

Impacts of knowledge-based HRM, knowledge sharing and perceived organizational supports on innovation performance: a moderated-mediation analysis

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Abstract

Purpose – Given the important role of knowledge resource for firms to pursuit innovation, this paper aims to investigate the influence of knowledge-based human resource management (HRM) practices on innovation performance through the mediating roles of tacit and explicit knowledge sharing (KS). This study also explores the potential moderating role of perceived organizational supports (POSs) in fostering the KS–innovation relationship of firms in the developing and emerging markets.

Design/methodology/approach – The relationship among the latent variables is empirically examined through 289 employees from 118 manufacturing and service firms. Confirmatory factor analysis and structural equation modeling were performed to validate the constructs and estimate the regression coefficients of relationships.

Findings – The empirical findings of this study support the mediating role of KS behaviors in the relationship between knowledge-based HRM practices and innovation performance. It highlights the important role of POSs in stimulating the influence of KS behaviors on innovation performance.

Research limitations/implications – Future research should investigate the impact of knowledge-based HRM practices on specific forms of innovation via the mediating effects of knowledge management processes to bring better understanding on the importance of knowledge resources in pursuing innovation competence.

Originality/value – The paper significantly contributes to enhancing understanding of the antecedent role of knowledge-based HRM practices in fostering KS behaviors and innovation performance under the moderating effects of POSs. Generally, it advances the body of comprehension of knowledge-based resources and innovation theory.

Keywords Knowledge-based HRM, Tacit knowledge sharing, Explicit knowledge sharing, Perceived organizational support, Innovation performance

Paper type Research paper

1. Introduction

Innovation performance is a critical construct in human resource management (HRM) and organizational governance that allows firms to achieve any competitive goals and challenges (Waheed *et al.*, 2019; Lei *et al.*, 2021; Than *et al.*, 2022). Literature places emphasis on the need of improving innovation performance as a fundamental driver for firms to achieve competitive advantages and develop sustainably (Hogan and Coote, 2014; Le and Lei, 2019). However, it is a challenge for firms in emerging and developing markets to become real innovators rather than imitators due to majority of them are medium and small size, with the lack of capital and resources for innovation (Le, 2021; Gui *et al.*, 2022). Such situation has led researchers and practitioners to devote much effort to detecting the finer antecedents and new solutions to improve innovation performance for firms in these nations (Le, 2021; Than *et al.*, 2022).



Triggered by higher mobility among knowledge workers and by more widely distributed knowledge and competence, organizations have begun to follow the strategies to develop knowledge human and knowledge capital as the optimal choice to pursuit and improve innovation performance in the long run (Singh *et al.*, 2021; Kumar *et al.*, 2022). Thus, to clarify the role of these potential factors, this study focuses on investigating the influences of knowledge-based HRM (KHRM) practices on innovation performance via the mediating role of tacit and explicit knowledge sharing (KS). The paper is expected to significantly expand the theory of HRM, knowledge management, and innovation management by many reasons.

First, in the current knowledge-intensive era, the effective sharing and utilization of available knowledge resources have become a prerequisite for organizations to achieve the innovation and sustainable competitive advantage (Le and Lei, 2019; Acosta-Prado *et al.*, 2020). Accordingly, firms have shifted their focus toward enhancing knowledge-based resources as a key method to improve its innovation competence (Than *et al.*, 2022; Shehzad *et al.*, 2023). KHRM practices are generally accepted as the primary means for firms to shape and develop employees' skills, attitudes and behavior by which they can successfully innovate, and achieve organizational goals (Al-Qaralleh and Atan, 2021; Elayan *et al.*, 2022). However, while there is a broad acknowledgment on the importance of HRM practices toward firm's outcomes such as productivity, flexibility and organizational performance, little empirical research has been done for explaining the potential effects of KHRM practices on innovation performance (Al-Qaralleh and Atan, 2021; Singh *et al.*, 2021). Accordingly, to clarify how knowledge-based HRM practices affect innovation performance, this study posed the first research question:

RQ1. Do KHRM practices significantly affect innovation performance?

Second, KHRM practices are, although, considered the key to promote knowledge creation, sharing and utilization necessary for enhancing innovative performance (Singh *et al.*, 2021), relatively few works have explained how KHRM practices directly and indirectly affect innovation performance of firms via KS behaviors (Kianto *et al.*, 2017; Al-Tal and Emeagwali, 2019). In similar vein, literature revealed that HRM practices are positively associated with processes of sharing task-related ideas and knowledge in organizations which not only allow employees to find good opportunities to get information, ideas and useful suggestions but also help firms to have good solutions for reduction in production costs, quicker completion of new product development-related projects and innovation performance improvement (Cao *et al.*, 2022; Than *et al.*, 2023). However, the understanding of how KHRM practices connect with KS behaviors to arouse innovation performance is still modest and limited (Kaabi *et al.*, 2018; Singh *et al.*, 2021; Than *et al.*, 2022). Against such background, to bridge the theoretical gaps and provide deeper insight on the mediating roles of tacit and explicit KS on the KHRM practices–innovation relationship, this study attempts to shed a light on second research question:

RQ2. Do KS behaviors mediate the influence of KHRM practices effects on innovation performance?

