



Charismatic leadership and tacit knowledge sharing in the context of enterprise systems learning: the mediating effect of psychological safety climate and intrinsic motivation

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ABSTRACT

Drawing upon charismatic leadership and intrinsic motivation theory, we developed a theoretical model to examine the impact mechanism of leader charisma on individuals' tacit knowledge-sharing behaviour in the context of an Enterprise Systems learning team. We conducted a survey-based field study to examine the theoretical model and hypotheses. A total of 153 questionnaires were distributed to employees from more than 20 branches of the Beidahuang Group in China and 117 valid questionnaires were returned. Results from partial least squares analysis suggest that leader charisma has a strong influence on psychological safety climate, which in turn has a positive impact on individuals' intrinsic motivation and their tacit knowledge-sharing behaviour. Our research findings unpack the impact mechanism of charismatic leadership on tacit knowledge sharing, and provide guidelines for the team leader to exhibit charismatic leadership traits in order to promote a psychological safety climate and facilitate an effective knowledge sharing of enterprise systems.

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1. Introduction

Enterprise systems (ES), such as enterprise resource planning (ERP), supply chain management and customer relationship management, are usually associated with complexity and high risk, and improving the chances of ES success has been a focus of research in the past decades (Shao, Feng, and Hu 2016). Extant literatures suggest that individuals' knowledge-sharing behaviour is a significant antecedent of ES success, and advantages for a firm arise from cooperative social contexts that are conducive to the creation, coordination, transfer, and integration of knowledge distributed among its employees (Jones, Cline, and Ryan 2006; Shao, Feng, and Liu 2012). Drawing on knowledge management research, the value of knowledge increases when it is shared (Chou et al. 2014), and only when employees are willing to share knowledge with colleagues can organisations manage knowledge resources effectively (Chen, Chuang, and Chen 2012). Therefore, determining which factors promote or impede employee tendencies to engage in knowledge sharing is important for ERP success (Shao, Feng, and Liu 2012; Xiang, Lu, and Gupta 2013; Shao, Wang, and Feng 2015).

Leadership has been identified as one of the most critical drivers of ES success. Wang, Chou, and Jiang (2005) conducted an empirical study and found that

charismatic leadership has a positive impact on overall ERP project performance during the implementation phase. In another empirical study, Neufeld, Dong, and Higgins (2007) reported that there exists a positive relationship between charismatic leadership and IT acceptance. Ke and Wei (2008) developed a theoretical model to examine the impact of senior leadership on ERP implementation success. Recently, researchers begin to focus on the significant role of leadership in ES' post-implementation phase. Shao, Feng, and Liu (2012) found that top managers' transformational leadership has a positive effect on organisational knowledge sharing of ES in the assimilation phase. While, Shao, Feng, and Hu (2016) indicated that both transformational and transactional leadership are indispensable during the assimilation and extension phases of the ES' lifecycle.

Although the significant role of leadership has been emphasised within the extant literatures, by conducting a thorough analysis of the literatures we found that most of the previous studies pay attention to the impact of senior leadership on organisational-level ES success across the ES' lifecycle (Wang, Chou, and Jiang 2005; Neufeld, Dong, and Higgins 2007; Ke and Wei 2008; Cho, Park, and Michel 2011; Shao, Wang, and Feng 2015). Yet few studies have explored the impact

mechanism of team leadership on individual-level knowledge-sharing behaviour, especially in the context of ES learning, in which knowledge sharing among individuals is particularly important for them to develop a deep understanding of system functionalities and utilise ES in new and innovative ways beyond routine activities (Liu et al. 2011; Xiang, Lu, and Gupta 2013; Shao, Wang, and Feng 2015). Knowledge management literatures posit that a middle-level team leader plays a significant role in influencing individuals' knowledge-sharing behaviour by affecting their motivation and attitude (Srivastava and Locke 2006; Xue, Bradley, and Liang 2011; Lee et al. 2015), whereas the specific mediating mechanism between the two constructs remains unexplored.

Our study is a step towards addressing the research gap. Drawing upon charismatic leadership and intrinsic motivation theory, we developed a theoretical model to examine the impact mechanism of leader charisma on individual-level knowledge-sharing behaviour in an ES' learning team. Specifically, we focus on employees' tacit knowledge sharing since this type of knowledge is part of an individual's cognitive thought and perception, which is intuitive and more difficult to be shared (Jones 2005; Suppiah and Sandhu 2011; Crane 2014; Panahi 2016).

The following section is organised as follows. Firstly, we review the literature on charismatic leadership, organisational climate and knowledge sharing. Secondly, we propose the theoretical model and articulate the corresponding research hypotheses. Thirdly, we describe the construct operationalisation, data collection procedure and data analysis technique, and present the data analysis results. Theoretical and practical implications of the empirical findings are finally discussed.

2. Literature review

2.1. Charismatic leadership

The term of charisma was derived from an ancient Greek word meaning 'gift', and it was adopted by the early Christian Church to describe gifts (charismata) from God that enabled the received to perform extraordinary feats such as prophecy and healing. Later, Max Weber applied the word of 'charisma' to the context of leadership and defined it as the heroism or exemplary character of an individual person.

Charismatic leadership is identified as among the most critical leadership style-influencing individual behaviours. Conger et al. (1997) defined charismatic leadership as an attribution based on follower perceptions of their leader's behaviour. Waldman and Yammarino (1999) further defined charismatic leadership as a

relationship between leader and follower, resulting in 'internalized commitment to the vision of the leader, exceptionally strong admiration and respect for the leader, and identification of followers with the leader, the vision, and the collective forged by the leader' (268). The conceptualisation indicates that charisma exists only if followers say it does or followers behave in specific ways (House, Spangler, and Woyke 1991).

Charismatic leaders are good at inspiring followers by talking optimistically about what needs to be accomplished in the future, and instilling in their followers positive ideals that are related to desired outcomes. Employees are emotionally involved with a charismatic leader since they believe in the leader's ability to accomplish organisational mission and objectives (House, Spangler, and Woyke 1991; Wang, Chou, and Jiang 2005; Choi 2006).

In the past decades, the concept of charismatic leadership has been widely applied in IS research to examine the impact of leadership on IT acceptance and implementation success (Wang, Chou, and Jiang 2005; Neufeld, Dong, and Higgins 2007). In this study, we apply charismatic leadership in the context of ES learning to examine its impact mechanism on employees' tacit knowledge-sharing behaviour.

2.2. Tacit knowledge sharing

Drawing upon knowledge-based view, knowledge is the foundation of a firm's competitive advantage and the primary driver of a firm's value (Grant 1996; Spender 1996). The extant literatures classified knowledge into two types: explicit and tacit knowledge. Explicit knowledge refers to knowledge that has been explained, recorded or documented, which is visible, objective and formally articulated, and this type of knowledge is usually contained in reports and stored in knowledge repositories (Alavi and Leidner 2001; McInerney 2002). While tacit knowledge refers to the expertise and assumptions that individuals develop, which is context-specific and subjective, and this type of knowledge essentially resides in the minds of the individuals and is expressed in the form of human actions such as attitude, commitment and motivation (Alavi and Leidner 2001; McInerney 2002; Nonaka and Von Krogh 2009).

In the context of ES learning, tacit knowledge sharing is defined as the sharing and exchange of individuals' personal experiences, expertise and skills of ES with regard to know how, know where and know whom at the request of other members through the whole organisation or team (Shao, Wang, and Feng 2015). Organisations must ensure that tacit knowledge is freely and openly shared among their members, which is beneficial

to allow each member to access new knowledge and diverse ideas that they may not themselves encounter, and enable them to tap into the knowledge and experiences to improve work performance (Cummings 2004; Gray and Meister 2004; Chennamaneni, Teng, and Raja 2012).

