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THE MEDIATING ROLE OF KNOWLEDGE SHARING IN LINKING TRANSFORMATIONAL LEADERSHIP AND INNOVATION CAPABILITY OF SMES: INSIGHTS FROM VIETNAM

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Abstract

The paper aims to elucidate the influences of transformational leadership and knowledge sharing on two aspects of innovation capability of SMEs namely product innovation and process innovation. Structural equations modeling (SEM) is applied to test the mediating role of knowledge sharing between transformational leadership and innovation capability using data collected from 286 participants at 71 SMEs in Vietnam. The result shows that knowledge sharing acts as mediating role in the relationship between transformational leadership and firm's innovation capability. Transformational leadership has more significant effects on process innovation, whereas knowledge sharing has more significant effects on product innovation. From a practical perspective, the paper identifies and brings a deeper understanding of the strategic factors for directors/managers to promote innovation capability in SMEs. The findings of this paper support theoretical initiatives on knowledge management and innovation, which can be used to analyze relationships transformational leadership, knowledge sharing behavior, and firm's innovation capability in SMEs.

Introduction

Innovation capability is considered as the application or creation of new products, services, work processes and management procedures to gain competitive advantage for firms (Drucker, 2014). Tsai et al. (2001) separate innovation into two main types: product innovation and process innovation. Product innovation refers to firm's capability in providing differentiated or new products/services in the market to meet and satisfy customers' need; and process innovation refers firm's capability in providing a better process (relate to manufacture or service) than current operation to get better performance. Innovation capability is widely acknowledged to be essential for the survival and growth of organizations (Aragón-Correa et al., 2007). Recently, Le and Lei (2018a) indicated that innovation capability can be an important means of achieving low-cost advantage and/or differentiation advantage. In this context, it is especially necessary to increase a better understanding of factors that positively influences aspects of innovation capability such as: product and process innovation.

Transformational leadership (TL) is recognized as one of the most effective leadership styles for enhancing knowledge capital, knowledge sharing processes (Birasnav et al., 2011; Le & Lei 2017; Le & Lei, 2018 b) and innovation capability (García-Morales et al., 2012). However, literature on relationship between TL, knowledge sharing (KS) and two aspects of innovation capability namely product and process innovation is still sparse and limited. As a result, exploring the mechanism of how these strategic factors influence innovation capabilities is very important by following reasons:



First, innovation capability is widely accepted as a means of enhancing firms' performance and competitive advantage, however many firms do not know how to develop it properly (García Morales et al., 2008; Le & Lei, 2018a) especially in Vietnam context.

Second, leadership style has been underlined as one of the most important individual effects on innovation capability of a firm, because leaders can directly decide to introduce new ideas into an organization, set specific goals, and encourage innovation initiatives from employees (Aragón-Correa et al., 2007). Many prior researches note that TL is one of the most effective leadership styles (e.g., Birasnav et al., 2011; Le & Lei, 2017; Le & Lei, 2018a.b), however mechanism and evidence on TL's influence on innovation capability is still scarcity (García Morales et al., 2008).

Finally, KS refers the process of exchanging knowledge and skill among individuals in an organization to create new and valuable knowledge for employees (Van den Hooff and De Ridder, 2004), this process allows turning individual's knowledge into organization's knowledge, and expand firm's ability in managing knowledge to attain competitive advantage (Le & Lei, 2017; Lei et al., 2017) and innovation activities (Wang & Wang, 2012). Besides, Le and Lei (2018b.c) reported that leaders and transformational leaders are significantly related to KS behaviours of employees. However, there is little empirical research tested the relationships between TL and KS, and/or KS and innovation capability from the cases of SMEs in Vietnam.

