged to share experiences with their peers	
	BP1 <sup>a</sup>	The sales growth has been outstanding	
	BP2 <sup>a</sup>	The market share gains have been outstanding	
	BP3	The return on company investments and projects has been outstanding	
	BP4	The profitability has been outstanding	
	BP5	The cash flow position has been outstanding	

**Table A1.**

Items for constructs

**Note:** <sup>a</sup> Elements that were eliminated in the final construction of the scale that was used

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