Since tacit knowledge sharing is based on personal experiences and skills, it is usually difficult to be shared without the active participation and cooperation of the individuals (Suppiah and Sandhu 2011). In the past decades, researchers have examined critical antecedents of individuals' tacit knowledge-sharing behaviour from the psychological and social construction theoretical perspective (Alavi, Kayworth, and Leidner 2005). Empirical studies found that tacit knowledge-sharing behaviour is not only influenced by psychological motivations but also influenced by contextual factors such as organisational climate (Brock et al. 2005; Shao, Feng, and Liu 2012), and a desirable climate can create an environment which is beneficial to encourage knowledge sharing (Jones 2005; Xue, Bradley, and Liang 2011; Boh and Wong 2013).

2.3. Psychological safety climate

The concept of climate has received considerable attention from psychologists and sociologists in the last three decades. Drawing upon cognitive theoretical perspective, climate is conceptualised as individuals' perception and sense-making of their work environment, which is linked to the shared perception of group events, the practices, procedures, and behaviour that groups reward and expect (Dennison 1996; Anderson and West 1998; Pullig et al. 2002). In contrast to culture that is rooted in history and deeply embedded values, climate usually refers to a contextual situation at a point in time. Thus, it is temporal, subjective, and often subject to direct manipulation by people with power and influence (Dennison 1996; Brock et al. 2005; Boh and Wong 2013).

Psychological safety climate is identified as a significant dimension of team climate characterised by interpersonal trust and mutual respect in which people are comfortable being themselves. This construct is rooted in earlier research on organisational change in which researchers discussed the need to create psychological safety for individuals if they are to feel secure and capable of changing. Edmondson (1999) introduced the construct of psychological safety climate in the context of team learning and defined it as 'a shared belief held by members that the team is safe for interpersonal risk taking'. Empirical results indicated that psychological safety climate could facilitate learning behaviour in work teams because it alleviates individuals' excessive

concern about others' reaction to actions that have the potential for embarrassment or threat, and it enhances individuals' confidence that the team will not reject or punish any member for speaking up (Edmondson 1999).

In the past decades, psychological safety climate has been widely applied in organisational and IS research, and empirical studies found that this type of team climate has a significant influence on individuals' normative belief, motivation and knowledge-sharing behaviour (Edmondson 1999; Shao, Feng, and Liu 2012; Shen et al. 2015).

2.4. Motivation theory

The concept of motivation is developed from psychological theory and plays a central role in organisational behaviour research (Deci and Ryan 1985). Based on psychological theory, motivation refers to an individual's psychological force that determines his/her behaviour, level of effort, and persistence in the face of obstacles. Deci and Ryan (1985) posited that there exists two types of motivation that stimulate people to engage in certain activities: intrinsic motivation and extrinsic motivation, and human behaviours can be explained by the two types of motivation that differ in the degree to which a motivation either originates from himself/herself or is imposed externally (Xu and Li 2015). Intrinsic motivation indicates the inherent self-efficacy, enjoyment and sense of belonging derived from a specific activity, and it is valued for its own sake and appears to be self-sustained (Deci and Ryan 1985). From an intrinsic motivational perspective, behaviour is evoked by the need of employees to feel competent and self-determined in dealing with their environment. While, extrinsic motivation focuses on the goal-driven reasons, wherein people complete tasks in order to gain benefits or rewards (Lin 2007). Previous studies suggested that intrinsic motivation is more effective and sustainable in arousing individuals' commitment to activities and often leads to better performance and outcomes (Ryan and Deci 2000).

Motivation theory has been widely applied in IS research to study the critical factors that influence individuals' acceptance and usage of information technology (Davis, Bagozzi, and Warshaw 1992; Cho, Park, and Michel 2011), and intrinsic motivation was identified as a critical antecedent (Shao, Wang, and Feng 2015).

2.5. The missing link in the extant literatures

Although the extant literatures suggested that leadership has a positive impact on organisational climate (Koene, Vogelaar, and Soeters 2002; Grojean et al. 2004; Boehm

et al. 2015), organisational climate and motivation are positively associated with knowledge sharing (Davis, Bagozzi, and Warshaw 1992; Bock et al. 2005; Cho, Park, and Michel 2011; Boh and Wong 2013). To our knowledge, few studies have integrated the constructs into one theoretical model, and the extant literatures cannot clearly illustrate the impact mechanism of leadership on individuals' knowledge-sharing behaviour in the context of ES learning.

In the context of ES learning, a climate that emphasises interpersonal trust and mutual respect is especially important for effective knowledge sharing among individuals, and leadership plays a significant role in fostering an appropriate team climate, which in turn has a positive impact on individuals' psychological motivation and behavioural intention. Given the importance of knowledge sharing in the context of ES learning and the significant role of leadership in fostering individuals' behaviour, it is necessary to integrate the separate constructs into one model, in order to better understand the impact mechanism of team leadership on individuals' tacit knowledge-sharing behaviour with regard to ES, and fill the research gap by unpacking the mediating mechanism between the two constructs.

Drawing on the extant theoretical paradigms, we develop a research model that integrates charismatic leadership, intrinsic motivation, psychological safety climate and tacit knowledge sharing. The research model is grounded in the proposition that charismatic leadership influences individuals' knowledge-sharing behaviour through the mediating effect of psychological safety climate and intrinsic motivation. We illustrate the theoretical link between the constructs, and then propose the research model and five hypotheses in the following section.

3. Research model and hypotheses

3.1. Charismatic leadership and psychological safety climate

Charismatic leadership is identified as a critical antecedent of organisational climate by exhibiting personal charisma and attending to individuals' emotional appeals (Koene, Vogelaar, and Soeters 2002; Grojean et al. 2004; Boehm et al. 2015). Previous literatures argued that charismatic leaders are good at emphasising the relationship between effort and important values, expressing confidence in followers' ability, and communicating high performance expectations by gaining trust and respect from their followers (House, Spangler, and Woyke 1991; Wang, Chou, and Jiang 2005; Choi 2006). This is beneficial to foster a team climate in which people are

comfortable being themselves and can trust each other without caring about interpersonal risk, which are significant characteristics of psychological safety climate (Edmondson 1999).

In the context of ES learning, a group of members get together in a temporary team outside of traditional authoritative management and hierarchical structure, and charismatic leadership plays a significant role in facilitating team members' coordination and communication (Wang, Chou, and Jiang 2005). If the team leader can obtain trust and respect among followers and convey high confidence in their ability to learn systems functionalities, team members will believe that participating in the open communication such as discussing errors and proposing innovative ideas is encouraged by the team without worrying about the potential risks and embarrassments caused by the unexpected operation errors. This is beneficial to foster a psychological safety climate within the ES learning team (Edmondson 1999; Carmeli, Gelbard, and Reiter Palmon 2013; Carmeli et al. 2014). The above analysis leads to the following hypothesis:

H1: Charismatic leadership is positively associated with psychological safety climate.

3.2. Charismatic leadership and intrinsic motivation

The extant literatures have emphasised the positive impact of charismatic leadership on individuals' behaviour from a psychological motivation theoretical perspective (Conger, Kanungo, and Menon 2000; Neufeld, Dong, and Higgins 2007). Shamir, House, and Arthur (1993) found that charismatic leadership plays a significant role in causing profound effects on followers' intrinsic motivations. Wang, Chou, and Jiang (2005) suggested that charismatic leaders are more likely to excite followers' activeness by heightening their intrinsic motivation. In another study, Choi (2006) posited that charismatic leadership is more likely to generate positive outcomes by displaying behaviours that stimulate followers' inner needs.

In contrast with leader-member exchange behaviour that stimulates individuals' extrinsic motivation by external goal-driven causes such as material rewards and position promotion, a charismatic leader exhibits idealised influence to followers by articulating a clear vision and instilling a sense of purpose with regard to positive outcomes, and tends to inspire and stimulate followers by affective commitment (House, Spangler, and Woyke 1991; Conger, Kanungo, and Menon 2000). This type of leadership is especially important to increase individuals' inner pleasure and self-efficacy and heighten their

intrinsic motivation in the context of ES learning (Shao, Feng, and Hu 2013). Drawing on the above analysis, we propose the following hypothesis:

H2: Charismatic leadership is positively associated with intrinsic motivation.