To fill the research gaps, this study is done to investigate the relationship between TL, KS, and innovation capabilities in a research model. The purpose of the study is exploring the influences and mediating mechanism of KS in the relationship between TL and two types of innovation capability. Our study attempts to address the following research questions:

- Whether KS has mediating role between TL and innovation capability or not?
- Whether TL and KS have different influences on each specific type of innovation capability or not?
- Which factor has the most significant influences on product innovation and process innovation?

Vietnam reformed and opened the economy in 1986. This process has contributed to Vietnam's positive changes and development on many important economic aspects. However, the innovation capacity of Vietnamese enterprises are still limited and they are striving to become innovators in their own way in comparison with some Asian countries, such as Japan, China and Korea that have already completed the transformation from imitation to innovation and have progressed based upon knowledge and imitation of foreign technology (Kim, 1997). This study is, therefore, expected to provide theoretical and practical initiatives in the field of leadership and knowledge management to enhance the innovation capabilities in Vietnamese SMEs.

Literature and hypothesis

Influence of TL on KS

Le and Lei (2017) stated that "TL characterizes leaders who emphasize clarity in their communications about organizational goals, acting as the organization's leading force, engaging in active coaching, promoting new skill development among their



followers and continuously seeking new opportunities for organizational development". TL behavior is found that it is highly positively correlated with employees' satisfaction, extra effort, and effectiveness (Muenjohn & Armstrong, 2015). In recent years, relationship between TL and KS has attracted the great attention from scholars for example: Birasnav et al. (2011) supposed that TL is interested in setting up knowledge supportive culture based on developing a set of values, assumptions, and beliefs to shape followers' behaviors toward performing knowledge activities and engaging in knowledge management process. Le and Lei (2017) indicated that TL practices allow transformational leaders to build justice and the trust of their followers through which positively stimulate KS behavior among employees. Recently, Le and Lei (2018b) showed that Transformational leaders play an important role in promoting employees' behaviors toward KS in two ways: "willing to share knowledge in an active way without conditions" and "proactive in collecting or seeking knowledge". These arguments lead to our first hypothesis:

H1: TL positively influences KS

TL and innovation capability

Leaders have a decisive and direct role in creating innovation (Tushman & Nadler, 1986), they build up an innovative culture by encouraging innovation initiatives from employees (Aragón-Correa et al., 2007). Many prior researches indicated that, TL has significant impacts on the firm's innovation capability, for example: According to Jung et al. (2003), transformational leaders encourage employees freely in discussing and trying out innovative ideas and approaches through which positively affect firm's innovation capability. García-Morales et al. (2012) pointed out that, TL's behavior directly or indirectly influence firm's innovation capability through improving learning capability of a firm. Recently, the empirical research of Birasnav et al. (2013) found that TL significantly impacts both product and process innovation. These arguments lead to the next hypothesis:

H2a: TL positively impacts product innovation.

H2b: TL positively impacts process innovation.

KS and innovation capability

The importance of knowledge and KS toward innovation capability was shown by many prior researches (e.g., Jantunen, 2005; Wang & Wang, 2012; Le & Lei, 2018a). Le and Lei (2018a) indicated that knowledge and learning capability is positively associated with innovation speed and innovation quality of a firm. Jantunen (2005) argued that KS behavior of employees may create superior innovation capability for firms. Wang and Wang (2012) asserted that, KS process contributes to innovations in teams, units and the entire organization. Due to the fact that innovation initiatives mainly depend on knowledge and skill of employees in the process of creating value, so the degree of innovation capability mainly depend on their capability to transform and apply knowledge in producing goods and services. Based on the above arguments, to have clearer understanding of how KS influences on two specifics types of innovation capability, we proposed following hypotheses:

H3a: KS positively influences product innovation.

H3b: KS positively influences process innovation

Methods

Sample and procedure

This study uses a survey method for data collection. Participants are employees at some important departments of firms such as administration, operation, R&D, marketing and sales in 71 SMEs in Haiphong and Hanoi, Vietnam. We communicated with representatives of these firms by phone and/or make personal visits to explain the purpose of the research and ask for their assistance in collecting the questionnaires.

