

Cross-functional knowledge sharing, coordination and firm performance: The role of cross-functional competition



Nguyen Phong Nguyen^a, Liem Viet Ngo^{b,*}, Tania Bucic^c, Nguyen Dong Phong^d

^a School of Accounting, University of Economics Ho Chi Minh City, Viet Nam

^b UNSW Business School, The University of New South Wales, UNSW Kensington Campus, Sydney, NSW 2052, Australia

^c UNSW Business School, The University of New South Wales, UNSW Kensington Campus, Sydney, NSW 2052, Australia

^d University of Economics Ho Chi Minh City, Viet Nam

ARTICLE INFO

Keywords:

Cross-functional competition
Coordination
Competition
Cross-functional knowledge sharing
Transition economy

ABSTRACT

This study advances extant literature in cross-functional knowledge sharing by developing and testing a model of coopetition that examines (1) the relationships of various coordination mechanisms (formalization, lateral relations, informal networking, and shared vision) with knowledge sharing, (2) the moderating effect of cross-functional competition on these relationships, (3) and the mediating effect of organizational innovativeness on the relationship between cross-functional knowledge sharing and firm performance. Results from a sample of 224 large firms in a transition economy show that lateral relations, informal networking, and shared vision as coordination mechanisms relate significantly to cross-functional knowledge sharing, whereas formalization does not. The findings also indicate a moderating effect of cross-functional competition for lateral relations and informal networking but not for formalization or shared vision. Finally, organizational innovativeness partially mediates the relationship between cross-functional knowledge sharing and firm performance. These findings lead to several theoretical and managerial implications.

1. Introduction

Cross-functional knowledge sharing, between marketing and multiple disparate functions, can enhance innovation (Hansen, 1999; Lee & Lan, 2010; Tsai, 2001), new product success (Atuahene-Gima & Evangelista, 2000; Ernst, Hoyer, & Rübsaamen, 2010; Griffin & Hauser, 1992), market learning, and performance (Luo, Slotegraaf, & Pan, 2006). The determinants of such cross-functional knowledge sharing efforts likely involve intra-firm coordination mechanisms, as predicted by the coordination-sharing-performance (C-S-P) model (Tsai, 2002; Willem, Buelens, & Scarbrough, 2006). Such coordination mechanisms include not just formal methods, such as formalization and lateral relations, but also informal networking and shared visions that collectively promote varied communication channels that can enable cooperation and social interaction and act as conduits for cross-functional knowledge sharing (e.g. Ghoshal, Korine, & Szulanski, 1994; Gupta & Govindarajan, 2000; Willem & Buelens, 2007, 2009).

Despite some significant research advances regarding cross-functional knowledge sharing, we still confront some gaps in our understanding of the interplay of the simultaneously unifying and diverging contextual forces of intra-firm cooperation and competition (Raza-

Ullah, Bengtsson, & Kock, 2014), as well as how this interplay affects cross-functional knowledge sharing across disparate units. Specifically, few studies examine the competition-cooperation paradox (Gnyawali, Madhavan, He, & Bengtsson, 2016), and fewer still empirically compare the relative importance or effects of intra-firm coordination mechanisms (e.g., formalization, lateral relations, informal networking, and shared vision) on cross-functional knowledge sharing. Yet managers need to understand how various coordination mechanisms might facilitate cross-functional knowledge sharing so they can develop effective knowledge management strategies. In addition, extant C-S-P models tend to ignore the potential moderating effects of cross-functional competition. In particular, the question of whether competition facilitates or inhibits the coordination-sharing relationship remains unanswered. Finally, cross-functional knowledge is a key strategic idiosyncratic resource; realizing its potential value “requires alignment with other important organizational elements” such as organizational innovativeness (Ketchen, Hult, & Slater, 2007, p.962), but extant literature does not offer a clear operationalization of such alignment.

In addressing these research gaps, we make two main contributions. First, we combine social capital and social embeddedness theory to examine, for the first time, the effects of both intra-firm coordination

* Corresponding author.

E-mail addresses: nguyenphongnguyen@ueh.edu.vn (N.P. Nguyen), liem.ngo@unsw.edu.au (L.V. Ngo), t.bucic@unsw.edu.au (T. Bucic), phongnd@ueh.edu.vn (N.D. Phong).

mechanisms and cross-functional competition on cross-functional knowledge sharing, thereby extending the C-S-P model (Brandenburger & Nalebuff, 1995). This extension reveals that intra-firm coordination and competition between marketing and other departments coexist and assist in aligning the functions to achieve better firm performance. By considering the effects of all coordination mechanisms on cross-functional knowledge sharing and the moderating effect of cross-functional competition, we clarify which intra-firm coordination mechanisms are relatively more important for facilitating cross-functional knowledge sharing; they do not influence cross-functional knowledge sharing to the same extent. The resulting insights also indicate which coordination mechanisms and competition forms are complementary and beneficial for cross-functional knowledge sharing.

Second, this study unpacks the cross-functional knowledge sharing–performance relationship according to its mediating mechanisms. Haas & Hansen (2005, p. 1113) caution that “obtaining and using knowledge from other parts of the firm does not necessarily improve the performance of task units within the firm ... scholars need to move beyond studying facilitators of cross-functional knowledge sharing to examine how a firm’s knowledge resources are utilized by task units to improve their performance.” We respond to this call and illuminate the relationship by detailing how organizational innovativeness mediates the relationship between cross-functional knowledge sharing and firm performance.

In the next section, we review prior research on the C-S-P logic, then turn to social capital and social embeddedness theory to develop our intra-firm co-competition model, which integrates coordination mechanisms (formalization, lateral relations, informal networking, and shared vision), cross-functional competition, cross-functional knowledge sharing, organizational innovativeness, and firm performance. Following our hypotheses, we detail the research methods and data analysis. Finally, we discuss the findings and their implications for further research.