3.3. Psychological safety climate and intrinsic motivation

Team climate has been considered as a critical antecedent of individuals' motivation and behaviour (Edmondson 1999; Wang, Chou, and Jiang 2005). In a team of high psychological safety climate, members will conclude that making a mistake does not lead to embarrassment, rejection or punishment because they have had experiences in which appreciation and interest are expressed in response to discussion of their own and others' mistakes (Edmondson 1999). In the context of ES learning, the higher the psychological safety climate perceived by the team members, the more likely that they will feel competent and confident to share their personal experiences and skills of systems functionalities with others, since it alleviates their excessive concern about embarrassment and losing face if making mistakes in public when helping solve others' problems (Shao, Feng, and Hu 2013).

The extant literatures suggest that Chinese people have a strong consciousness towards face and endeavour to protect their face from being damaged (King 1988; Huang, Davison, and Gu 2011). Thus we argue that in the Chinese context a psychological safety climate is especially important to stimulate individuals' intrinsic motivation by enhancing their inherent confidence with regard to ES learning (Deci and Ryan 1985; Lin 2007). The above analysis leads to the following hypothesis:

H3: Psychological safety climate is positively associated with intrinsic motivation.

3.4. Psychological safety climate and tacit knowledge sharing

Previous studies have discussed the need to create psychological safety climate for individuals if they are to feel secure and capable of sharing, since people tend to act in ways that inhibit their learning and knowledge-sharing behaviour when they face the potential for threat (Argyris 1982). Extant literatures posit that high psychological safety climate can lead to mutual respect and trust among team members (Edmondson 1999). Team members with higher trust prefer to treat others as friends and family members, and are more

likely to work together cooperatively and share personal experiences with each other (Te'eni 2001; Xue, Bradley, and Liang 2011). This is beneficial to facilitate tacit knowledge-sharing behaviour, which usually resides in individuals' minds and is expressed in the informal communication and interactions among team members (Nonaka and Von Krogh 2009; Shao, Wang, and Feng 2015).

In the context of ES learning, perceptions of psychological safety climate will alleviate individuals' excessive concern about making mistakes with regard to ES usage. Individuals are more likely to feel that they are cared for and respected, and the benefits of exchanging personal experiences and skills of systems functionalities are likely to be given more weight (Edmondson 1999; Zadow and Dollard 2015). This is beneficial to enhance individuals' knowledge-sharing behaviour with regard to systems usage (Shao, Feng, and Hu 2013). The above analysis leads to the following hypothesis:

H4: Psychological safety climate is positively associated with tacit knowledge sharing.

3.5. Intrinsic motivation and tacit knowledge sharing

Drawing upon motivation theory, intrinsic motivation is an important psychological motivational factor that determines individuals' level of effort and voluntary knowledge-sharing behaviour (Cho, Park, and Kim 2015). Intrinsic motivation refers to individuals' judgments regarding their competence and inner pleasure to organise and execute courses of action required to achieve specific levels of performance, which is self-determined and valued for personal sake (Bandura 1986). Self-efficacy and enjoyment are identified as critical intrinsic salient beliefs to explain knowledge-sharing behaviours, and individuals are more likely to engage in knowledge sharing if they have confidence in their ability to help others and if they are interested in helping others (Ryan and Deci 2000; Lin 2007).

Prior literatures have showed that employees with high intrinsic motivational tendencies are more likely to participate in group learning and share knowledge with others, since they believe that their personal experiences and skills of ES usage can help others to better learn and understand system functionalities (Bock and Kim 2002; Chou et al. 2014). Empirical studies also indicated that intrinsic motivation has a positive impact on individuals' tacit knowledge behaviour (Lin 2007; Shao, Wang, and Feng 2015). Drawing on the extant literatures, we propose the following hypothesis:

H5: Intrinsic motivation is positively associated with tacit knowledge sharing.

In order to control other factors that may have an impact on tacit knowledge sharing, we add individuals' sex, education background, use experience of ES and work experience as control variables in the research model. We select these particular variables because of their potential impact on knowledge-sharing behaviour as suggested within the extant literature (Wang and Noe 2010; Shao, Wang, and Feng 2015). The research model with five hypotheses and control variables is illustrated in Figure 1.

4. Research methodology

4.1. Questionnaire design

We refer to the previous literatures to design measurement items for the constructs, and all of the items were assessed using a 7-point Likert scale (from 1 = totally

disagree to 7 = totally agree). The three items (CL1–CL3) of charismatic leadership are developed based on Wang, Chou, and Jiang's (2005) study, which was refined from the dimension of personal charisma (idealised influence) in the Multiple Leadership Questionnaire (Bass and Avolio 2000). The instrument has been widely applied within the extant literatures and verified to have good reliability and validity (Wang, Chou, and Jiang 2005; Neufeld, Dong, and Higgins 2007).

The construct of psychological safety climate is designed based on Edmondson's (1999) study, using items of PS1–PS3. We add the words of 'I think' and 'in the team' to better measure individuals' subjective perception of psychological safety climate when learning ES in a temporary learning team.

The construct of intrinsic motivation is adapted from Davis, Bagozzi, and Warshaw's (1992) study, using items of IM1–IM3. Tacit knowledge-sharing intention is developed drawing upon Bock et al.'s (2005) study, using items of TKS1–TKS3. We refine several words to better reflect the context of ES learning in our study.

We conducted a pretest before the final data collection to examine the content validity of the items. Two professors in our research fields and an IT leader in charge of an ERP project were invited to examine if there is any ambiguity or inaccuracy in the questionnaire. Several revisions were made based on their suggestions. The revised items are described in Table 1.

Table 1. Constructs and items.

Construct	Items	Item description	References
Charismatic leadership	CL1	The IT leader is a model for me to follow	Wang, Chou, and Jiang (2005)
	CL2	I trust the IT leader's ability to overcome any obstacle in the team	
	CL3	I respect the IT leader and feel proud to work with him	
Psychological safety climate	PS1	I think it is not difficult to ask other members for help in the team	Edmondson (1999)
	PS2	I think it is safe from punishment when making mistakes in the team	
	PS3	In my opinion, group members are able to bring up problems and tough issues	
Intrinsic motivation	IM1	I enjoy helping others to tackle problems	Davis, Bagozzi, and Warshaw (1992)
	IM2	I have confidence in myself to solve complicated problems	
	IM3	I feel good and satisfied when helping others	
Tacit knowledge sharing	TKS1	I am pleased to communicate with other members on my personal experience of enterprise systems	Bock et al.'s (2005)
	TKS2	I would like to provide my expertise on enterprise systems with other members	
	TKS3	I would be pleased to share know how, know where and know whom knowledge on enterprise systems at the request of other members	

4.2. Data collection

The final data collection was conducted in 20 branches in Beidahuang Corporation in the Heilongjiang province of China. Beidahuang has established a collaboration with UFIDA, which is the most famous ES software company in China, and has implemented NC (a set of ES management system for large-scale corporations) in the headquarters and each branch to realise the integration of finance and business. The NC project was initiated in November of 2011 and ended in March of 2012. Since the NC management system is complicated and is difficult to learn by the employees themselves, Beidahuang has arranged a six-month centralised learning of NC functionalities for all the branches in the headquarters. In each branch, 5–8 employees were selected to participate in the learning, and a system expert from UFIDA was appointed as the leader of the learning team. In addition to formal learning sessions, informal discussions were organised to encourage knowledge sharing among the team members. After about half a year's learning and a systems running test, NC was launched in each branch.

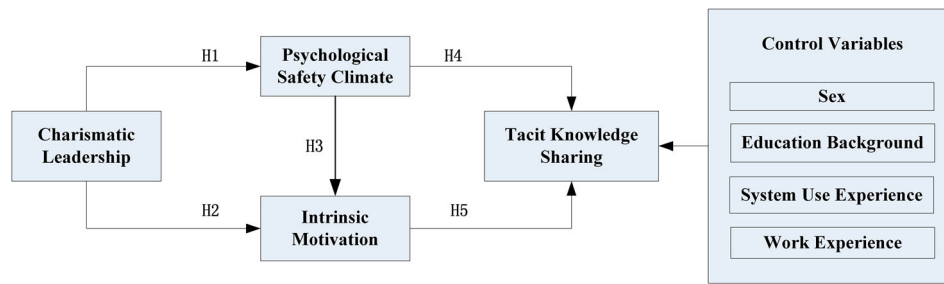


Figure 1. Research model with hypotheses and control variables.