This study distributed 610 questionnaires and receives 539 copies in the formal data collection, among which 286 ones are valid, with a 46.9% valid rate. Potential non-response bias was assessed by following the method proposed by Armstrong and Overton (1977). Chi-square and independent sample T-test were used to compare the earlier 90 respondents and the last 90 ones based on demographic variables such as gender and age. The results showed that there were no significant differences between the two groups of responses ($p > 0.05$).

Measurement

To ensure the validity and reliability of the study, items used to measure variables were developed from prior researches. All constructs were measured using multiple items and all items were assessed using a five-point Likert-type scale, ranging from '1 = strongly disagree' to '5 = strongly agree'. To measure TL, we used four items adapted from the research of Garcia-Morales et al, (2008) and Le and Lei (2017); to measure KS, we used 10 items adapted from the research of Cheng and Li (2001); we used 11 items adapted from the research of Liao et al. (2007) to measure product innovation (six items) and process innovation (five items).

Data analysis methods

This study uses the software of SPSS and AMOS version 21 to process data. Confirmatory factor analysis (CFA) and Structural equations modeling (SEM) is applied to examine the validity and reliability of the constructs as well as to assess the effects of the variables in the research model.

Data analysis and results

Measurement model

A series of tests are implemented to evaluate the constructs' reliability and validity for examples: Cronbach's alpha coefficients to test reliability of the measures (Nunnally & Bernstein, 1994); confirmatory factor analysis (CFA) to test for the convergent validity; comparing the squared correlations between the latent variables and square root of average variance extracted (AVE) to test the discriminant validity of measures (Fornell & Larcker, 1981). Results in Table 1 and Table 2 showed fit indices of the model, suggesting that the relationships among latent constructs fit the data.

Table 1 shows AVE, CR, mean, standard deviation (SD) and $C\alpha$ of every construct. It shows that the square root of AVE for each construct is higher than the correlations among constructs in the model provided strong support for the construct reliability, as well as for the convergent and discriminant validity of the scales.

Table 1: Descriptive statistics and average variances extracted from constructs

Construct	AVE	CR	C α	Mean	SD	TL	KS	IC1	IC2
Transformational leadership (TL)	0.69	0.90	0.89	3,45	0.58	0.83			
Knowledge sharing (KS)	0.72	0.96	0.96	3.48	0.60	0.75	0.84		
Product innovation (IC1)	0.73	0.93	0.93	3.76	0.56	0.61	0.65	0.85	
Process innovation (IC2)	0.82	0.97	0.97	3.70	0.63	0.64	0.66	0.56	0.90

Note: $C\alpha \geq 0.7$; $CR \geq 0.7$; $AVE \geq 0.5$; SD : standard deviation. Diagonal elements (in bold) are the square root of the AVE; Off-diagonal elements are the correlations among constructs;

Table 2 shows all fit indices of the measurement model were at a satisfactory level, the model fit the data.

Table 2: Overall fit index of the CFA model

Fit index	Scores	Recommended threshold value
Absolute fit measures		
CMIN/df	2.533	$\leq 2^a$; $\leq 5^b$
GFI	0.835	$\geq 0.90^a$; $\geq 0.80^b$
RMSEA	0.073	$\leq 0.08^a$; $\leq 0.10^b$
Incremental fit measures		
NFI	0.925	$\geq 0.90^a$;
AGFI	0.796	$\geq 0.90^a$; $\geq 0.80^b$
CFI	0.953	$\geq 0.90^a$;

Note: a Acceptability: acceptable; b Acceptability: marginal

Structural model

This section presents the main result of the hypothesis testing of the structural relationship among the latent variables (Figure1, Table 3 and Table 4)