2. Conceptual framework and hypotheses

Competition implies a rivalrous, conflict-laden relationship among incumbents (Bengtsson & Kock, 2000) that arises from their divergent interests and creates a win–lose scenario or zero-sum game structure (Walley, 2007). Coordination instead emphasizes cooperative interdependencies with fully converging interests (Walley, 2007). In this sense, coordination is a critical factor for strategic success, offering

growth for all parties, because of its inherent positive-sum game structure (Griesinger, 1990; Hill, 1990). However, the seeming polarity of competition and coordination has attracted criticism; they can equally affect important interdependencies within relationships (Bengtsson & Kock, 2000; Shih, Tsai, Wu, & Lu, 2006). In intra-departmental relationships for example, interfunctional conflict is common (Massey & Dawes, 2007; Massey & Kyriazis, 2007), and managers struggle with coordinating tasks due to prioritization disagreements and a lack of cooperation (Maltz & Kohli, 1996; Ruekert & Walker, 1987). This kind of conflict sparks cooperative tensions (Fernandez, Le Roy, & Gnyawali, 2014) that lead to reduced cross-functional knowledge sharing (Persson, 2006) or avoidance of knowledge sourced from other teams, to avoid perceptions of influence or control (Maltz & Kohli, 1996). For example, marketing and other departments cooperate to achieve common organizational goals (Narver & Slater, 1990), but they simultaneously compete to pursue their own strategic priorities (Dougherty, 1992) and defend their status or power (Houston, Walker, Hutt, & Reingen, 2001; Hutt, Walker, & Frankwick, 1995; Walton & Dutton, 1969). Their interaction thus may be a double-edged sword that involves both coordination and competition (Luo et al., 2006).

According to social embeddedness theory, individual behaviors are affected by the weak or strong social structure of their relations (Granovetter, 1985; Luo et al., 2006). Weak ties are characterized by competition, infrequent interaction, lack of trust and limited affect (Dahlstrom & Ingram, 2003; Granovetter, 1985; Gulati, 1998; Uzzi, 1999), while strong ties are characterized by a high level of cooperation and frequent interaction regulated by reciprocity, trust or group norms (Granovetter, 1973; Rindfleisch & Moorman, 2001). Thus, we argue that the interplay between cross-functional coordination and competition is of paramount importance in cross-functional knowledge sharing.

Building on social capital theory and social embeddedness theory, we develop an intra-firm co-competition conceptual model as shown in Fig. 1 to examine the complementarity between the coordination mechanisms and competition in fostering cross-functional knowledge sharing.

2.1. Effects of coordination mechanisms on cross-functional knowledge sharing

Social capital theory suggests three dimensions of social capital including structural, cognitive, and relational dimensions (Inkpen &

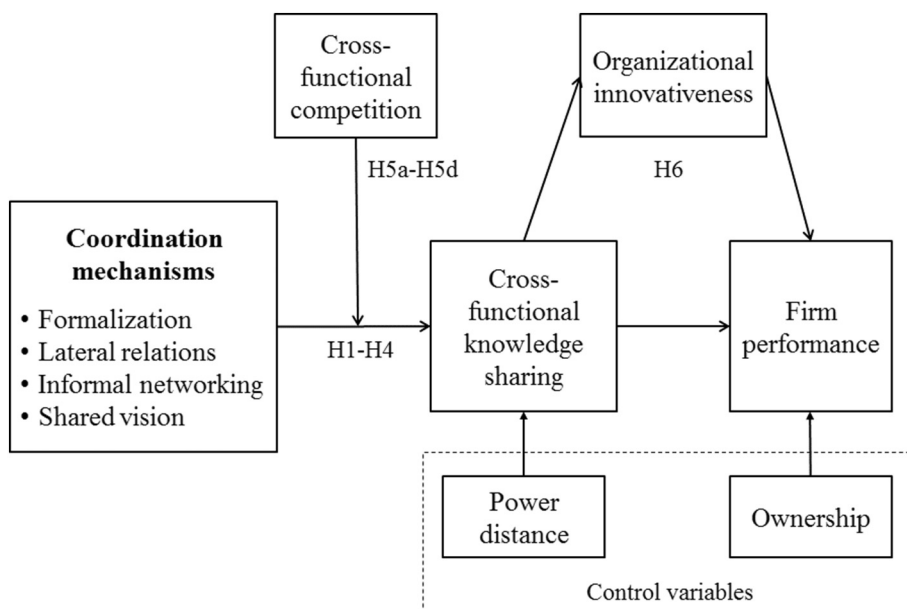


Fig. 1. Theoretical framework.

Tsang, 2005), which are related to the cross-functional coordination mechanisms. Indeed, the four key coordination mechanisms reflect the three dimensions of social capital in that lateral relations is related to *structural*, shared vision to *cognitive*, and formalization and informal networking to *relational*.

2.1.1. Formalization

Formalization refers to the extent to which policies, rules, task descriptions, and procedures are recorded in organizational manuals and institutionalized as standard routines (Martinez & Jarillo, 1989), such that they govern individual interactions (Ayers, Dahlstrom, & Skinner, 1997), clarify interdepartmental linkages and functional responsibilities (Menon, Bharadwaj, Adidam, & Edison, 1999), and suggest ways to respond to organizational phenomena using prescribed approaches (Jansen, Van Den Bosch, & Volberda, 2005). Several studies link formalization with increased bureaucracy (e.g. Willem & Buelens, 2007, 2009) because explicit rules and regulations can limit social interaction and flexibility (e.g. Sivadas & Dwyer, 2000; Song & Parry, 1993) and reduce communication for cross-functional knowledge sharing (Willem & Buelens, 2007). Other studies argue that formalization reduces role ambiguity and increases understanding of required tasks and responsibilities, which can enhance cross-functional knowledge sharing (Andrews, 2010). Furthermore, formalization may facilitate cross-functional cooperation by providing specific behavioral instructions, stimulating a harmonious climate (Pinto, Pinto, & Prescott, 1993), and providing certainty through cross-functional knowledge sharing (Pertusa-Ortega, Zaragoza-Sáez, & Claver-Cortés, 2010). Formalization thus is associated with the relational aspect of social capital (e.g. Inkpen & Tsang, 2005; Nahapiet & Ghoshal, 1998), which determines social relations and cross-functional knowledge sharing across departments. It improves cooperation and collaboration, because it shapes the scope of cross-functional interactions and facilitates the transfer of explicit knowledge (Cordon-Pozo, Garcia-Morales, & Aragon-Correa, 2006). Finally, formalization can enact procedures and define shared understanding, to help departments codify knowledge such that they can exploit, apply, and implement it efficiently (Child, 1973; Jansen et al., 2005; Maltz & Kohli, 2000; Ruckert & Walker, 1987). Therefore, we predict:

H1. Formalization has a positive effect on cross-functional knowledge sharing.