Two Ph.D. students of our research group have participated in the learning of NC systems and are responsible for data collection. Questionnaires were sent to the team members at the end of 2012, when the centralised learning of NC management systems had just ended. The questionnaire included two sections. In the first section, the respondents were asked to complete their personal information including sex, education background, work experience and ES use experience. In the second section, the respondents were asked to evaluate the charismatic leadership of the team leader in charge of the centralised learning, their perception of psychological safety climate in the learning team, intrinsic motivation and tacit knowledge-sharing intention with regard to ES.

Totally 153 questionnaires were sent and 135 questionnaires were returned. We deleted the questionnaires with incomplete or missing data and finally got 117 valid questionnaires. All of the respondents have participated in the whole learning process of NC systems organised in the headquarters. The profiles of the respondents are listed in Table 2.

5. Structural equation model analysis

The structural equation modelling (SEM) method is employed to examine the research model as it is capable

Table 2. Demographics of individuals.

		Category	Percentage
Demographics of individuals	Sex	Male	31.6
		Female	68.4
	Education background	High school and below	30.8
		Bachelor's degree and above	67.5
		Master's degree and above	1.7
	Work experience	Less than 1 year	2.5
		1–10 years	31.6
		10–20 years	29.9
		More than 20 years	36.0
	ERP use experience	Less than 1 year	4.3
1–5 years		41.9	
5–10 years		22.2	
More than 10 years		31.6	

of allowing the incorporation and process of both unobserved (latent) and observed variables in a same model, and it can also handle errors of measurement within exogenous variables in a better manner than the traditional regression analysis method (Gefen, Straub, and Boudreau 2000).

We used SmartPLS as the primary statistical tool to examine the research model since it is appropriate for theory exploration and prediction. Besides, SmartPLS can accommodate smaller data sample models without requirements of normality distribution of the data (Chin, Marcolin, and Newsted 2003). The required sample size is either ten times of the larger measurement number within the same construct or ten times of the larger construct number affecting the same construct (Chin, Marcolin, and Newsted 2003). Drawing on the above criterion, the collected sample size of 117 can satisfy the requirement of SmartPLS in our study.

Following the two-step analysis procedure, we first examined the measurement model to assess the validity and reliability of the constructs, and then examined the structural model to analyse the path relationship between the constructs.

5.1. Measurement model

The measurement model is examined to assess the reliability, convergent validity and discriminant validity of the latent variables. Reliability refers to the consistency of the items that measure the same construct, and it is assessed by examining if the composite reliability, Cronbach's alpha and factor loadings of the construct are greater than 0.7 (Chin, Marcolin, and Newsted 2003). Convergent validity reflects the degree to which the items measuring the same construct correspond, and it is assessed by checking if the average variance extracted (AVE) of each construct is greater than 0.5 (Pavlou and Fygenon 2006). Table 3 illustrates the analysis results of factor loadings, composite reliability, Cronbach's alpha and AVE of the four constructs in our research model.

From Table 3, we can see that all factor loadings have exceeded 0.9, while the composite reliability and

Table 3. Analysis results of the measurement model.

Construct	Items	Factor loadings	Composite reliability	Cronbach's alpha	Average variance extracted (AVE)
Charismatic leadership	CL1	0.97	0.97	0.96	0.92
	CL2	0.96			
	CL3	0.94			
Psychological safety climate	PS1	0.93	0.96	0.93	0.88
	PS2	0.96			
	PS3	0.93			
Intrinsic motivation	IM1	0.94	0.97	0.95	0.91
	IM2	0.95			
	IM3	0.96			
Tacit knowledge sharing	TKS1	0.94	0.97	0.96	0.89
	TKS2	0.95			
	TKS3	0.93			

Cronbach's alpha of each construct are much larger than 0.7, providing an adequate support for construct reliability (Chin, Marcolin, and Newsted 2003). As illustrated in Table 3, the AVE of each construct has exceeded 0.85, which is far above the criterion of 0.5, indicating a good convergent validity of the constructs (Pavlou and Fygen-son 2006).

Discriminant validity refers to the degree to which items distinguish among constructs. We examined discriminant validity of the constructs in two ways. Firstly, we analysed the correlation between constructs to check whether the square root of the AVE for each construct exceeds the construct's correlation with other constructs, and the results are illustrated in Table 4. From Table 4, we can see that most of the correlations between constructs are no more than 0.4, which is far below the square root of the AVE for each construct, suggesting a good discriminant validity of the constructs (Chin, Marcolin, and Newsted 2003).

Secondly, we analysed the cross-loadings of the constructs and the results are illustrated in Table 5. Table 5 suggests that the items load more highly on their corresponding constructs than on the other constructs, demonstrating a good discriminant validity of the constructs (Chin, Marcolin, and Newsted 2003).

5.2. Structural model

We then examined the structural model in SmartPLS to analyse the path relationship between constructs. The bootstrapping procedure with a re-sampling method was used to estimate the statistical significance of the parameter estimates to derive valid standard errors or *t*-values as suggested by Temme, Kreis, and Hildebrandt

(2006). The structural model analysis results are illustrated in Figure 2.

From Figure 2, we can see that most of the hypotheses are supported. Charismatic leadership is positively associated with psychological safety climate ($\beta = 0.371$, $p < .01$), and thus provides support for hypothesis H1, suggesting that charismatic leadership can facilitate a psychological safety climate within the team by attending to individuals' emotional appeals. Psychological safety climate is positively associated with intrinsic motivation ($\beta = 0.806$, $p < .01$), providing a strong support for hypothesis H3, indicating that a psychological safety climate is beneficial to stimulate individuals' intrinsic motivation by enhancing their inherent pleasure and confidence with regard to ES usage.

As illustrated in Figure 2, psychological safety climate is positively associated with tacit knowledge sharing ($\beta = 0.395$, $p < .01$), indicating that a team climate characterised by mutual respect and trust is a significant antecedent of tacit knowledge-sharing behaviour in the context of ES learning. Intrinsic motivation is also positively associated with tacit knowledge sharing ($\beta = 0.270$, $p < .01$), and this result suggests that self-determined intrinsic motivation is a critical factor in fostering individuals' intention to sharing their personal skills and experiences with other team members. The above results can provide support for hypotheses H4 and H5. However, charismatic leadership is not positively associated with intrinsic motivation, thus hypothesis H2 is not supported.

5.2.1. Mediation effect test

The most widely used method to test mediation effects of variables is proposed by Baron and Kenny (1986). Over

Table 4. Correlation between constructs.

	Charismatic leadership	Psychological safety climate	Intrinsic motivation	Tacit knowledge sharing
Charismatic leadership	<i>0.96</i>			
Psychological safety climate	0.37	<i>0.94</i>		
Intrinsic motivation	0.33	0.79	<i>0.95</i>	
Tacit knowledge sharing	0.73	0.39	0.32	<i>0.94</i>

Notes: Diagonal italic values are the square roots of AVE of each construct.

Table 5. Cross-loadings of the constructs.