Third, in addition to focusing on knowledge capital and human resources, firms need to pay attention to developing contexts and environments conducive to promoting innovation performance (Le and Le, 2023; Than *et al.*, 2023). Perceived organizational support (POS) is one of the major environmental factors that significantly dominates the results and levels of innovation because the degrees of attachment and involvement of employees in KS processes and innovation will vary depending on their perception of the organization's level of supports (Le and Lei, 2019; Shehzad *et al.*, 2023). To put it another way, organizations with differences in their climate and supports may produce various impacts of KS on innovation

due to the dissimilarity in providing sources, opportunities and motivations for these activities (Le and Lei, 2019). Accordingly, if employees are clearly aware of supports of their organization, they will be more secure and willing to share knowledge and boldly experiment to achieve the goal of product and process innovation (Le and Lei, 2019; Hameed *et al.*, 2022). To help scholars and practitioners fully realize the potential moderating impact of POS and its interaction with KS behaviors in the organization's efforts to foster innovation performance of firms in emerging and developing nations, this study proposes third research question:

RQ3. Does POS moderate the relationship between KS and innovation performance?

To clarify these research questions, this study used structural equations modeling to investigate the correlation among the constructs through a survey of 289 participants from 118 service and manufacturing firms in Vietnam. The paper is expected to provide significant practical implications and valuable theoretical initiatives on the roles of HRM practices and KS processes in fostering innovation performance for organizations.

2. Literature review and hypotheses development

2.1 *The impact of knowledge-based HRM practices on innovation performance*

Innovation fruits often stem from processes of generating, selecting and developing innovative ideas and delivering new products or services to markets (Birkinshaw *et al.*, 2008). It draws on knowledge, capabilities and human resources to meet the organizational demands for innovation (Le and Lei, 2019; Le and Le, 2023). Accepted as a critical competitiveness factor in contemporary organizations, innovation performance is one of the most important dynamics that enable firms to attain competitive advantage and success in long term in comparison with the key rivals (Rujirawanich *et al.*, 2011; Singh *et al.*, 2021). It is defined as the extent of outcomes to which firms actually introduce inventions to the market, for example, the rate at which they introduce new products, process systems or devices (Tajasom *et al.*, 2015; Ferraris *et al.*, 2021). In other words, innovation performance reflects the development and application of something new for sustaining organizational effectiveness and competitive advantage (Iqbal *et al.*, 2021).

HRM literature assumes that the contribution of HRM to innovation performance is facilitated through a bundle of HRM practices or right strategic HRM orientations (Than *et al.*, 2023). KHRM practices are considered as an inevitable choice in the knowledge-intensive era enabling firms to obtain valued and exceptional knowledge thereby influence their innovation competence and organizational performance (Lopez-Cabrales *et al.*, 2009; Singh *et al.*, 2021). Scholars widely accepted that KHRM practices were operationalized as a bundles of management activities designed to attract, retain and motivate employees to absorb, share create and utilize knowledge (Singh *et al.*, 2021; Elayan *et al.*, 2022). The bundles of KHRM practices include the following four functions: (1) *knowledge-based recruitment and selection* focus on discovering and attracting potential employees with future potential rather than present skills, knowledge or knowhow (Kianto *et al.*, 2017); (2) *knowledge-based training and development* focuses on developing employees' ability to acquire the needed skills and knowledge to keep the engine of innovation and performance active as their knowledge tends to become obsolete over time (Al-Qaralleh and Atan, 2021); (3) *knowledge-based performance assessment* is implemented based on measuring the degree of efforts by which employees contribute to knowledge processes in organization through activities of sharing, creating and applying knowledge (Kianto *et al.*, 2017); and (4) *knowledge-based compensations* refer to both intangible means (such as recognition and status) and tangible incentives (such as one-off rewards and bonuses) that firms design to promote KS, creation and application (Kianto *et al.*, 2017; Al-Qaralleh and Atan, 2021). Generally, literature considered KHRM practice as a

management approach focusing on attracting, retaining and motivating employees to absorb, share, utilize and develop knowledge resource aimed at sustaining competitive advantages and attaining long-term development of organizations (Al-Qaralleh and Atan, 2021; Elayan *et al.*, 2022).

HRM practices and knowledge-based management play an important role in driving innovative employee behavior and the overall innovativeness of firms (Than *et al.*, 2023). Many studies in the growing literature on HRM practices have shown its positive and significant impacts on innovation. Indeed, De Winne and Sels's (2010) research on 637 Belgian start-ups showed HRM practices represent an important determinant of innovation in start-ups. Their findings stressed the importance and benefits of a wide range of HRM practices compared to low human capital in start-ups in driving innovation. Using the Spanish survey of industrial strategic behavior and the longitudinal analysis focusing on the years between 2001 and 2008, Diaz-Fernandez *et al.* (2017) noted that HRM practices served as antecedent of innovation by which firms should invest in HRM practices to effectively use available resources for arousing innovation. Aman *et al.* (2018) argued that the purpose of HRM practices is to provide an environment which is conducive enough to develop employees' skills and competencies for innovation. Their findings showed that HRM practices significantly stimulate innovative abilities of employees of Banks in Vehari, Pakistan. In particular notes, Al-Tal and Emeagwali (2019) supposed that KHRM practices help employees accumulate knowledge and intellectual capital that can interpret innovation performance. Singh *et al.* (2021) justified KHRM practices are a bundle of prudently selected human resource practices aimed at enhancing organizational knowledge, influencing human capital to relate and cocreate relevant experience for improving innovation performance. Elayan *et al.* (2022) argued that innovation is contingent upon knowledge-based processes, so KHRM practices in the form of acquisition, creation and the sharing and execution of creative ideas create many opportunities to foster innovation competence. Based on above arguments, this study proposes the following hypothesis:

H1. Knowledge-based HRM practices significantly predict innovation performance.