2.1.2. Lateral relations

Horizontal links among organizational units reflect the connections between individual members of different organizational units at the same hierarchical level. These lateral relations also reflect network ties in an organization, pertaining to the *structural* dimension of social capital (Inkpen & Tsang, 2005). The development of lateral relations depends on organizational practices, such as liaison roles or temporary and permanent teams (Gupta & Govindarajan, 2000; Persson, 2006; Willem et al., 2006; Willem & Buelens, 2007). Jansen et al. (2005) find that cross-functional integrators, such as liaison staff and task forces (Ghoshal et al., 1994), stimulate the integration of existing and newly acquired knowledge and enhance organizational units' capacity to develop novel linkages and associations. In turn, the implementation of lateral relations may reduce interdepartmental conflict, create stronger connections between departments, and push departments toward mutual goals (Leenders & Wierenga, 2002; Liker, Collins, & Hull, 1999; Piercy, 2010). Conflict reduction and mutual goals foster social interaction and facilitate access to knowledge from the network of lateral, interdepartmental relations (Hansen, 2002). Moreover, positive lateral relations may lead to improved cross-functional knowledge sharing effectiveness through sporadic and fruitful interactions among staff (Willem & Buelens, 2007). Accordingly

H2. Lateral relations have a positive effect on cross-functional

knowledge sharing.

2.1.3. Informal networking

Informal relationships develop among members of diverse sections of an organization (Martinez & Jarillo, 1989; Tsai, 2002). Such relationships can be developed at the interfaces of departments (Cross, Nohria, & Parker, 2002) and tend to be established when formal relationships are insufficient to complete job tasks effectively. The informal relationships might develop on the basis of mutual understanding or organizational activities, such as social events or company parties. A high degree of informal networking is positively associated with cross-functional knowledge sharing (e.g. Monteiro, Arvidsson, & Birkinshaw, 2008; Tsai, 2002). According to the relational aspect of social capital theory (Inkpen & Tsang, 2005), informal networking can facilitate cross-functional knowledge sharing, due to its role in the creation of common knowledge (Tsai, 2002; Willem et al., 2006) and the connections between departments (Tagliaventi, Bertolotti, & Macri, 2010). Other informal relationships, such as personal networks, enhance the intensity and effectiveness of cross-functional knowledge sharing (Willem & Buelens, 2007) by prompting reciprocal norms (Luo & Hassan, 2009). Furthermore, strong informal networks reflect strong ties and can promote a willingness to work cross-departmentally and engage in higher levels of communication. Thus, we hypothesize:

H3. Informal networking has a positive effect on cross-functional knowledge sharing.

2.1.4. Shared vision

A culture of shared values enables a consistent “way of doing things, decision making styles, and objectives and values of the company” (Martinez & Jarillo, 1989, p.492). A shared vision thus reflects the *cognitive* dimension of social capital (Inkpen & Tsang, 2005; Nahapiet & Ghoshal, 1998), which creates mutual trust throughout an organizational network (Willem et al., 2006) by uniting employees with mutual goals and fostering their commitment (e.g. Dawes & Massey, 2005; Maltz & Kohli, 1996; Maltz, Souder, & Kumar, 2001). In turn, it is an important determinant of cross-functional knowledge sharing, because of its role in promoting cooperation and willingness to share information and ideas to achieve mutual goals (e.g., sales, market share, return on investment, new product introduction, customer satisfaction) (Baker & Sinkula, 1999). People with shared vision are more likely to become partners who share and exchange resources, including learning, to promote learning (Calantone, Cavusgil, & Zhao, 2002), reflecting their collective goals (Li, 2005; Tsai & Ghoshal, 1998; van Wijk, Jansen, & Lyles, 2008). We thus hypothesize:

H4. Shared vision has a positive effect on cross-functional knowledge sharing.

2.2. Moderating role of cross-functional competition

Social embeddedness theory (Luo et al., 2006) provides insights into how people might be structurally integrated in a network of social relations (Granovetter, 1985), such that individual behaviors depend on the weak or strong social structure of their relations. Weak ties, which are characterized by competition, infrequent interaction, lack of trust, and limited affect (Dahlstrom & Ingram, 2003; Granovetter, 1985; Gulati, 1998; Uzzi, 1999), can facilitate access to new and diverse knowledge (Hansen, 1999), by connecting dispersed groups that do not frequently interact (Burt, 1995). They thus are effective for searching for and transferring explicit knowledge (Reagans & McEvily, 2003). In contrast, strong ties are characterized by high levels of cooperation and frequent interaction, regulated by reciprocity, trust, or group norms (Granovetter, 1973; Rindfleisch & Moorman, 2001). They can transfer tacit knowledge more effectively (Hansen, 1999; Reagans & McEvily,

2003; Uzzi, 1997), because the high levels of trust and cooperation facilitate close interactions and frequent sharing of tacit knowledge, which by nature requires more time and effort than sharing explicit knowledge.

A combination of strong and weak ties adds greater value than either kind alone (Luo et al., 2006). For example, through strong ties with banks, marked by trust, organizations likely are willing to share private information rather than just the information available in public financial reports, which then supports the creation of contingent loan agreements (Uzzi, 1999). Supplementing these strong ties, weak ties help organizations search the market more effectively (Quintana-García & Benavides-Velasco, 2004; Tsai, 2002). Tsai (2002) notes that the degree of interaction between business actors increases with the extent of their market overlap. When competition is intense, interactions also facilitate benchmarking to “prepare for the consequence of competition” (Tsai, 2002, p.182). A combination of strong and weak ties thus may promote increased new knowledge search and sharing.

From an intra-organizational perspective, organizations can enhance cross-functional knowledge sharing among their departments by managing the balance of strong ties (cooperation) and weak ties (competition). Cross-functional competition refers to “the degree to which functions vie for limited intangible and tangible resources as well as for strategic importance, power, and department charter” (Strese, Meuer, Flatten, & Brettel, 2016, p. 41). Luo et al. (2006) describe how competition between departments (for limited internal and external resources, strategic importance, or status and power) motivates those departments to exchange knowledge to determine their positions. The learning derived from such interactions stimulates confidence and an ability to predict competitive behaviors, which also encourages greater readiness to engage in cross-functional knowledge sharing. Therefore, the learning benefits of cross-functional competition should positively moderate the effect of cooperation (coordination of behaviors) on cross-functional knowledge sharing. We thus hypothesize:

H5. Cross-functional competition positively moderates the effects of (a) formalization, (b) lateral relations, (c) informal networking, (d) and shared vision on cross-functional knowledge sharing.

2.3. Mediating role of organizational innovativeness

Innovation pertains to as “an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (Rogers, 1995, p.11); innovativeness refers to the organizational competence associated with introducing new ideas, products, or processes (Damanpour, 1991; Hult, Hurley, & Knight, 2004). The importance of knowledge for the innovation process is widely documented (e.g. Nonaka, 1994; Nonaka & Takeuchi, 1995), as is the criticality of cross-functional knowledge sharing for enhancing organizational innovativeness (Cavusgil, Calantone, & Zhao, 2003; Lin, 2007; Tagliaventi et al., 2010). Knowledge is embedded in individual members across departments, and it needs to be shared to create new output. If an organization can ensure the dissemination of knowledge across functional boundaries, it can stimulate innovative ideas (Brettel, Heinemann, Engelen, & Neubauer, 2011; Park, Lim, & Birnbaum-More, 2009). Improving cross-functional knowledge sharing across departments also can reduce interdepartmental conflicts (Griffin & Hauser, 1996) and instill learning behaviors that increase opportunities to create new knowledge and diffuse novel ideas. For example, knowledge regarding customer needs, market trends, competitor products, or technological evolutions, shared among sales, marketing, and R&D, can produce more competitive products. Absorbing new knowledge increases the likelihood of innovation success because of the interaction between new and existing knowledge bases.