	Charismatic leadership	Psychological safety climate	Intrinsic motivation	Tacit knowledge sharing
CL1	0.97	0.37	0.32	0.70
CL2	0.96	0.36	0.33	0.71
CL3	0.94	0.33	0.31	0.70
PS1	0.40	0.93	0.73	0.43
PS2	0.37	0.96	0.76	0.39
PS3	0.28	0.93	0.79	0.28
IM1	0.29	0.75	0.95	0.23
IM2	0.32	0.78	0.95	0.37
IM3	0.34	0.76	0.97	0.29
TKS1	0.69	0.39	0.32	0.95
TKS2	0.69	0.32	0.27	0.94
TKS3	0.68	0.33	0.28	0.95

the years, statistical methods have developed in sophistication and several new analytical methods arose. Simulation research shows that bootstrapping is one of the more valid and powerful methods for testing mediation effects (Williams and MacKinnon 2008; Hayes 2009), and a bootstrapping method conducted in SEM was employed by researchers to examine how well a process model that links the antecedent variable X to the outcome variable Y through the mediator M fits the observed data. In an empirical study, Liang et al. (2007) examined the mediating effect of construct M between construct X and construct Y in SmartPLS based on the following criterion: (1) construct X is significantly associated with construct Y ; (2) the effect of construct X on construct Y is reduced to zero (full mediation (FM)) or reduced by a significant amount (partial mediation (PM)) after adding the mediating construct M ; (3) the mediating construct M is significantly associated with construct Y .

In this study, we employed the bootstrapping method in SEM to examine the mediation effects. We followed Liang et al.'s (2007) procedure and removed the link between psychological safety climate and intrinsic motivation in the structural model to examine the mediating effect of psychological safety climate on the relationship between charismatic leadership and intrinsic motivation, and the path analysis results are described in Figure 3.

Interestingly, we find that after removing the link between psychological safety climate and intrinsic motivation, the relationship between charismatic leadership and intrinsic motivation is significant ($\beta = 0.335$, $p < .01$). Drawing upon the empirical results, we infer that psychological safety climate is a critical mediator between charismatic leadership and intrinsic motivation, and it fully mediates the relationship between charismatic leadership and intrinsic motivation (Liang et al. 2007).

We then examined the mediating effect of intrinsic motivation on the relationship between psychological

safety climate and tacit knowledge sharing. From Figure 3, we find that the path coefficient between psychological safety climate and tacit knowledge sharing increases from 0.395 to 0.543 ($p < .01$) after removing the link between psychological safety climate and intrinsic motivation. Based on the empirical results, we infer that intrinsic motivation partially mediates the relationship between psychological safety climate and tacit knowledge sharing (Liang et al. 2007).

In order to examine the significance of the mediating effects, we further conducted a Sobel test by calculating the ratio of the path coefficient to its standard error, which was identified as a supplementary statistical technique to examine the mediation effects (Sobel 1986; Preacher and Hayes 2004). The Sobel test is conducted by comparing the strength of the indirect effect of X on Y to the point null hypothesis that it equals zero. The indirect effect of X on Y is defined as the product of the $X \rightarrow M$ path (a) and the $M \rightarrow Y$ path (b), namely ab . Standard errors of a and b are represented respectively by S_a and S_b , and the standard error of the indirect effect (S_{ab}) is then calculated (Sobel 1986). In order to conduct the Sobel test, ab is divided by S_{ab} to yield a critical ratio. The mediating effects tests are significant if the ratio is below the critical value from the standard normal distribution for a given alpha level. Following this logic, we conducted a Sobel test in a calculator software developed by Soper (2016) and the results are described in Table 6. The analysis results suggest that both the FM effect and the PM effect in the structural model are supported (Hayes 2009; Soper 2016).

We then added control variables to examine their impact on tacit knowledge sharing, and the analysis results are illustrated in Figure 4. From Figure 4, we can see that individuals' use of experience of ES is positively associated with their tacit knowledge-sharing intention ($\beta = 0.204$, $p < .01$), and individuals' work experience is negatively associated with their tacit knowledge-sharing intention ($\beta = -0.171$, $p < .01$). While, sex and education background are not significantly associated with tacit knowledge sharing. The above results are consistent with the previous empirical studies, suggesting that younger users who are more familiar with ES are more likely to share what they know with others (Shao, Wang, and Feng 2015).

In terms of the R^2 values of the endogenous variables explained by the exogenous constructs, the structural model analysis suggests that charismatic leadership, psychological safety climate, intrinsic motivation and control variables can totally explain 56.9% variance of tacit knowledge sharing, indicating a good explanatory power of the research model (Hulland 1999; Gefen, Straub, and Boudreau 2000).

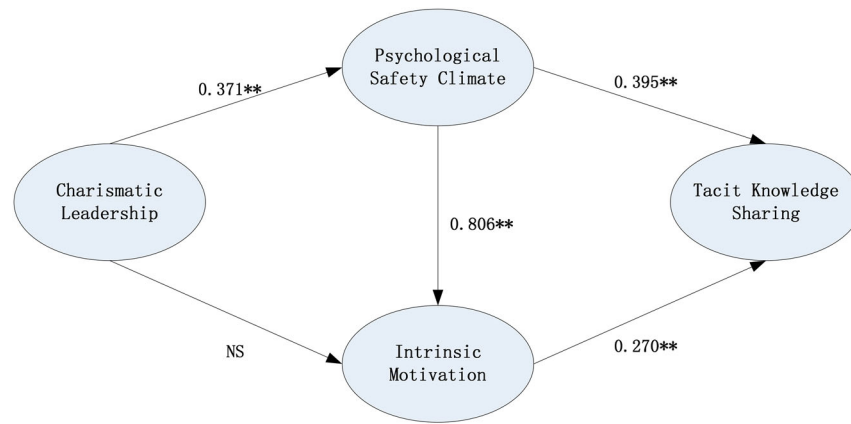


Figure 2. SmartPLS analysis results of the research model I.

Notes: ** represents $p < .01$; * represents $p < .05$; NS represents not significant

5.3. Common method bias test

Since all data were self-reported, we conducted a common method bias (CMB) test in SmartPLS to examine if CMB is a concern in our study. Following Williams, Edwards, and Vandenberg (2003) and Liang et al.'s (2007) study, we added a common method factor whose indicators included all the principal constructs' indicators in the structural model in SmartPLS. We calculated each indicator's variances substantively explained by the principal construct, and the analysis results are illustrated in Table 7 (R_1^2 represents indicators' variances explained by the principal construct; R_2^2 represents indicators' variances explained by the method construct).

Table 7 indicates that all of the substantive factor loadings are significant, while most of the method factor loadings are insignificant. In addition, the average variances explained by the principal and factor construct are 0.898 and 0.006 respectively, and ratio of substantive variance to method variance is about 150:1. The results

suggest that the CMB is not a concern in our study (Liang et al. 2007).

6. Discussions and implications

6.1. Theoretical implications

In terms of theoretical implications, this study makes at least three contributions. Firstly, this study contributes to the extant literatures by unpacking the impact mechanism of charismatic leadership on tacit knowledge sharing. Although a large amount of studies have acknowledged the importance of leadership on IS success, most of the previous studies were conducted at an organisational level, yet few studies have empirically examined the impact of team leadership on individuals' tacit knowledge-sharing behaviour, especially in the context of ES learning, when tacit knowledge sharing among individuals is important for a deep understanding of systems functionalities (Shao, Wang, and Feng 2015). Drawing upon charismatic leadership and intrinsic

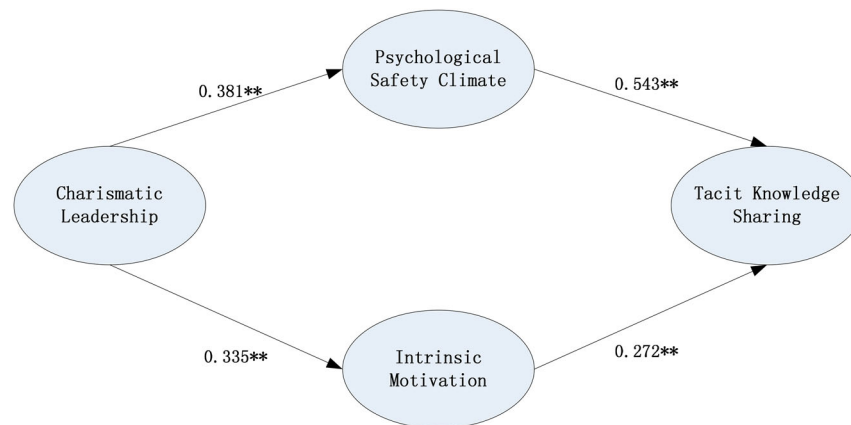


Figure 3. SmartPLS analysis results of the research model II.