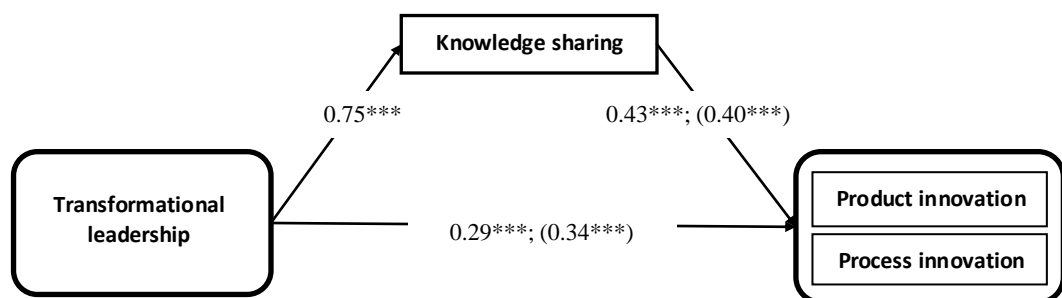


Figure 1: Path coefficients of the structural model

Pr	IL	KS	IL	IL
KS	0.754***			0.754***
IC1	0.294***	0.434***	0.327***	0.621***
IC2	0.342***	0.404***	0.304***	0.646***

Note: *** $p < 0.001$

Direct effect analysis



The results (Figure 1 and Table 3) show that all the hypotheses are supported because the direct effects of TL on KS, and direct effects of TL, KS on product and process innovation are quite large and statistically significant. Specifically:

The results showed that TL positively influence KS with $\beta = 0.754$ ($p < 0.001$) which provides evidence to support H1.

The results also confirm H2a and H2b relating to the positive impacts of TL on product innovation ($\beta = 0.294$; $p < 0.001$) and process innovation ($\beta = 0.342$; $p < 0.001$). The finding showed that TL's influence on process innovation is greater than its influence on product innovation ($0.342 > 0.294$).

Finally, hypotheses of H3a and H3b refer to positive influence of KS on two aspects of innovation were also supported. The finding indicated that KS has a greater impacts on product innovation ($\beta = 0.434$; $p < 0.001$) in comparison with process innovation ($\beta = 0.404$; $p < 0.001$).

Indirect and total effect analysis

This study does not just give evidence on the direct effect of independent variables on dependent ones, it also shows the evidence on the mediating roles of KS in the relationship between TL and two aspects of innovation based on using the bootstrapping technique with 3,000 iterations as suggested by Preacher and Hayes (2008) (see Table 4).

Table 4: Confidence intervals of indirect effects

Path	Direct effects	Indirect effects	Total effects	Bias-corrected confidence intervals	
				Lower confidence level	Upper confidence level
TL→KS→IC1	0.294***	0.327***	0.621***	0.198	0.465
TL→KS →IC2	0.342***	0.304***	0.646***	0.182	0.443

Note: *** $p < 0.001$; ** $p < 0.05$; * $p < 0.10$

Table 4 indicated that TL's indirect effects on product innovation ($\beta = 0.327$; $p < 0.001$) and knowledge donating ($\beta = 0.304$; $p < 0.001$) through the mediating role of KS are statistically significant in the confidence intervals. So, this finding 5 first confirms the mediating role of KS in the relationship between TL and two types of innovation.

Discussions and implications

The changes of business environments such as technology, strategy of competitors and customer needs require firms to constantly implement innovation aiming at improving their performance and attaining competitive advantage before the key rivals. In the context that many Vietnamese firms invested a lot of resource and effort to improving innovation capability they still get arduous and need to have a vigorous or determined attempt to become innovators, the hypotheses that were developed in this study significantly contribute to both practical and theoretical initiatives on innovation capability by following reasons.