Organizational innovativeness has a positive effect on performance (e.g. Calantone et al., 2002; Salomo, Talke, & Strecker, 2008), and higher levels of innovativeness are associated with more timely,

creative introductions of new products and services that provide superior value to customers (Olavarrieta & Friedmann, 2008), ahead of competitors (Li & Calantone, 1998). In an environment marked by rapid changes in technologies and customer preferences, business organizations must engage in innovative activities to develop new products and exploit market opportunities. These activities enhance sales and market share, because customers tend to buy innovative and differentiated products that offer superior value (Sandvik & Sandvik, 2003). In general, organizations with a high degree of innovativeness can adapt to changes in the business environment and develop new capabilities, to ensure their competitive edge and superior performance (Hult et al., 2004; Hurley et al., 1997).

Cross-functional knowledge thus should influence firm performance, by creating collective knowledge-related resources that contribute to the firm's ability to attain and sustain superior performance. Explicit cross-functional knowledge sharing between departments can stimulate new knowledge flows across functional boundaries (Wang, Wang, & Liang, 2014) and help the firm exploit its formal knowledge and problem-solving expertise, which should result in improved business processes (Law & Ngai, 2008; Lawson, Petersen, Cousins, & Handfield, 2009). Tacit cross-functional knowledge sharing across departments instead might promote organizational learning and enormous organizational benefits in terms of cost reductions, quality improvements, and innovative product and service offerings (Hsu, 2008; Law & Ngai, 2008). Thus, we predict:

H6. Organizational innovativeness positively mediates the relationship between cross-functional knowledge sharing and firm performance.

2.4. Control factors affecting cross-functional knowledge sharing and firm performance

We use power distance to control for differences in cross-functional knowledge sharing across firms. For cross-functional knowledge sharing in a transition economy, power distance, or the degree of acceptance of an uneven distribution of power in society (Hofstede, 1980), is an important issue. At an individual level, power distance refers to the degree to which a person accepts an uneven distribution of power in an organization (Clugston, Howell, & Dorfman, 2000). For example, top-down decision making and hierarchical relationships are typical characteristics of a high power distance organization (Sagie & Aycan, 2003). In contrast, low power distance encourages workers to contribute their opinions and make decisions (Hui, Au, & Fock, 2004), which could increase their sense of security and promote information sharing (Zhang & Begley, 2011). Depending on its strength, power distance thus might have a negative effect on cross-functional knowledge sharing (Ardichvili, 2008; Michailova & Hutchings, 2006).

In contrast, a positive effect of power distance on cross-functional knowledge sharing also might arise. In high power distance organizations, employees prefer higher levels of authority than do those in low power distance organizations (Hofstede, 1980). If top- and middle-level managers implement an explicit cross-functional knowledge-sharing process, higher levels of authority may mitigate the resistance of individual department members to the process. That is, a high power distance culture may be an effective way to impose the requirement that knowledge must be shared across departments.

Finally, ownership structure (local or foreign owned) frequently appears as an important control variable when it comes to firm performance (Luo et al., 2006). Peng and Luo (2000) show that in transition economies, significant strategic and operational differences between foreign and local companies affect their performance. In developing countries such as China and Vietnam, organizations with foreign capital tend to outperform pure local competitors. In this study, the effects of ownership structure on organizational performance are controlled and included in the empirical model.

3. Research methodology

3.1. Setting, sampling frame and sample size

The setting of this study is in the transition economy, Vietnam. Vietnam is undergoing rapid changes as an effect of its relatively recent changes in global trade policy (PwC, 2016). Its growth is on an exponential path, with GDP growth averaged over 7% in the last 20 years (PwC, 2016), that is similar to Asian economic leaders such as China and Japan (IMF, 2016), but its consumers and stage of development are more consistent with traditional transition economies (Shultz, 2012). Vietnam is host to 11,046 foreign and multinational companies, and home to 21,755 large organizations (VCCI, 2016). It provides an appropriate setting for investigating the complex relationships that occur in industrial marketing settings.

Our sampling frame includes top and mid-level managers of firms listed in public sources, including the Vietnamese Business Directory, Vietnam Panpages, and personal contacts on LinkedIn. The initial list included 4004 potential contacts. Top- and mid-level managers of various departments (e.g., marketing, sales, R&D, manufacturing, production, finance, accounting) were targeted as informants. Consistent with previous studies (e.g. Evangelista & Hau, 2009; Luo et al., 2006), we required the informants to have at least one years' working experience at their current firms, to ensure they had adequate knowledge about the issues under investigation. We contacted the potential informants via emails asking for their participation. We created a link to the survey on Survey Monkey and the informants' completion of the survey was considered as their consent of participation.

In total, we received 593 completed responses, but 313 represented respondents from firms that did not meet our two key selection criteria. The first selection criterion was that a participating firm should have a marketing department and at least a sales, R&D, manufacturing (production), finance, or accounting. The presence of various departments enables the examination of the extent to which marketing and the various departments get involved in cross-functional knowledge sharing and their adoption of cross-functional coordination and competition mechanisms (Luo et al., 2006). The latter criterion was that a participating firm should be large. In Vietnam, large firms in manufacturing are those that have either registered capital exceeding USD \$4.4 million or more than 300 full-time equivalent employees; large firms in service and trading industries must have either registered capital exceeding USD \$2.2 million or more than 100 full-time equivalent employees (Vietnamese-Government, 2009). We restricted the sample to such large firms, which are the only ones that possess sufficient financial resources to implement adequate knowledge management systems that support cross-functional knowledge sharing (Kuan Yew & Aspinwall, 2004; Serenko, Bontis, & Hardie, 2007); small- and medium-sized organizations likely have less formalized knowledge management programs (McAdam & Reid, 2001).

We further deleted 28 (5%) responses, which had response time of less than five minutes. We considered these responses as low quality because their completion time is far less than the reasonable time to complete the survey. The 5% ratio of low quality responses is consistent with prior research (e.g., Meade & Craig, 2012). The final usable sample thus included 224 valid responses: 78 (34.8%) manufacturing firms, 47 (21.0%) trading firms, and 99 (44.2%) service firms. These percentages reflect the industrial structure of Vietnam's economy, which is dominated by manufacturing and service firms (GSO, 2016). Overall, 85.3% of the firms in the sample earned in excess of VND 90 billion, and 75.0% had more than 200 full-time employees.