Notes: ** represents $p < .01$; * represents $p < .05$; NS represents not significant

Table 6. Sobel test results.

Path	<i>a</i>	<i>b</i>	<i>S_a</i>	<i>S_b</i>	Sobel test ratio	Sobel test significance
Charismatic leadership → psychological safety climate → intrinsic motivation	0.371	0.806	0.041	0.022	9.03	***
Psychological safety climate → intrinsic motivation → tacit knowledge sharing	0.806	0.270	0.023	0.038	6.94	***

****p* < .001.

Table 7. Common method bias test results.

Construct	Indicator	Substantive factor loading	<i>R</i> ₁ ²	Method factor loading	<i>R</i> ₂ ²
Charismatic leadership	CL1	0.97**	0.94	-0.09	0.01
	CL2	0.96**	0.92	0.11*	0.01
	CL3	0.94**	0.88	-0.02	0.00
Psychological safety climate	PS1	0.93**	0.86	0.09	0.01
	PS2	0.96**	0.92	0.00	0.00
	PS3	0.93**	0.86	-0.09	0.01
Intrinsic motivation	IM1	0.95**	0.90	0.00	0.00
	IM2	0.95**	0.90	0.00	0.00
	IM3	0.97**	0.94	-0.01	0.00
Tacit knowledge sharing	TKS1	0.94**	0.88	0.08	0.01
	TKS2	0.95**	0.90	0.08	0.01
	TKS3	0.94**	0.88	-0.07	0.01

**p* < .05.

***p* < .01.

motivation theory, we developed a theoretical model to examine the impact mechanism of team leader charisma on individuals' tacit knowledge sharing in a temporary ES learning team. The empirical findings can contribute to both IS and knowledge-sharing literatures.

Secondly, our study unpacks the critical mediators between leader charisma and individuals' intrinsic motivation by introducing the construct of psychological safety climate from social psychology literatures. We found that psychological safety climate fully mediates the relationship between charismatic leadership and intrinsic motivation. These empirical results suggest

that a team leader can promote a psychological safety climate within the ES learning team by instilling pride and gaining trust and respect among the individuals, which is beneficial to increase their intrinsic motivation of knowledge sharing. These research findings can extend the existing IS leadership literatures from a social psychology theoretical perspective.

Thirdly, our study unpacks the mediating effect of intrinsic motivation on the relationship between psychological safety climate and individuals' tacit knowledge sharing. Previous literatures mostly focused on the direct impact of organisational climate on knowledge sharing, while our study found that intrinsic motivation is a critical mediator between psychological safety climate and tacit knowledge sharing. Specifically, we found that intrinsic motivation partially mediates the relationship between psychological safety climate and tacit knowledge sharing. The empirical findings can contribute to the extant knowledge sharing literatures from a motivation theoretical perspective.

6.2. Practical implications

This study can provide guidelines to the board of the firm in terms of team leader selection and appointment. Previous studies mostly focus on a team leader's technical

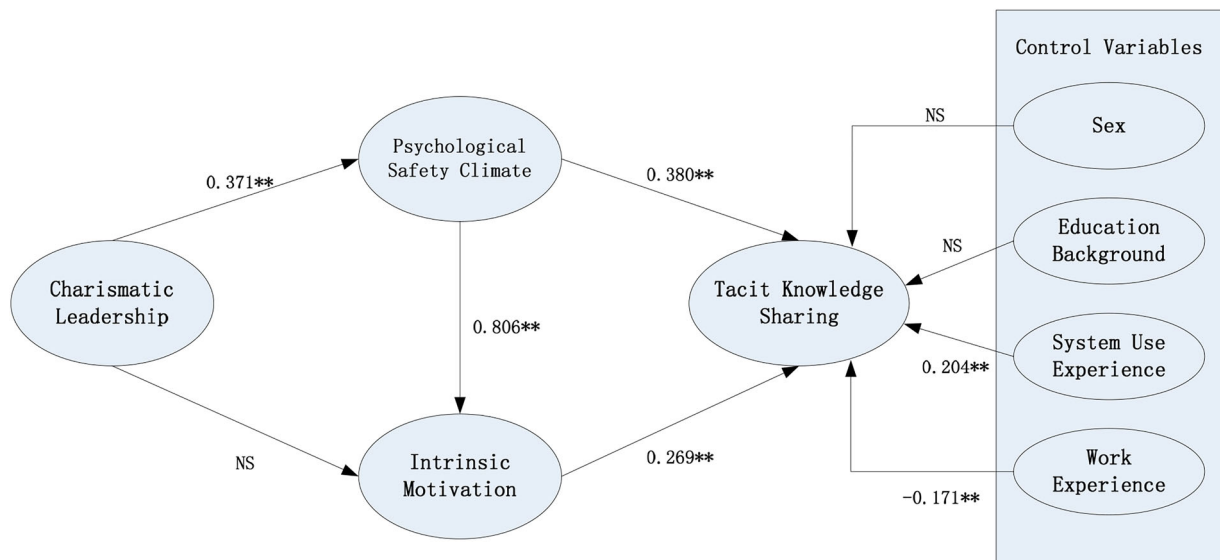


Figure 4. SmartPLS analysis results of the research model III.

Notes: ** represents *p* < .01; * represents *p* < .05; NS represents not significant

background and capability, yet ignores the leadership traits of this person. Our study suggests that a team leader's personal charisma can facilitate a climate of psychological safety within the team, which is beneficial to foster individuals' attitudes and intention towards tacit knowledge sharing. Thus the board should consider charismatic leadership trait as an important evaluating dimension when selecting a team leader in charge of ES learning.

This study can also offer guidelines to the team leader to focus on individuals' intrinsic motivation. Prior literatures have discussed the role of extrinsic motivation, such as rewards and job promotions, in affecting individuals' attitude and intention towards explicit knowledge sharing. Our study suggests that psychological safety climate is beneficial to inspire individuals' intrinsic motivation by enhancing their confidence and enjoyment of ES learning, which, in turn, has a positive impact on their tacit knowledge-sharing behaviour, which is not easily to be achieved by formal rewards and promotions. Thus the team leader himself/herself should pay attention to his/her leadership style, and influences the followers by exhibiting idealised influence and personal charisma instead of using authoritative power, in order to gain trust and respect among the team members and facilitate a climate of psychological safety within the team.

6.3. Conclusions and limitations

Drawing on charismatic leadership and intrinsic motivation theory, we developed a research model to examine the impact mechanism of leader charisma on individuals' tacit knowledge-sharing behaviour in the context of ES learning. A field survey was conducted and totally 117 valid questionnaires were collected from the Beidahuang Group in the Heilongjiang province of China. SEM technique was used to examine the research model and the five hypotheses. SmartPLS analysis results suggest that charismatic leadership is positively associated with psychological safety climate, which in turn has a positive impact on intrinsic motivation and tacit knowledge-sharing intention. Specifically, we found that psychological safety climate fully mediates the relationship between charismatic leadership and intrinsic motivation, while intrinsic motivation partially mediates the relationship between psychological safety climate and tacit knowledge sharing.

There are some limitations that exist in this study. Firstly, data collection was conducted in the Heilongjiang province of China, and the generalisation of the research findings may be limited to the locations. Future studies need to examine the research model with a large-scale sample data collected from multiple locations, to further examine the external validity of the research, and cultural factors such as 'guanxi' and 'face' ought to

be considered in the research model to examine if there is a cultural interplay with the constructs noted in the research model given that the research method is undertaken in a Chinese context. Secondly, this study focused on the impact of a team leader's personal charisma on tacit knowledge sharing. Full-range leadership theories indicate that leadership is a multi-dimension construct comprising several leadership traits and future studies can explore the impact mechanism of other leadership traits, such as inspirational stimulation, intellectual motivation and personal consideration, on tacit knowledge-sharing behaviour. Thirdly, the empirical data collected in our study were self-reported by the respondents, which may lead to CMB. We conducted a CMB test in SmartPLS and the results suggest that CMB is not a concern in our study. Future studies need to collect data from different sources and analyse the empirical data using different research methods to further avoid CMB problems.