2.2 Mediating role of KS between knowledge-based HRM practices and innovation performance

KS is important process of knowledge management and considered an important strategic resource in the support of innovation in organizations (Le and Lei, 2019; Le, 2021). KS is defined as the process of exchanging knowledge jointly creates new knowledge between employees in the organization (Van den Hooff and De Ridder, 2004; Le and Lei, 2019). Processes of sharing knowledge involve explicit or implicit knowledge that develops knowledge resource of organizations through creating new knowledge and contributing toward organizational progress (Le *et al.*, 2020). According to Le *et al.* (2020), tacit KS involves the process of sharing invisible and informal knowledge possessed by employees such as experiences and expertise, uncommon understandings, insights and intuitions. While, explicit KS refers to process of sharing codified knowledge and formal information captured and transmitted within an organization such as documents and reports, procedures and policies, or handbooks.

Even though HRM dynamics are difficult to predict in the future, HRM practices have become an effective and efficient tool for firms to achieve sustainable competitive advantage (Al-Tal and Emeagwali, 2019; Tran *et al.*, 2023). HRM practices encompass the management processes that enable firms to acquire valued and exceptional knowledge and higher innovative performance (Singh *et al.*, 2021). It plays a critical role in supporting an organizational environment favorable to knowledge management initiatives and KS activities in organizations (Cao *et al.*, 2022; Singh *et al.*, 2021). Indeed, Soliman and Spooner (2000)

discussed the strategic role of HRM practices in identifying knowledge gaps and ensuring the success of knowledge management programs directed at capturing, using and reusing employees' knowledge. According to Jimenez-Jimenez and Sanz-Valle (2008), HRM practices are critical antecedents of generating an appropriate and beneficial culture for encouraging processes of acquiring and sharing knowledge in an organization. Especially, according to Al-Tal and Emeagwali (2019), KHRM practices itself can be considered as a way of managing knowledge, thus it creates favorable conditions and opportunities to promote employees for sharing and applying knowledge in organizations. Singh et al. (2021) argued that KHRM practices contribute to the creation of an organizational social climate that encourage the willingness of employees to share their personal knowledge for the common goals. Current literature also supported that positive KHRM practices–KS relationship is the outcomes of significant impacts of KHRM practices on the motivation and retention of employees for process of acquiring and sharing knowledge (Singh et al., 2021; Elayan et al., 2022). Following such a line of argument, this study hypothesizes as follows:

H2a. Knowledge-based HRM practices are positively associated with tacit KS.

H2b. Knowledge-based HRM practices are positively associated with explicit KS.

Regarding KS–innovation relationship, numerous previous studies have shown the crucial influence of KS on specific forms of innovation (Le and Lei, 2019; Singh et al., 2021). Indeed, Jansen et al. (2006) argued that the exchange of knowledge and information helps firms avoid being constrained inside their knowledge boundaries, thereby creating opportunities to renew knowledge and develop new products and services. Sáenz et al. (2012) showed that the employees' KS mechanisms, e.g. communities of practice, coaching and/or mentoring, and employee functional rotation are the key means of increasing and exerting a positive influence on innovation performance in Spanish and Colombian high-tech firms. Qiu et al. (2015) supposed that by sharing task-related skills and expertise with colleagues, KS process among employees might create a lot of opportunities to generate new ideas and enhance firm's innovation performance. Le et al. (2020) pointed out that employees' processes of sharing tacit and explicit knowledge contribute to creating new ideas and solutions that are the important basis for firms to increase their innovation competence. Current literature also revealed that through process of sharing knowledge, employees can learn and combine again all kinds of knowledge and become more capable in translating new ideas into innovation performance (Wang and Hu, 2020; Nguyen et al., 2022; Kumar et al., 2022). Accordingly, following hypotheses are posed (see Figure 1):

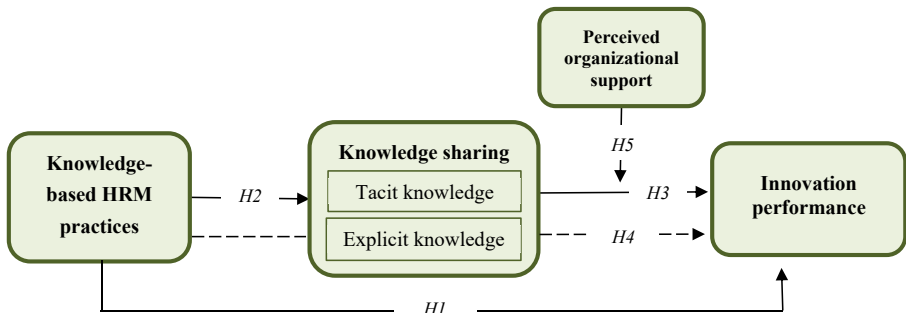


Figure 1.
The proposed
research model

Note(s): ----- indirect effect
Source(s): Authors work

H3a. Tacit KS behaviors are positively related to innovation performance.

H3b. Explicit KS behaviors are positively related to innovation performance.