The 224 key informants included 87 top-level managers (38.8%) and 137 mid-level managers (61.2%). Across the sample, 33.5% of managers were working in the marketing area, 31.7% in sales, 10.7% in accounting/finance, 9.8% in R&D, 8.1% in production, and 6.2% in other departments (e.g., human resources, logistics, and business development). In terms of tenure, 91 managers (40.6%) had been with

their organization for more than five years, 95 (42.4%) for two–five years, and 38 (17.0%) for one–two years; the average tenure overall was 5.3 years. Therefore, the key informants should be reasonably knowledgeable about cross-functional knowledge sharing within their firm.

3.2. Measurement instrument

Table 1 contains the study measures. We used existing, well-established scales from prior literature to measure the reflective latent constructs. For formalization, we used a five-item scale from Willem and Buelens (2007, 2009) that assesses the extent to which policies, rules, task descriptions, and procedures in an organization are standardized and specified in written documents. However, we excluded two items due to their low loadings (“In my company, information is mainly held in and exchanged through a large number of reports and formal documents” and “In general, our work is subject to a large number of rules”), leaving a three-item scale.¹ We also relied on Willem and Buelens (2009) to measure lateral relations, reflecting their conceptualization as the horizontal links across organizational departments (Van der Meer-Kooistra & Scapens, 2008). This scale covers important cross-departmental lateral relation content, and we ensured that the scale items emphasized the horizontal relationships between marketing and other departments. To measure informal networking, we used a four-item scale by Willem and Buelens (2009) that addresses the extent to which personal contacts function to coordinate work activities across departments. A four-item scale from Calantone et al. (2002) measures shared vision, conceptualized and operationalized as the extent to which an organization shares common goals and visions across departments.

The measure of cross-functional competition relied on a five-item scale adopted from Ghobadi and D'Ambra (2011, 2012) and Luo et al. (2006); it measures the extent to which departments compete for limited tangible and intangible resources. Following Calantone et al. (2002), we measured cross-functional knowledge sharing with four items. The four-item scale to measure organizational innovativeness addressed organizational competence in introducing new ideas, products, or processes (Calantone et al., 2002). On the basis of Calantone et al.'s (2002) and Jaworski and Kohli's (1993) scales, we measured firm performance with five items that asked respondents to rate their organizational returns on assets, investments, and sales, as well as sales growth and overall profitability, relative to major competitors. This subjective measure of firm performance was preferable for several reasons. First, objective performance is often difficult to obtain and not reliable. Second, extant empirical studies in cross-functional knowledge sharing mainly adopted subjective measurement based on perceptions. This is because there are strong correlations between the subjective performance and objective performance. Third, subjective firm performance can facilitate cross-sectional analyses across sectors and markets, by enabling direct comparisons of competitors' performance (González-Benito & González-Benito, 2005).

In the hypotheses tests, we controlled for power distance and firm ownership. We measured power distance with a three-item scale adopted from Zhang and Begley (2011) in line with Luo et al. (2006), we measured firm ownership using a dummy variable (1 = foreign-owned; 0 = state-owned). Despite its drawbacks (see Hair et al., 2010), the use of single-item indicators in structural equation models in

¹ Estimating both structural and measurement models with the same sample is not uncommon in marketing research. However, this procedure may result in overfitting a specific sample of data, which may achieve good fit but poor generalizability (Pitt, Myung, & Zhang, 2002; Preacher, 2006). In particular, modifications to the measurement model may inflate the fit indices of the structural model and therefore, the hypothesis testing results may not be generalized to other samples (O'Rourke & Hatcher, 2013). In the current study, as very few modifications to the measurement model were made with only two items dropped, overfitting is not a substantial issue.

Table 1
Measurement model and results.

Constructs and manifest variables	Loadings
Formalization, AVE = 0.57, CR = 0.79 adapted from Willem and Buelens (2007, 2009); 1 = strongly disagree, 5 = strongly agree	
• Formal procedures determine how marketing and other departments work together with each other	0.52
• In my company, we have clear goals for our daily work performance	0.96
• The information that is required to do my job is laid down in procedures, goals and rules	0.72
Lateral relations, AVE = 0.68, CR = 0.89 adapted from Willem and Buelens (2007, 2009); 1 = strongly disagree, 5 = strongly agree	
• Cross-functional teams composed of workers from marketing and other departments are set up to allow for cooperation and joint decision-making in my company	0.78
• In my company, task forces (project teams) are set up to facilitate collaboration between marketing and other departments.	0.85
• In my company, information and experiences are often shared in meetings or during teamwork	0.85
• The person responsible for the cooperative activities is authorized to make all the necessary agreements with the other departments in order to facilitate cooperation	0.81
Informal networking, AVE = 0.64, CR = 0.87 adapted from Willem and Buelens (2007, 2009); 1 = strongly disagree, 5 = strongly agree	
• In my company, we coordinate the activities with the other departments informally via personal contacts	0.86
• In my company, we confer directly with our personal contacts without consulting our supervisors	0.70
• In my company, we contact directly the colleagues who know well in the other departments when we need information	0.66
• In my company, cooperation with the other departments is based on personal contacts in that department	0.95
Shared vision, AVE = 0.77, CR = 0.93 adapted from Calantone et al. (2002); 1 = strongly disagree, 5 = strongly agree	
• There is a commonality of purpose between departments in my company	0.82
• There is total agreement on our organizational vision across all departments in my company	0.91
• All workers are committed to the goals of my company	0.92
• Workers view themselves as partners in charting the direction of my company	0.86
Cross-functional competition, AVE = 0.66, CR = 0.91 adapted from Luo et al. (2006); 1 = strongly disagree, 5 = strongly agree	
• Overall, marketing and other departments regularly compete for resources	0.73
• When people from different departments such as finance, marketing and production discuss about distribution of resources among their departments, tensions frequently occur	0.81
• Marketing and other departments tried to gain more strategic power during cross-functional projects	0.80
• Marketing and other departments regularly compete with each other for more attention from top executives	0.88
• Protecting one's departmental turf seemed to be a way of life by people from marketing and other departments	0.84
Cross-functional knowledge sharing, AVE = 0.67, CR = 0.89 adapted from Calantone et al. (2002); 1 = strongly disagree, 5 = strongly agree	
• In my company, there is a good deal of organizational conversation that keeps alive the lessons learned from history	0.77
• In my company, marketing and other departments always analyze unsuccessful organizational endeavors and communicate the lessons learned widely	0.87
• In my company, we have specific mechanisms for sharing lessons learned in organizational activities between marketing and other departments	0.83
• Top management repeatedly emphasizes the importance of knowledge sharing between marketing and other departments	0.81
Organizational innovativeness, AVE = 0.71, CR = 0.91 adapted from Calantone et al. (2002); 1 = strongly disagree, 5 = strongly agree	
• My company frequently tries out new ideas	0.89
• My company seeks out new ways to do things	0.89
• My company is creative in its methods of operation	0.89
• My company is often the first to market with new products and services	0.69
Power distance, AVE = 0.60, CR = 0.82 adapted from Zhang and Begley (2011); 1 = strongly disagree, 5 = strongly agree	
• In my company, people at lower levels carry out the requests of people at higher levels without questions	0.66
• Once a top-level executive makes a decision, people working for my company should not question it	0.93
• In work-related matters, managers have a right to expect obedience from their subordinates	0.71
Firm performance, AVE = 0.79, CR = 0.95 adapted from Calantone et al. (2002); 1 = poor; 5 = excellent	
• Return on investment (ROI)	0.90
• Return on sales (ROS)	0.91
• Sales growth	0.83
• Return on assets (ROA)	0.91
• Overall profitability	0.89