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References

- Alavi, M., T. R. Kayworth, and D. E. Leidner. 2005. "An Empirical Examination of the Influence of Organizational Culture on Knowledge Management Practices." *Journal of Management Information Systems* 22 (3): 191–224.
- Alavi, M., and D. E. Leidner. 2001. "Review: Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues." *MIS Quarterly* 25 (1): 107–136.
- Anderson, N. R., and M. A. West. 1998. "Measuring Climate for Work Group Innovation: Development and Validation of the Team Climate Inventory." *Journal of Organizational Behavior* 19 (3): 235–258.
- Argyris, C. 1982. *Reasoning, Learning and Action: Individual and Organizational*. San Francisco: Jossey Bass.

- Bandura, A. 1986. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Baron, R. M., and D. A. Kenny. 1986. "The Moderator-mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations." *Journal of personality and Social Psychology* 51 (6): 1173–1182.
- Bass, B. M., and B. J. Avolio. 2000. *MLQ Multifactor Leadership Questionnaire*. Redwood City, CA: Mind Garden.
- Bock, G. W., and Y. G. Kim. 2002. "Breaking the Myths of Rewards: An Exploratory Study of Attitudes About Knowledge Sharing." *Information Resource Management Journal* 15 (2): 14–21.
- Bock, G. W., R. W. Zmud, Y. G. Kim, and J. N. Lee. 2005. "Behavioral Intention Formation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, Social-Psychological Forces, and Organizational Climate." *MIS Quarterly* 29 (1): 87–111.
- Boehm, S. A., D. J. G. Dwertmann, H. Bruch, and B. Shamir. 2015. "The Missing Link? Investigating Organizational Identity Strength and Transformational Leadership Climate as Mechanisms That Connect CEO Charisma with Firm Performance." *Leadership Quarterly* 26: 156–171.
- Boh, W. F., and S. S. Wong. 2013. "Organizational Climate and Perceived Manager Effectiveness: Influencing Perceived Usefulness of Knowledge Sharing Mechanisms." *Journal of the Association for Information Systems* 14 (3): 122–152.
- Carmeli, A., R. Gelbard, and R. Reiter Palmon. 2013. "Leadership, Creative Problem Solving Capacity, and Creative Performance: The Importance of Knowledge Sharing." *Human Resource Management* 52 (1): 95–121.
- Carmeli, A., Z. Sheaffer, G. Binyamin, R. ReiterPalmon, and T. Shimoni. 2014. "Transformational Leadership and Creative Problem Solving: The Mediating Role of Psychological Safety and Reflexivity." *The Journal of Creative Behavior* 48 (2): 115–135.
- Chen, S. S., Y. W. Chuang, and P. Y. Chen. 2012. "Behavioral Intention Formation in Knowledge Sharing: Examining the Roles of KMS Quality, KMS Self-Efficacy, and Organizational Climate." *Knowledge-Based Systems* 31: 106–118.
- Chennamaneni, A., J. T. Teng, and M. K. Raja. 2012. "A Unified Model of Knowledge Sharing Behaviours: Theoretical Development and Empirical Test." *Behaviour & Information Technology* 31 (11): 1097–1115.
- Chin, W. W., B. L. Marcolin, and P. R. Newsted. 2003. "A Partial Least Squares Latent Variable Modelling Approach for Measuring Interaction Effects: Results from a Monte Carlo Simulation Study and an Electronic Mail Emotion/Adoption Study." *Information Systems Research* 14 (2): 189–217.
- Cho, I., H. Park, and J. K. Kim. 2015. "The Relationship Between Motivation and Information Sharing About Products and Services on Facebook." *Behaviour & Information Technology* 34 (9): 858–868.
- Cho, J., I. Park, and J. W. Michel. 2011. "How Does Leadership Affect Information Systems Success? The Role of Transformational Leadership." *Information & Management* 48 (7): 270–277.
- Choi, J. 2006. "A Motivational Theory of Charismatic Leadership: Envisioning, Empathy, and Empowerment." *Journal of Leadership & Organizational Studies* 13 (1): 24–43.
- Chou, H. W., Y. H. Lin, H. S. Lu, H. H. Chang, and S. B. Chou. 2014. "Knowledge Sharing and ERP System Usage in Post-Implementation Stage." *Computers in Human Behavior* 33 (2): 16–22.
- Conger, J. A., R. N. Kanungo, and S. T. Menon. 2000. "Charismatic Leadership and Follower Effects." *Journal of Organizational Behavior* 21 (7): 747–761.
- Conger, J. A., R. N. Kanungo, S. T. Menon, and P. Mathur. 1997. "Measuring Charisma: Dimensionality and Validity of the Conger-Kanungo Scale of Charismatic Leadership." *Canadian Journal of Administrative Sciences* 14 (3): 290–302.
- Crane, L. 2014. "Trouble with Tacit: Developing a New Perspective and Approach." *Journal of Knowledge Management* 18 (6): 1127–1140.
- Cummings, J. N. 2004. "Work Groups, Structural Diversity, and Knowledge Sharing in a Global Organization." *Management Science* 50 (3): 352–364.
- Davis, F. D., R. P. Bagozzi, and P. R. Warshaw. 1992. "Extrinsic and Intrinsic Motivation to Use Computers in the Workplace." *Journal of Applied Social Psychology* 22 (14): 1111–1132.
- Deci, E. L., and R. M. Ryan. 1985. *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Plenum Press.
- Dennison, D. R. 1996. "What Is the Difference Between Organizational Culture and Organizational Climate? A Native's Point of View on a Decade of Paradigm Wars." *Academy of Management Review* 21 (3): 619–654.
- Edmondson, A. 1999. "Psychological Safety and Learning Behavior in Work Teams." *Administrative Science Quarterly* 44 (2): 350–383.
- Gefen, D., D. W. Straub, and M. C. Boudreau. 2000. "Structural Equation Modelling and Regression: Guidelines for Research Practice." *Communications of the Association for Information Systems* 7 (7): 1–78.
- Grant, R. M. 1996. "Toward a Knowledge-Based Theory of the Firm." *Strategic Management Journal* 17 (S2): 109–122.
- Gray, P. H., and D. B. Meister. 2004. "Knowledge Sourcing Effectiveness." *Management Science* 50 (6): 821–834.
- Grojean, M. W., C. J. Resick, M. W. Dickson, and D. B. Smith. 2004. "Leaders, Values, and Organizational Climate: Examining Leadership Strategies for Establishing an Organizational Climate Regarding Ethics." *Journal of Business Ethics* 55 (3): 223–241.
- Hayes, A. F. 2009. "Beyond Baron and Kenny: Statistical Mediation Analysis in the New Millennium." *Communication Monographs* 76 (4): 408–420.
- House, R. J., W. D. Spangler, and J. Woyke. 1991. "Personality and Charisma in the U.S. Presidency: A Psychological Theory of Leader Effectiveness." *Administrative Science Quarterly* 36: 364–397.
- Huang, Q., R. M. Davison, and J. Gu. 2011. "The Impact of Trust, Guanxi Orientation and Face on the Intention of Chinese Employees and Managers to Engage in Peer-to-Peer Tacit and Explicit Knowledge Sharing." *Information Systems Journal* 21 (6): 557–577.