Above arguments show the positive influence of KHRM practices on KS activities, which in turn induces significant impacts on innovation performance. Implicitly, KS serves as a mediator in the KHRM practices–innovation performance relationship. In addition, [Camelo-Ordaz et al. \(2011\)](#) demonstrated that firms can apply HRM practices to foster KS of employees for promoting organizational innovation performance. [Kaabi et al. \(2018\)](#) elucidated that HRM practices are the important ancestor of a positive climate to foster KS among employees for innovation performance. [Al-Tal and Emeagwali \(2019\)](#) advocated that KS activities can serve as the mediating function in the relationship between KHRM practices and innovation because KHRM practices enable firms create an appropriate climate to increase KS activities and intellectual capital for creating sustained advantage, which is often evident in their innovation performance in SMEs. [Singh et al.'s \(2021\)](#) findings revealed that KHRM practices significantly predict innovation performance through the mediating role of social capital and KS activities. Following the line of discussion, following hypotheses are proposed:

H4. KS behaviors mediate KHRM-innovation performance relationship.

2.3 Moderating role of perceived organizational support between KS and innovation

The construct of POS is based on Eisenberger and colleagues that is defined as employees in an organization form general beliefs regarding the extent to which the organization consider their contribution important and cares about their well-being ([Eisenberger et al., 1986](#)). Accordingly, if employees perceived that they are valued and supported by organization, they will have a confidence in the values, principles and norms of the organization and attempt their best for organizational success ([Le and Lei, 2019](#)).

POS originates from the frequency and intensity of the indications that reflect efforts approved by firms such as compliments, financial and social rewards ([Imamoglu et al., 2022](#)). So, based on social exchange theory, in cases of perceiving the level of POS is high, employees will work in a more motivating way and behave more than their organization wants as a natural response to POS ([Le and Lei, 2019](#)). Especially, existing literature also indicated that POS relates significantly to organizational citizenship behavior (OCB)—a kind of nonorganizational formal regulation and behavior of employees—that promotes the welfare of coworkers and organization exhibited by employees' positive behaviors surpassing the minimum role requirements expected by the organization ([Chiang and Hsieh, 2012](#)). Literature revealed that KS is one of the most substantial outcomes of OCB ([Chang et al., 2021](#)). In other words, if employees are aware of the meaningful care and support from their leaders and organization, they will reciprocate with willingness to share more knowledge and skill with colleague ([Raab et al., 2014](#)) thereby increasing the creative likelihood and eagerness to participate in innovation and decision-making process related to innovation ([Choi et al., 2016](#)). The work by [Suifan et al. \(2018\)](#) indicated that POS will generate a sense of duty of employees in caring about the organization's benefit and strive to achieve its goals in the most creative way.

POS is regarded as a crucial moderating factor to generate a supportive climate that motivates and encourages employees to share knowledge towards meaningful innovative results ([Raab et al., 2014](#); [Choi et al., 2016](#); [Le and Lei, 2019](#)). Literature indicated that employees tend to be reluctant to share their key knowledge with others because they dreaded of losing their distinctiveness compared with colleagues ([Wang and Noe, 2010](#)), especially in case of without awareness of integrity and fairness of organization. Thus, if employees have high trust of support, integrity and fairness in their organization, they will

have greater motivation and commitment to actively participate in the activities of KS. According to [Choi et al. \(2016\)](#), POS ensures that employees are highly committed to the work of the organization that causes the higher motivation to share more knowledge to innovate and solve firm's existing issues for improving innovation capability. [Le and Lei \(2019\)](#) argued that firms with high degree of POS will strengthen the positive effects of KS on innovation by creating a stimulating mechanism that positively affects intrinsic motivation among employees. Their finding revealed that KS is strongly related to innovation capability in the firms with high POS. From these arguments, this study proposes hypotheses as follows:

H5a. POS significantly fosters the effect of tacit KS on innovation performance

H5b. POS significantly fosters the effect of explicit KS on innovation performance

3. Research methodology

3.1 Sample and data collection

In this study, a quantitative survey methodology was used. Empirical data were collected from June to August in the summer 2022 through a survey of 118 service and manufacturing firms in Vietnam. These firms randomly selected from the list of nearly 150,000 enterprises in the yellow pages of the Vietnamese business directory in 2022. The authors communicated with representatives of the firms, who primarily works in human resource department to explain the purpose of the research, commit to information security for respondents, and ask for their help in distributing questionnaires and then collecting data. The respondents in each firm need to be key employees such as directors, vice-directors/managers and heads of key departments (such as administration and R&D departments) to ensure that the respondents had a full understanding of the firm's business situation. The measurement items are used in this study adapted from existing scales in the literature to develop the initial list of items. Overall, this study issues 560 questionnaires and receives 328 ones in the formal data collection, among which 289 ones are valid, corresponding to a validity rate of 51.6%.

3.2 Variable measurement

All items in this study have been developed by prior works that measured via five-point Likert-type scales ranging from 1 (strongly disagree) to 5 (strongly agree).

Knowledge-based HRM practices. This study used 13 items adapted from the study of [Kianto et al. \(2017\)](#) to measure participants' perception of KHRM practices in their firms. [Elayan et al. \(2022\)](#) study also used these items and applied Cronbach's alpha (α) to assess the internal consistency reliability, showing a high value ($\alpha = 0.93$). Sample items are "Our firm offers training that provides employees with up-to-date knowledge" and "Our firm rewards employees for sharing knowledge."