Notes: AVE = average variance extracted; CR = composite reliability.

marketing research is not uncommon (Petrescu, 2013). Prior research recommends the use of single-item indicators when multiple items cannot be obtained and they should be non-behavioral and non-attitude such as demographics and concrete variables (e.g. firm ownership) (see Petrescu, 2013).

The translation of the questionnaire into Vietnamese used conventional methods: A draft of the English version was presented to three industry professionals with experience in cross-functional knowledge sharing. The revised questionnaire was translated into Vietnamese according to the process suggested by Brislin (1970). Then the revised Vietnamese version (forward translation) was pretested for a second time by three managers and two academics, to ensure questionnaire competency in terms of understandability, structure, and configuration. Some minor adjustments followed, without affecting the meaning of the questionnaire items.

3.3. Common method bias

To assess the threat of common-method bias, we used non-statistical and statistical remedies suggested by Podsakoff, MacKenzie, Lee, and

Podsakoff (2003). We employed a number of procedural remedies to reduce potential ambiguities and bias and minimize self-generated validity before launching the questionnaire. For example, we kept the items simple, specific, and concise, and avoided double-barreled questions as well as ambiguous or unfamiliar terms. By doing so, we aimed at reducing the probability that respondents may develop their own systematic response tendencies. We also randomly interspersed items throughout the survey to minimize self-report validity, which may inflate the correlations between constructs. With respect to statistical remedies, first, we conducted a Harman's single factor test (Lindell & Whitney, 2001) to assess the common method bias. The first factor accounted for 28% of the 69% variance explained, suggesting that common method variance is not problematic. Second, we applied the marker variable technique (Malhotra, Kim, & Patil, 2006), with "informal networking" as a marker variable, due to its low correlation of 0.13 with the dependent variable. The average absolute correlation between informal networking and all other constructs in our model was 0.13 (r_m) ($p = 0.23$). The average difference between correlations among all constructs in the model, after partialing out the effect of r_m was 0.11, in support of the claim that common method bias is minimal.

Table 2
Construct means, standard deviations, and correlations.

Research constructs	Mean	SD	1	2	3	4	5	6	7	8
1. Formalization	5.17	1.60	0.75							
2. Lateral relations	5.15	1.50	0.35**	0.82						
3. Informal networking	3.83	1.71	(0.16)**	(0.19)**	0.80					
4. Shared vision	5.42	1.30	0.41**	0.46**	(0.24)**	0.88				
5. Cross-functional competition	3.50	1.72	(0.06)	(0.11)*	(0.11)*	(0.01)	0.81			
6. Cross-functional knowledge sharing	4.36	1.53	0.28**	0.52**	(0.12)*	0.55**	(0.23)**	0.82		
7. Organizational innovativeness	5.02	1.42	0.27**	0.47**	(0.11)*	0.47**	(0.16)**	0.57**	0.84	
8. Firm performance	3.48	0.87	(0.19)**	0.46**	(0.12)*	0.50**	(0.19)**	0.55**	0.76**	0.89

Notes: In each cell, the first value indicates the correlation between variables (off-diagonal), and the second value is the HTMT ratio. The square root of the average variance extracted is in bold on the diagonal.

* Correlation significant at the 0.05 level (two-tailed *t*-test).

** Correlation is significant at the 0.01 level (two-tailed *t*-test).

Third, with a sensitivity analysis, we applied more stringent r_m values at the 95th and 99th upper confidence intervals. At least 10 inter-correlations remained significant at the 99th upper confidence r_m , providing strong evidence of a lack of common method bias.

4. Analysis and results

We employed partial least squares (PLS) structural equation modeling (SEM) in SmartPLS 3.0 to analyze the data; PLS-SEM is recommended for complex models with many variables and hypotheses but smaller sample size (Hair, Ringle, & Sarstedt, 2011). Our complex theoretical model consists of both moderating and mediating hypotheses and a relatively small sample size of 224 responses. PLS-SEM enables researchers to analyze the measurement model simultaneously with the structural model and allows for a flexible handling of more advanced model elements such as moderator and mediator variables. In addition, our sample size is adequate according to the often-cited rule of thumb for robust PLS-SEM estimations, which suggests using a minimum sample size of ten times the maximum number of path relationships directed at any construct in the outer model and inner model (Barclay, Higgins, & Thompson, 1995). Given the complexity of the model, the relatively small sample size, and presence of mediational effects, PLS-SEM is our method of choice.

4.1. Measurement model

As Table 1 indicates, the factor loadings of the focal constructs ranged from 0.52 to 0.96 and were above the threshold of 0.50 (Hulland, 1999). Composite reliabilities for all constructs ranged between 0.79 and 0.95. According to the results in Table 2, the square roots of the average variances extracted for each construct (0.75 to 0.89) are higher than the correlation coefficient between pairs of distinct constructs, except for performance–innovation (0.76). These results indicate that convergent validity and discriminant validity are satisfactory. Next, we calculated the heterotrait-monotrait (HTMT) measure to ensure discriminant validity (Henseler, Ringle, & Sarstedt, 2015). None of the HTMT ratios for the paired constructs was greater than 0.80, except for performance–innovation (HTMT ratio = 0.84; confidence interval: 0.78, 0.89). None of the confidence intervals of the HTMT ratios included 1, in further support of discriminant validity (Kline, 2015).