First, this study contributes to finding the right way to successfully implement product and process innovation for Vietnamese SMEs based on multiple and



simultaneous influences of leadership style and knowledge management. By assessing the effects of TL on KS which in turn lead to innovation capability, the findings of this study showed the evidence that TL practice might help firms to improve activities of sharing knowledge between employees in an organization which may be the root of forming new ideas and successful implementing of innovation. As a result, to create the appropriate environment for KS and innovation, leaders of SMEs need to pay great attention on TL style practice by:

- continually looking for new opportunities for the units, departments and organization;
- building up clear common view of final aims of individuals, units, departments and organization;
- focusing on creating motivation to work and guiding for their employees;
- building emotional links with their employees and inspiring them to higher values;
- and always acting as the organization's leading force.

Second, according to García Morales et al. (2008), there is still a lack of research and empirical evidence on TL's influence on innovation capability; and Le and Lei's (2017) comments about the need for more research on the relationship between TL and KS. So, to fill the research gaps, this study proposed a model discussing the influences of TL on KS, which in turn lead to two types of innovation capability namely product and process innovation in a model. The empirical findings verified the relationships between variables of the theoretical model and all the hypotheses are statistically supported. The study provides a possible mechanism by which TL practices and KS contribute to increasing innovation capability for firms. The mediating roles KS in the relationship between TL and innovation capabilities is supported. The implication is that TL practices will create significant impacts on innovation capability directly or indirectly through improving employees' behaviors toward KS.

Third, by investigating the relationship between TL, KS and two specific form of innovation capability (product innovation and process innovation) our study contribute to increasing the understanding of how leaders can apply in practice to affect each specific aspect of innovation capability. The finding indicates that, TL has more significant effects on process innovation, whereas KS has more significant effects on product innovation. As a result, the finding provides specific and useful guides for leaders to have suitable impacts on each type of innovation capability: product innovation or process innovation. Specifically, if leaders pursue stimulating process innovation, they should focus on practicing TL style; in case of pursuing product innovation they need to focus on creating a positive environment and collaborative culture that facilitates the exchange of knowledge and skills among employees. Besides, they need to have timely material and spiritual rewards for employees aiming at:

- stimulating employees to discuss work-related matters;
- stimulating employees to share their knowledge and experience with others for common benefits;
- stimulating employees to offer less-experienced colleagues opportunities to gathering knowledge and perform duties;
- stimulating employees to offer needed information and documents for their colleagues when they in need;



- stimulating employees to encourage their colleagues when they are facing difficulties at work.

This study has some restrictions. First, our study uses cross-sectional style, as a result the causal relationships may change in the long term; longitudinal study will overcome this limitation and establish the result. Second, our study has not examined the correlation among research variables based on assessing control variables such as firm age and number of employees, future research should explore more deeply the relations among these factors by adding such control variables to account for differences among firms and their potential impact on innovation capability. Finally, the concept of TL, although, has been shaped for a long time since Burns (1978) introduces in 1978, it is still a hot topic and relatively new in the Vietnamese context. This concept need to be explored deeper based on investigating in the correlation with the other strategic variables (such as organizational behavior and strategic management) to exploit and promote all its value in Vietnam context.

References

- Aragón-Correa, J.A., García-Morales, V.J. & Cordón-Pozo, E. (2007). Leadership and organizational learning's role on innovation and performance: Lessons from Spain. *Industrial marketing management*, 36(3), 349-359. doi.org/10.1016/j.indmarman.2005.09.006
- Armstrong, J.S. & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of marketing research*, 14, 396-402. doi.org/10.2307/3150783
- Birasnav, M., Albufalasa, M. & Bader, Y. (2013). The role of transformational leadership and knowledge management processes on predicting product and process innovation: An empirical study developed in Kingdom of Bahrain. *Tékhne*, 11(2), 64-75. doi.org/10.1016/j.tekhne.2013.08.001
- Birasnav, M., Rangnekar, S. & Dalpati, A. (2011). Transformational leadership and human capital benefits: The role of knowledge management. *Leadership & Organization Development Journal*, 32(2), 106-126. doi.org/10.1108/01437731111112962
- Burns, J.M. (1978). Leadership New York. NY: *Harper and Row Publishers*.
- Cheng, J.W. & Li, S.C. (2001). The relationships of organization justice, trust and knowledge sharing behaviors. *Journal of Human Resource Management*, 1(2), 69-93.
- Drucker, P. (2014). Innovation and entrepreneurship, Routledge.
- Fornell, C. & Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, 18(1), 39-50. doi.org/10.2307/3151312
- García-Morales, V.J., Jiménez-Barrionuevo, M.M. & Gutiérrez-Gutiérrez, L. (2012). Transformational leadership influence on organizational performance through organizational learning and innovation. *Journal of Business Research*, 65(7). 1040-1050. doi.org/10.1016/j.jbusres.2011.03.005
- Garcia-Morales, V.J., Matias-Reche, F. & Hurtado-Torres, N. (2008). Influence of transformational leadership on organizational innovation and performance depending on the level of organizational learning in the pharmaceutical sector.