KS behaviors. This study used 13 items adapted from the study of [Lei et al. \(2019\)](#) to measure two different aspects of KS process, with seven items for tacit KS, and six items for explicit KS. A sample item for tacit KS is "People in my organization frequently share knowledge of know-where or know-whom with colleagues." A sample item for explicit KS is "People in my organization frequently share official reports and documents that they prepare by themselves with colleagues." [Lei et al.'s \(2019\)](#) reliability test shows high value for the measures of tacit KS ($\alpha = 0.93$) and explicit KS ($\alpha = 0.94$).

Innovation performance. This study used six items originated from the works of [Kaya and Patton \(2011\)](#) to measure innovation performance. Sample items are "Our firm has introduced new products to markets before the competitions." The reliability test of [Kaya and Patton \(2011\)](#) shows high value for the measures of innovation performance ($\alpha = 0.80$).

Perceived organizational support. Eight items developed by Eisenberger *et al.* (1986) are used to determine the level of employees' perceptions of organizational support. Sample items include "Our firm really cares about employees' well-being," and "Our firm strongly considers employees' goals and values". The study of Lei *et al.* (2019) reports a high value for reliability test of POS ($\alpha = 0.96$).

Control variables. This study examines the control roles of industry type and firm size to account for differences among firms due to their potential roles in affecting frugal innovation.

4. Data analysis and results

4.1 Measurement model

We first tested the reliability of the measures for the constructs by examining the private Cronbach's alpha coefficients (α). The results of statistics are range of 0.95–0.97, which are all over than Nunnally and Bernstein's (1994) recommended level of 0.7. We continuously analyze confirmatory factor (CFA) to evaluate the universal measurement model to check the discriminant and convergent validity (see Table 1).

4.1.1 Convergent validity. To get the measure of the convergent validity, results in Table 1 reported that all three main measurements meet the criteria on convergent validity recommended by Hair *et al.*'s (2006), specifically, factor loadings are range of 0.820–0.955; CR values are range of 0.95–0.97; and the AVE values are range of 0.74–0.88. Table 1 exhibits the standard deviation (SD), means, AVE, CR, factor loading and α of all constructs.

4.1.2 Discriminant validity. To assess the discriminant validity, according to Fornell and Larcker's (1981) criterion, the square root of the AVE for each construct should be greater than the correlation between constructs (see Table 2).

Table 2 shows the values of the square root of the AVE were all greater than the interconstruct correlations suggesting good discriminant validity. Overall, the above results show strong evidence for both the reliability of the constructs, and the discriminant validity of scales.

Regarding the satisfactory of measurement model, we estimated the fit of measurement model based on examining: (1) absolute fit values (such as GFI, CMIN/df, and RMSEA); and (2) incremental fit values (such as NFI, AGFI, and CFI). Table 3 shows that all fit indices of the measurement model were satisfactory. Thus, the model fit the data.

4.2 Structural model and research findings

This study performs structural equation modeling (SEM) to test the hypotheses, using AMOS software version 22.0 and maximum likelihood estimation techniques to test the proposal research model. The fit of the model is satisfactory ($\chi^2(519) = 914.135$; RMSEA = 0.051; CFI = 0.968; TLI = 0.965; IFI = 0.968), suggesting that the nomological network of relations fits the data and the validity of the measurement scales.

We perform privately three models to clarify the direct and indirect effect of KHRM practices on innovation performance as well as moderating role of POS.

4.2.1 Test direct and indirect effects. Model 1 used to test the direct and indirect effect of KHRM practices on innovation performance. Findings in Table 4, Table 5 and Figure 2 show that all the standardized path coefficients of direct effects are found to be significant and in line with the stated hypothesis. Specifically:

Hypothesis H1 relating to the relationship between KHRM practices and innovation performance, results in Table 4 show the positive effects of KHRM practices on innovation performance ($\beta = 0.274$; $p < 0.001$). Thus, Hypotheses H1 is supported.

Construct	Item	Standardize loading	t-value	AVE	CR	α
Knowledge-based HRM practices (KHRM)	13	–	–	0.75	0.97	0.97
	KHRM1	0.894***	23.045			
	KHRM2	0.872***	22.185			
	KHRM3	0.884***	22.922			
	KHRM4	0.870***	22.076			
	KHRM5	0.853***	21.146			
	KHRM6	0.886***	23.045			
	KHRM7	0.861***	21.581			
	KHRM8	0.854***	21.168			
	KHRM9	0.870***	22.099			
	KHRM10	0.828***	19.820			
	KHRM11	0.821***	19.519			
	KHRM12	0.878***	22.580			
Perceived organizational support (POS)	4	–	–	0.74	0.95	0.95
	POS1	0.840***	23.960			
	POS2	0.879***	20.989			
	POS3	0.880***	21.036			
	POS4	0.826***	18.605			
	POS5	0.820***	18.376			
	POS6	0.870***	21.036			
	POS7	0.875***	20.821			
Tacit knowledge sharing (TKS)	7	–	–	0.80	0.96	0.96
	TKS1	0.920***	24.684			
	TKS2	0.894***	22.979			
	TKS3	0.909***	23.929			
	TKS4	0.888***	30.035			
	TKS5	0.885***	22.452			
	TKS6	0.899***	23.342			
Explicit knowledge sharing (EKS)	6	–	–	0.84	0.97	0.97
	EKS1	0.944***	30.035			
	EKS2	0.903***	28.230			
	EKS3	0.923***	30.521			
	EKS4	0.904***	28.334			
	EKS5	0.925***	30.818			
Innovation performance (IP)	6	–	–	0.88	0.97	0.97
	IP1	0.929***	30.720			
	IP2	0.955***	34.461			
	IP3	0.937***	34.461			
	IP4	0.918***	29.368			
	IP5	0.949***	33.480			
	IP6	0.942***	32.451			