The goodness-of-fit index for the structural model demonstrated a marginal but acceptable value of 0.818. We further calculated the standardized root mean squared residual (SRMR) value of the structural

model, which was 0.05. The SRMR value was lower than the cut-off value of 0.08, indicating a good model fit (Henseler, Hubona, & Ray, 2016).

4.2. Hypothesis tests

4.2.1. Main effects

To test H1–H5,² we developed Model 1 (Table 3). Formalization ($b = -0.02$, $t = 0.36$) had no significant effect on cross-functional knowledge sharing; we cannot confirm H1. In transition economies such as Vietnam, several issues may hinder the effect of formalization on cross-functional knowledge sharing. For example, the rules, policies, and procedures adopted by many organizations in Vietnam are complicated, inconsistent, overlapping, and inefficient, due to the general lack of management skills, which is a major problem for Vietnamese business organizations (Bartram, Stanton, & Thomas, 2009). This skill gap in turn can cause conflict and confusion when departments coordinate, leading to diminished trust and cross-functional knowledge sharing. Informal rules and behaviors tend to dominate the workplace, even when formal approaches exist (Mai, Bilbard, & Som, 2009). For service companies, a formalized structure might not even be appropriate, because strict rules or procedures may restrict or constrain customer service (Ettlie & Rosenthal, 2011). In such situations, despite formal procedures to coordinate cross-functional knowledge sharing, employees may seek alternative, deviant solutions. Finally, formalization tends to induce bureaucracy, which may reduce or eliminate the need for communication to share knowledge, consistent with prior studies conducted in Asian countries (e.g. Willem & Buelens, 2007, 2009). For example, Chen and Huang (2007) found that in Taiwanese organizations with a low degree of formalization, in which work procedures were unstructured, workers had more flexibility regarding how to perform their tasks, so their social interactions were more frequent and intensive. These arguments likely apply to Vietnam as well.

Lateral relations ($b = 0.30$, $t = 4.26$) instead have a positive, significant effect on cross-functional knowledge sharing, in support of H2. The results are consistent with previous studies in Western countries

² We created an aggregated construct of coordination, which is a composite of four dimensions (i.e. formalization, informal networking, lateral relations, and share vision) and examined collective effect of the dimensions on cross-functional knowledge sharing (see Edwards, 2001; Rindskopf & Rose, 1988). We found a significant positive relationship between coordination and cross-functional knowledge sharing ($b = 0.56$, $t = 14.32$). With respect to disaggregated effects, we found that not all the coordination mechanisms influence knowledge sharing to the same extent.

Table 3
Structural equation parameter estimates (t-values).

	Endogenous variables				
	Model 1		Model 2		
	CFKS	PERF	CFKS	INNO	PERF
Independent variables					
FOR	− 0.02 (0.36)	–	− 0.02 (0.31)	–	–
LATERAL	0.30 ^c (4.26)	–	0.30 ^c (4.49)	–	–
INFOR	0.22 ^b (2.27)	–	0.22 ^b (2.22)	–	–
SHARE	0.41 ^c (5.91)	–	0.41 ^c (6.14)	–	–
COMPE	− 0.25 ^c (4.64)	–	− 0.25 ^c (4.45)	–	–
FOR × COMPE	0.02 (0.31)	–	0.02 (0.33)	–	–
LATERAL × COMPE	0.14 ^a (1.72)	–	0.14 ^a (1.81)	–	–
INFOR × COMPE	− 0.33 ^b (2.02)	–	− 0.33 ^c (2.05)	–	–
SHARE × COMPE	− 0.01 (0.19)	–	− 0.01 (0.19)	–	–
CFKS	–	0.56 ^c (12.66)	–	0.61 ^c (12.19)	0.16 ^c (2.94)
INNO	–	–	–	–	0.66 ^c (13.50)
Controls					
Power distance	− 0.08 (1.21)	–	− 0.08 (1.10)	–	–
Ownership	–	− 0.02 (0.39)	–	–	− 0.01 (0.15)
R-squared	0.50	0.31		0.37	0.59

Notes: FOR = formalization, LATERAL = lateral relations, INFOR = informal networking, SHARE = shared vision, COMPE = cross-functional competition; CFKS = cross-functional knowledge sharing, INNO = organizational innovativeness; PERF = firm performance.

a, b, c denote a significance at 10%, 5% and 1% respectively (2-tailed *t*-test).

(e.g. Ghoshal et al., 1994; Gupta & Govindarajan, 2000; Willem et al., 2006; Willem & Buelens, 2007). These studies suggest that lateral relations, in the form of taskforces, liaisons, meetings, or project teams, may create cross-functional interfaces that can resolve conflicts that arise from their different goals and needs. They also can reduce communication barriers between marketing and other departments (Moenaert & Souder, 1990), allowing the collaborative departments to coordinate their exchange of knowledge about best practices, technologies, processes, or markets (Mom, Van Den Bosch, & Volberda, 2009). According to these results, large firms should actively build their cross-functional interfaces to help various departments interact and share knowledge. Furthermore, in the particular context of Vietnam, the strong relationship of lateral relations with cross-functional knowledge sharing may reflect its collectivist culture, which tends to avoid conflict and prefer interpersonal relationships over project or cross-functional teams (Ng, Lee, & Cardona, 2012). It is difficult to persuade workers to participate in a team if they do not have good relationships with other members. When task forces, project teams, cross-functional meetings, or teamwork efforts coordinate different departments, strong personal relationships are required and expected, which in turn can lead to high-level trust, communication, and interactions among departments that enhances cross-functional knowledge sharing.

In Table 3, informal networking ($b = 0.22$, $t = 2.27$) has a positive and significant effect on cross-functional knowledge sharing, in support of H3. This finding is consistent with evidence that people tend to share knowledge with others with whom they have positive personal relationships and they perceive as “in-group” peers (Chow, Deng, & Ho, 2000; Yuan & Vogel, 2006). Positive personal relationships depend on informal networking, personal contacts, corporate social activities, and friendship networks that span department boundaries. In general, stronger informal networking leads to greater interdepartmental cross-functional knowledge sharing (Willem & Buelens, 2007). For example, Li and Chen (2012) find that developing informal networks through cross-functional picnics, athletic leagues, and recreational activities gives marketing and R&D representatives more opportunities to communicate, exchange their opinions, and address concerns or conflicts about new product development projects. Informal networks thus can help organizations reduce barriers between marketing and other departments, further increasing communication between these functions (Griffin & Hauser, 1996).