- Journal of Organizational Change Management*, 21(2). 188-212.
doi.org/10.1108/09534810810856435
- Jantunen, A. (2005). Knowledge-processing capabilities and innovative performance: an empirical study. *European Journal of Innovation Management*, 8(3), 336-349. doi.org/10.1108/14601060510610199
- Kim, D. H. (1997). The link between individual and organizational learning, *The strategic management of intellectual capital*, 41-62: Elsevier.
- Le, P.B. & Lei, H. (2017). How transformational leadership supports knowledge sharing: Evidence from Chinese manufacturing and service firms. *Chinese Management Studies*, 11(3), 479-497. doi.org/10.1108/CMS-02-2017-0039
- Le, P.B. & Lei, H. (2018a). The effects of innovation speed and quality on differentiation and low-cost competitive advantage: The case of Chinese firms. *Chinese Management Studies*. doi.org/10.1108/CMS-10-2016-0195
- Le, P.B. & Lei, H. (2018b). The mediating role of trust in stimulating the relationship between transformational leadership and knowledge sharing processes. *Journal of Knowledge Management*. doi.org/10.1108/JKM-10-2016-0463
- Le, P.B. & Lei, H. (2018c). Fostering knowledge sharing behaviours through ethical leadership practice: the mediating roles of disclosure-based trust and reliance-based trust in leadership. *Knowledge Management Research & Practice*. doi.org/10.1080/14778238.2018.1445426
- Lei, H., Le, P. B. & Nguyen, H.T.H. (2017). How Collaborative Culture Supports for Competitive Advantage: The Mediating Role of Organizational Learning. *International Journal of Business Administration*, 8(2), 73. doi.org/10.5430/ijba.v8n2p73
- Liao, S.H., Fei, W.C. & Chen, C.C. (2007). Knowledge sharing, absorptive capacity, and innovation capability: an empirical study of Taiwan's knowledge-intensive industries. *Journal of Information Science*, 33(3), 340-359. doi.org/10.1177/0165551506070739
- Muenjohn, N. & Armstrong, A. (2015). Transformational leadership: The influence of culture on the leadership behaviours of expatriate managers. *International Journal of Business and Information*, 2(2).
- Nunnally, J. C. & Bernstein, I. (1994). Elements of statistical description and estimation. *Psychometric Theory 3 Edition (Edited by: Nunnally JC, Bernstein IH)*.
- Preacher, K. J. & Hayes, A.F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior research methods*, 40(3), 879-891. doi.org/10.3758/BRM.40.3.879
- Tsai, C.T., Huang, K.I. & Kao, C.F. (2001). The relationships among organizational factors, creativity of organizational members and organizational innovation. *Journal of Management*, 18(4), 527-566.
- Van den Hooff, B. & De Ridder, J.A. (2004). Knowledge sharing in context: the influence of organizational commitment, communication climate and CMC use on knowledge sharing. *Journal of knowledge management*. 8(6). 117-130.