Table 1.
Standardize loading
and reliabilities for
measurement model

Note(s): $\alpha \geq 0.7$; $CR \geq 0.7$; $AVE \geq 0.5$; *** Significant at $p < 0.001$
Source(s): Authors work

Hypotheses H2a and H2b relating to the effects of KHRM practices on tacit and explicit KS are also supported. Specifically, the results showed that the effects of KHRM practices on tacit KS ($\beta = 0.672$; $p < 0.001$) is more significant than its effect on tacit KS ($\beta = 0.646$; $p < 0.001$).

Hypotheses H3a and H3b relating the effects of tacit and explicit KS on innovation performance are also confirmed. Specifically, the results reveal that tacit KS induces a greater effect on innovation performance ($\beta = 0.359$; $p < 0.001$) in comparison with the effects of explicit KS on innovation performance ($\beta = 0.306$; $p < 0.001$).

As shown in Table 4, this study also examines the control role of industry type and firm size to account for differences among firms on innovation capabilities. The results in Table 4 did not support the significant effect of these variables on innovation performance. So, industry type and firm size do not reflect the differences on innovation performance among firms.

Constructs	Mean	SD	KHRM	POS	TKS	EKS	IP
Knowledge-based HRM practices (KHRM)	3.30	0.59	<i>0.87</i>				
Perceived organizational support (POS)	3.41	0.65	0.58***	<i>0.86</i>			
Tacit knowledge sharing (TKS)	3.50	0.71	0.65***	0.70***	<i>0.89</i>		
Explicit knowledge sharing (EKS)	3.81	0.71	0.63***	0.73***	0.77***	<i>0.91</i>	
Innovation performance (IP)	3.81	0.73	0.69***	0.78***	0.76***	0.74***	<i>0.93</i>

Note(s): SD: standard deviation; Diagonal elements (in italic) are the square root of the AVE; *** $p < 0.001$
Source(s): Authors work

Table 2.
Descriptive statistics and construct correlations

Fit index	Scores	Proposal threshold values
<i>Absolute fit measures</i>		
CMIN/df (chi-square/df)	1.432	$\leq 2^a$; $\leq 5^b$
GFI (goodness of fit index)	0.850	$\geq 0.90^a$; $\geq 0.80^b$
RMSEA (root mean square error of approximation)	0.039	$\leq 0.08^a$; $\leq 0.10^b$
<i>Incremental fit measures</i>		
NFI (incremental fit measures including normed fit index)	0.933	$\geq 0.90^a$
AGFI (adjusted goodness of fit index)	0.831	$\geq 0.90^a$; $\geq 0.80^b$
CFI (comparative fit index)	0.979	$\geq 0.90^a$

Note(s): a: good fit; b: acceptable fit (Le and Lei, 2019)
Source(s): Authors work

Table 3.
The fit indices of the CFA model

Model	Relationship	Beta	Standard error	t-value	Results
Model 1	KHRM → Innovation performance	0.274***	0.077	4.373	Supported
Model 1	KHRM → Tacit knowledge sharing	0.672***	0.066	12.518	Supported
Model 1	KHRM → Explicit knowledge sharing	0.646***	0.072	12.457	Supported
Model 1	TKS → Innovation performance	0.359***	0.053	6.816	Supported
Model 1	EKS → Innovation performance	0.306***	0.044	6.130	Supported
Model 1	Industry type → Innovation performance	0.026	0.027	1.021	Not Supported
Model 1	Firm size → Innovation performance	0.009	0.052	0.645	Not Supported
Model 2	POS*TKS → Innovation performance	0.064***	0.019	3.428	Supported
Model 3	POS*EKS → Innovation performance	0.082***	0.019	4.219	Supported

Note(s): *** $p < 0.001$
Source(s): Authors work

Table 4.
Results of the direct relationships and moderation

4.2.2 *Test mediating effects.* To test and provide evidence of the mediating roles of KS activities in the relationship between KHRM practices and innovation performance, this study applied the bootstrap confidence intervals method with 5,000 iterations the suggestion of Preacher and Hayes (2008) to verify the magnitude and statistical significance of the indirect effects (see Table 5).

The results in Table 5 indicated that the indirect effects of KHRM practices on innovation performance ($\beta = 0.439$; $p < 0.001$) are significant within the range of confidence intervals. In general, these findings provide the evidence to confirm the mediating role of KS behaviors in the effects of KHRM practices on innovation performance.

4.2.3 *Test moderating effects.* Models 2 and 3 used to test the moderating effect of POS in the relationship between two forms of KS and innovation performance. The results indicated that the interaction effect of POS*TKS on innovation performance ($\beta = 0.064$; $p < 0.001$) is statistically significant. Thus, hypothesis H5a is supported (see Figure 3).

Similarly, the findings also supported the interaction effect of POS*EKS on innovation performance ($\beta = 0.082$; $p < 0.001$). Hypothesis H5b is also supported (see Figure 4). It reveals that POS positively enhances the effects of both tacit and explicit KS on innovation performance.