- Hulland, J. 1999. "Use of Partial Least Squares (PLS) in Strategic Management Research: A Review of Four Recent Studies." *Strategic Management Journal* 20 (2): 195–204.
- Jones, M. C. 2005. "Tacit Knowledge Sharing During ERP Implementation: A Multisite Case Study." *Information Resources Management Journal* 18 (2): 1–23.
- Jones, M. C., M. Cline, and S. Ryan. 2006. "Exploring Knowledge Sharing in ERP Implementation: An Organizational Culture Framework." *Decision Support Systems* 41: 411–434.
- Ke, W., and K. K. Wei. 2008. "Organizational Culture and Leadership in ERP Implementation." *Decision Support Systems* 45 (2): 208–218.
- King, A. Y. C. 1988. "Face, Shame and the Analysis of Behavior Patterns of the Chinese." In *The Psychology of the Chinese*, edited by G. S. Yang, 319–345. Taipei: Guiguan Press.
- Koene, B. A., A. L. Vogelaar, and J. L. Soeters. 2002. "Leadership Effects on Organizational Climate and Financial Performance: Local Leadership Effect in Chain Organizations." *The Leadership Quarterly* 13 (3): 193–215.
- Lee, D. S., K. C. Lee, Y. W. Seo, and D. Y. Choi. 2015. "An Analysis of Shared Leadership, Diversity, and Team Creativity in an e-Learning Environment." *Computers in Human Behavior* 42: 47–56.
- Liang, H. G., N. Saraf, Q. Hu, and Y. J. Xue. 2007. "Assimilation of Enterprise Systems: The Effect of Institutional Pressures and the Mediating Role of Top Management." *MIS Quarterly* 31 (1): 59–87.
- Lin, H. F. 2007. "Effects of Extrinsic and Intrinsic Motivation on Employee Knowledge Sharing Intentions." *Journal of information science* 33 (2): 135–149.
- Liu, L., Y. Feng, Q. Hu, and X. Huang. 2011. "From Transactional User to VIP: How Organizational and Cognitive Factors Affect ERP Assimilation at Individual Level." *European Journal of Information Systems* 20 (2): 186–200.
- McInerney, C. 2002. "Knowledge Management and the Dynamic Nature of Knowledge." *Journal of the American Society for Information Science and Technology* 53: 1009–1018.
- Neufeld, D. J., L. Dong, and C. Higgins. 2007. "Charismatic Leadership and User Acceptance of Information Technology." *European Journal of Information Systems* 16 (4): 494–510.
- Nonaka, I., and G. Von Krogh. 2009. "Perspective-tacit Knowledge and Knowledge Conversion: Controversy and Advancement in Organizational Knowledge Creation Theory." *Organization Science* 20 (3): 635–652.
- Panahi, S. 2016. "Conceptualising Social Media Support for Tacit Knowledge Sharing: Physicians Perspectives and Experiences." *Journal of Knowledge Management* 20 (2): 344–363.
- Pavlou, P. A., and M. Fygenson. 2006. "Understanding and Predicting Electronic Commerce Adoption: An Extension of the Theory of Planned Behavior." *MIS Quarterly* 30 (1): 115–141.
- Preacher, K. J., and A. F. Hayes. 2004. "SPSS and SAS Procedures for Estimating Indirect Effects in Simple Mediation Models." *Behavior Research Methods Instruments and Computers* 36: 717–731.
- Pullig, C., I. James, G. Maxham, J. Joseph, and F. Hair. 2002. "Salesforce Automation Systems: An Exploratory Examination of Organizational Factors Associated with Effective Implementation and Salesforce Productivity." *Journal of Business Research* 55 (5): 401–415.
- Ryan, R. M., and E. L. Deci. 2000. "Self-determination Theory and the Facilitation of Intrinsic Motivation, Social Development and Well-Being." *American Psychologist* 55 (1): 68–78.
- Shamir, B., R. J. House, and M. B. Arthur. 1993. "The Motivational Effects of Charismatic Leadership: A Self-Concept Based Theory." *Organization Science* 4 (4): 577–594.
- Shao, Z., Y. Feng, and Q. Hu. 2013. "The Impact Mechanism of Transformational Leadership Style on Exploitative and Exploratory Learning of ERP Systems." The 17th Pacific Asia Conference on Information Systems (PACIS), June 18–22, Jeju, Korea.
- Shao, Z., Y. Feng, and Q. Hu. 2016. "Effectiveness of Top Management Support in Enterprise Systems Success: A Contingency Perspective of Fit Between Leadership Style and System Life-Cycle." *European Journal of Information Systems* 25 (2): 131–153.
- Shao, Z., Y. Feng, and L. Liu. 2012. "The Mediating Effect of Organizational Culture and Knowledge Sharing on Transformational Leadership and Enterprise Resource Planning Systems Success: An Empirical Study in China." *Computers in Human Behavior* 28 (6): 2400–2413.
- Shao, Z., T. Wang, and Y. Feng. 2015. "Impact of Organizational Culture and Computer Self-Efficacy on Knowledge Sharing." *Industrial Management & Data Systems* 115 (4): 590–611.
- Shen, Y., M. M. Tuuli, B. Xia, T. Y. Koh, and S. Rowlinson. 2015. "Toward A Model for Forming Psychological Safety Climate in Construction Project Management." *International Journal of Project Management* 33: 223–235.
- Sobel, M. E. 1986. "Some New Results on Indirect Effects and Their Standard Errors in Covariance Structure Models." In *Sociological Methodology*, edited by N. Tuma, 159–186. Washington, DC: American Sociological Association.
- Soper, D. S. 2016. *Sobel Test Calculator for the Significance of Mediation* [Software]. <http://www.danielsoper.com/statcalc>.
- Spender, J. C. 1996. "Making Knowledge the Basis of a Dynamic Theory of the Firm." *Strategic Management Journal* 17 (2): 45–82.
- Srivastava, A., and E. A. Locke. 2006. "Empowering Leadership in Management Teams: Effects on Knowledge Sharing, Efficacy, and Performance." *Academy of Management Journal* 49 (6): 1239–1251.
- Suppiah, V., and M. S. Sandhu. 2011. "Organizational Culture's Influence on Tacit Knowledge-Sharing Behaviour." *Journal of Knowledge Management* 15 (3): 462–477.
- Temme, D., H. Kreis, and L. Hildebrandt. 2006. *PLS Path Modeling-A Software Review*. Berlin: Humboldt-University Berlin.
- Te'eni, D. 2001. "Review: A Cognitive-Affective Model of Organizational Communication for Designing IT." *MIS Quarterly* 25 (2): 251–312.
- Waldman, D. A., and F. J. Yammarino. 1999. "CEO Charismatic Leadership: Levels-of-Management and Levels-of-Analysis Effects." *Academy of Management Review* 24 (2): 266–285.
- Wang, E., H. Chou, and J. Jiang. 2005. "The Impacts of Charismatic Leadership Style on Team Cohesiveness and Overall Performance During ERP Implementation." *International Journal of Project Management* 23 (3): 173–180.

- Wang, S., and R. A. Noe. 2010. "Knowledge Sharing: A Review and Directions for Future Research." *Human Resource Management Review* 20 (2): 115–131.
- Williams, L. J., J. R. Edwards, and R. J. Vandenberg. 2003. "Recent Advances in Causal Modeling Methods for Organizational and Management Research." *Journal of Management* 29 (6): 903–936.
- Williams, J., and D. P. MacKinnon. 2008. "Resampling and Distribution of the Product Methods for Testing Indirect Effects in Complex Models." *Structural Equation Modeling* 15: 23–51.
- Xiang, C., Y. Lu, and S Gupta. 2013. "Knowledge Sharing in Information System Development Teams: Examining the Impact of Shared Mental Model from a Social Capital Theory Perspective." *Behaviour & Information Technology* 32 (32): 1024–1040.
- Xu, B., and D. Li. 2015. "An Empirical Study of the Motivations for Content Contribution and Community Participation in Wikipedia." *Information & Management* 52 (3): 275–286.
- Xue, Y., J. Bradley, and H. Liang. 2011. "Team Climate, Empowering Leadership, and Knowledge Sharing." *Journal of Knowledge Management* 15 (2): 299–312.
- Zadow, A., and M. F. Dollard. 2015. *Psychosocial Safety Climate*. The Wiley Blackwell Handbook of the Psychology of Occupational Safety and Workplace Health, 414–436.

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