5. Discussions

5.1 Theoretical and practical contributions

Innovation has been emerging as a critical source for firms to develop and implement more efficient and effective strategies and processes for maintaining a competitive advantage (Le

Model	Path	Direct effects	Indirect effects	Total effects	Bias-corrected confidence intervals	
					Lower confidence level	Upper confidence level
Model 1	KHRM→KS→IP	0.274***	0.439***	0.713***	0.367	0.516

Table 5. Confidence intervals of the indirect effects (Source: Authors work)

Note(s): *** $p < 0.001$
Source(s): Authors work

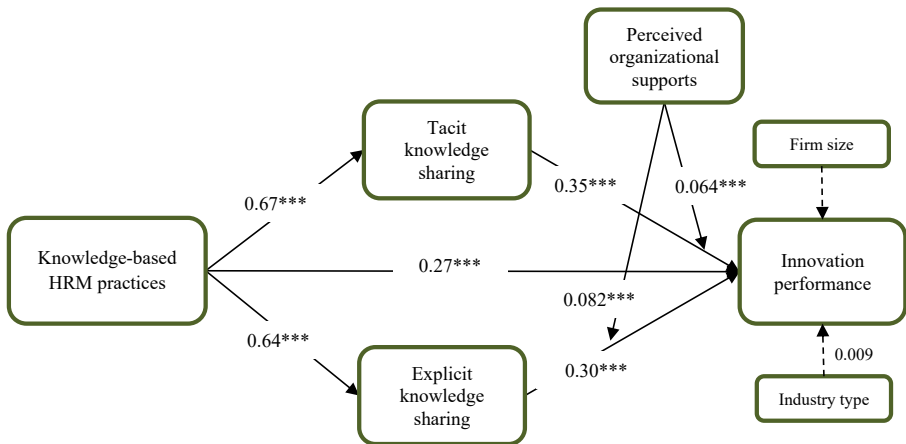
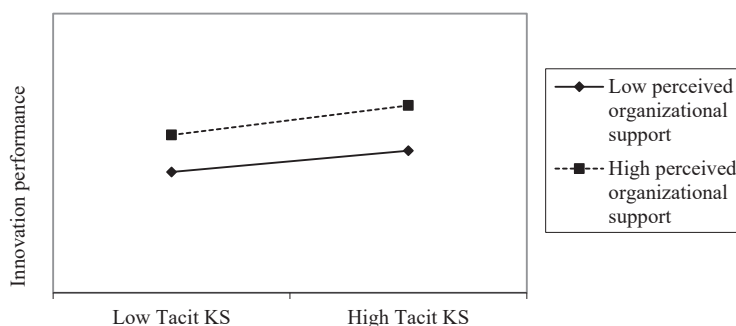


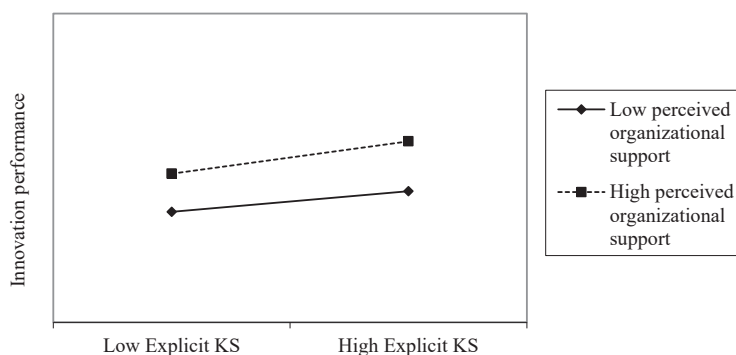
Figure 2. Path coefficients of the structural model

Source(s): Authors work



Source(s): Authors work

Figure 3. The moderating effect of CI between Tacit KS and Innovation performance



Source(s): Authors work

Figure 4. The moderating effect of CI between explicit KS and innovation performance

and Lei, 2019; Le and Le, 2022; Than *et al.*, 2023). There have been many empirical studies on innovation that emphasized it as the primary determinant of a firm's sustainability and competitiveness (Yang *et al.*, 2018; Iqbal *et al.*, 2021). However, only a few studies have analyzed how KHRM practices and KS behaviors can foster innovation performance under the moderating role of POS. Therefore, this paper contributes to enriching the theoretical and practical theory of knowledge management and innovation as follows.

First, innovation is widely accepted as an essential competence of an organization since it supports introducing new products and services for achieving sustainable competitive advantage (Le and Lei, 2018). However, what are the underlying factors that promote and nurture innovation performance is still the big challenge and central question for firms in the management and strategy field and in the context of developing and emerging nations (Al-Qaralleh and Atan, 2021; Singh *et al.*, 2021; Kumar *et al.*, 2022). In addition, although the huge benefits and importance of HRM practices on innovation are undeniable (Shipton *et al.*, 2006; Chang *et al.*, 2021), very few studies in the literature investigate the mechanism of how certain form of HRM practices such as knowledge-based HRM practices are associated with innovation performance (Kaya and Patton, 2011; Al-Qaralleh and Atan, 2021; Singh *et al.*, 2021). Therefore, by paying attention to addressing the relationship between KHRM practices and innovation outcomes, this study has brought the insights of causal mechanisms of this

relationship. The findings have verified the significant and positive effects of KHRM practices on innovation performance and revealed that KHRM practices can be optimal choice for leaders to pursuit and nurture organizational innovation performance.

Second, knowledge resources and KS behaviors are found to be the key antecedents of innovation and organizational performance (Pham and Hoang, 2019; Le and Lei, 2019; Singh *et al.*, 2021). However, the empirical studies that explored the specific effects of KS behaviors on innovation performance are still limited and modest (Yao *et al.*, 2020; Than *et al.*, 2023). Hence, this paper makes significant contributions by examining investigating the effect of tacit and explicit KS behaviors on innovation performance. Interestingly, the empirical findings have confirmed the crucial role of KS behaviors in predicting innovation performance and revealed that explicit KS behaviors induces greater influences on innovation performance compared to the effects of tacit KS on innovation performance. These findings are very meaningful because it helps scholars and practitioners to have detailed insights into effective pathways to driving innovation. Contrary to the finding of prior works (e.g., Dost *et al.*, 2019), this study demonstrates that sharing tacit knowledge (such as expertise, experiential and know-how knowledge and lessons from past failures) is crucial solution and effective way to stimulate innovation performance because tacit knowledge helps to recognize the essence of the problem to optimize resources for innovation. It is recognized to be of greater importance for innovation in comparison with explicit knowledge (Seidler-de Alwis and Hartmann, 2008; Magnier-Watanabe and Benton, 2017), which is public knowledge, or knowledge that is easily accessible, and thus can be readily copied, making it less valuable or sustainable as a source of competitive advantage.

Third, HRM practices exert their influence on innovation, possibly through various mediators such as KS processes and social capital (Seeck and Diehl, 2017; Singh *et al.*, 2021; Cao *et al.*, 2022). However, few to no studies have investigated the mediating impacts of certain aspects of KS behaviors in the relationship between knowledge-based HRM practices and innovation performance. The empirical findings have verified the mediating role of KS activities among employees in the knowledge-based HRM practices' effects on innovation and revealed that KHRM practices will significantly affect innovation performance directly or indirectly through its influence on KS activities of employees in organizations. It stresses that KHRM practices based on seeking individuals with right potential for knowledge development through effective knowledge-based hiring, recruiting and selection, training and compensation will foster KS behaviors of employees for the goal of innovation.

Fourth, employees establish relationships focused around social exchange with their organizations based on the perception of how organization recognizes their contributions and what they receive from organization (Eisenberger *et al.*, 1986; Le and Lei, 2019). Literature revealed that considering the supports of organizations as a benchmark, employees then decide their own commitment and efforts for organizational goals such as innovation (Shore and Tetrick, 1991; Le and Lei, 2019). Thus, scholars highlight the need and urgency of determining clearer mechanisms of POS in moderating the organizational relationships, especially the KS–innovation links (Le and Lei, 2019; Shehzaad *et al.*, 2023). Hence, by investigating the influence of POS on the effects of KS behaviors on innovation performance, the empirical findings have provided the evidence for the positively moderator of POS and highlighted it as a situational variable that interacts with KS behaviors to enhance innovation performance. Consistent with the work of Le and Lei (2019), the findings of this study indicate that POS is a critical contingent element that the leaders or managers need to critically consider in their innovation strategies.

Finally, innovation enhancement is an urgent and imperative requirement for firms to create a competitive advantage; however, it is a significant challenge for small- and medium-sized enterprises in emerging economies due to lack of understanding of the right pathway and limited resources to pursuit innovation (Le *et al.*, 2020; Than *et al.*, 2023). Vietnam is

considered as an emerging market with the economic growth rate relatively high and stable, yet Vietnamese firms are still facing with many difficulties and quite sensitive to changes in technology and innovation (Phan, 2019; Than *et al.*, 2023; Cao *et al.*, 2022). The majority of firms in developing countries are small and medium size, and lack of capital, resources and R&D capabilities to innovate (Nguyen *et al.*, 2019; Le, 2021; Than *et al.*, 2022). These conditions pose a greater motivation and challenge to explore new and less costly approach to innovation by firms in developing countries compared with those in developed nations (Le, 2021; Gui *et al.*, 2022). The findings of this paper have, therefore, implied that focusing on KHRM practices to encourage the willingness of employees for sharing tacit and explicit knowledge might be an appropriate approach and effective strategy for firms in developing and emerging countries to foster innovation performance.

5.2 Limitations and directions for future research

It is necessary to acknowledge that this study inherits several limitations as follows. First, the cross-sectional design does not eliminate the possibility that causal correlation may emerge in the long term due to changes in the psychology and perspective of individuals over time. A longitudinal study would overcome this limitation and consolidate the results. Second, this study was conducted in a specific national context. The cultural effects of a developing and emerging country like Vietnam may have affected the interactions between leaders and employees. More studies with more contexts are necessary to extend and consolidate the current research findings. Finally, in the emerging and developing markets, firm's strategy and innovation efforts are greatly affected by resource constraints and environmental turbulences (Le, 2021). Originating from the undeniable influence of knowledge-based HRM practices and knowledge resource on innovation, this paper calls future studies for examining the potential mediating mechanisms of knowledge management processes between knowledge-based HRM practices and innovation performance.

5.3 Conclusions

Generally, the paper significantly advances innovation theory by offering an integrative model to connect knowledge-based HRM practices and innovation performance via the mediating roles of tacit and explicit KS and moderating role of POS. This study is unique in its attempts to expose and produce a deeper insight of a new pathway leading to improving innovation performance for firms in the developing and emerging markets.

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