Shared vision ($b = 0.41$, $t = 5.91$) also has a positive, significant effect on cross-functional knowledge sharing, in support of H4. This finding is consistent with prior studies in developed countries (e.g. Mäkelä & Brewster, 2009; Persson, 2006). Shared vision, in the form of shared goals, resources, and mutual understanding, can help departments understand each other and reduce confusion or uncertainty about their task responsibilities (Kahn & Mentzer, 1998), as well as improving cross-functional knowledge sharing. In a collectivist culture such as Vietnam, individuals tend to put the interests of their organization above their private interests (Moorman & Blakely, 1995). With a shared vision, marketing and other departments benefit from their consistent understanding and can cooperate more effectively by sharing knowledge to help achieve the firm's collective goals.

4.2.2. Moderating effects

To test the moderating effects, we created interaction terms, after mean centering the moderating variable (cross-functional competition) and independent variables (formalization, lateral relations, informal networking, and shared visions), to mitigate potential multicollinearity (Aiken, West, & Reno, 1991). Model 1 in Table 2 shows that cross-functional competition has no significant moderating effects on the relationships of formalization ($b = 0.02$, $t = 0.31$) or shared vision ($b = -0.01$, $t = 0.19$) with cross-functional knowledge sharing, so we must reject H5a and H5d. In contrast, cross-functional competition strengthens the effect of lateral relations on cross-functional knowledge sharing ($b = 0.14$, $t = 1.72$) and weakens the effect of informal networking ($b = -0.33$, $t = 2.02$), in support of H5b and H5c. These contradictory moderating effects confirm prior studies that suggest cross-functional competition is a double-edged sword (Ruekert & Walker, 1987), with both positive and negative influences on cross-functional knowledge sharing between departments.

Overall, a higher level of cross-functional competition may furnish employees with greater motivation to discover the activities and plans of competing departments, to ensure that they are well prepared for the imminent internal competition (Tsai, 2002). Such motivation increases the knowledge exchange among departments as they coordinate with others, using lateral relations such as project or cross-functional teams and task forces. In contrast, when cross-functional competition increases, the positive effect of informal networking on cross-functional knowledge sharing decreases. Employees from different departments

may hesitate to share knowledge with others when their departments are competing, even if they feature strong personal relationships. In collectivist cultures, including Vietnam, this behavior can be powerful—not least because loyalty to the department and the well-being of colleagues are important. Hui and Triandis (1986) show that in collectivist cultures, when people feel that they belong to a group, they are less concerned about their own benefits. When departments compete, members try to restrict their shared knowledge, even with friends in competing departments.

4.2.3. Mediating effects

To test H6, we developed Model 2 (Table 3). Cross-functional knowledge sharing positively influences organizational innovativeness (Model 2, $b = 0.61$, $t = 12.19$), which positively influences firm performance (Model 2, $b = 0.66$, $t = 13.50$). In a comparison of Models 1 and 2, we find that the positive effect of cross-functional knowledge sharing on firm performance (Model 1, $b = 0.56$, $t = 12.66$) is weaker in Model 2 ($b = 0.16$, $t = 2.94$). Thus, organizational innovativeness partially mediates the relationship between cross-functional knowledge sharing and firm performance, in support of H6.

4.2.4. Robustness check

We tested whether the significant predictors of cross-functional knowledge sharing remained significant when we controlled for other potential predictors. First, we included power distance and foreign versus state ownership structure in our model; these variables did not influence either the direction or the significance of the other predictors (Table 3). Second, we considered whether a decentralized organizational structure ($b = 0.04$, $t = 0.70$) affected the proposed relationships. Employees who have the autonomy to perform various tasks with greater freedom and encouragement may be required to communicate more with employees from other departments. The significance of these proposed relationships did not change even after controlling for the two potential predictors of cross-functional knowledge sharing. Third, when we included organizational size as a potential predictor of organizational performance ($b = 0.001$, n.s.), the effects of cross-functional knowledge sharing and innovativeness remained significant. We measured firm size according to the amount of assets and number of employees. Overall, these robustness checks provide greater confidence in our proposed conceptual framework.

5. Discussion and implications

5.1. Theoretical implications

These findings contribute to extant literature in several ways. First, we extend research on cross-functional knowledge sharing by incorporating both intra-firm coordination mechanisms and cross-functional competition to capture the essence of cross-functional knowledge sharing. This timely contribution reflects the increasing attention devoted to cross-functional knowledge sharing between marketing and other departments (e.g. Luo et al., 2006). The resulting insights account for both formal and informal coordination mechanisms in the presence of cross-functional competition; in turn, they represent new knowledge regarding the relative strengths of different coordination mechanisms for fostering cross-functional knowledge sharing. The insights are helpful for organizations seeking to become more proactive in coordinating their competing departments to encourage cross-functional knowledge sharing. Furthermore, from a social capital theory perspective, which relates to the “goodwill available to individuals or groups” that has been generated through social relationships (Adler & Kwon, 2002, p. 23) or organizational networks of relationships (Inkpen & Tsang, 2005), our study connects multiple, dissimilar cross-functional coordination mechanisms to cross-functional knowledge sharing, in a context marked by competition between departments. The findings suggest that lateral relations, informal networking, and shared vision

are important determinants of cross-functional knowledge sharing between marketing and competing departments. These mechanisms also reflect the three dimensions of social capital (lateral relations are *structural*, shared vision is *cognitive*, and informal networking is *relational*), proposed as necessary conditions for facilitating cross-functional knowledge sharing in an intra-organizational network. The study results affirm social capital theory's ability to explain how coordination promotes cross-functional knowledge sharing across organizational departments. In so doing, it extends our understanding of cross-functional knowledge sharing through various coordination mechanisms.

Second, this study contributes to cooperation literature by citing the moderating role of cross-functional competition, through its complementarity with coordination mechanisms, to enhance cross-functional knowledge sharing among functional departments. Despite increasing work that highlights the importance of intra-firm cooperation, we know little about the complex interplay of coordination mechanisms and competition; insights for practitioners and marketing scholars are scarce (e.g., Ganguli, 2007; Padula & Dagnino, 2007). Enhancing cross-functional knowledge sharing based on intra-firm coordination mechanisms (i.e., lateral relations) is effective if cross-functional competition is high. Firms that house substantial internal competition but that want to encourage cross-functional knowledge sharing should find lateral relations useful; they can pay less attention to informal networking, formalization, or a shared vision. Our study is, to the best of our knowledge, the first to provide this potent insight.

Third, this study unpacks the cross-functional knowledge sharing–performance relationship by investigating organizational innovativeness as a missing link. Although prior research has addressed the effect of cross-functional knowledge sharing on firm performance, little is known about the mediating role of organizational innovativeness or its implications. In addressing this research void, we provide initial evidence of the benefit of cross-functional knowledge sharing for firm performance through organizational innovativeness. Our finding is a response to calls for empirical research to unpack the relationship between cross-functional knowledge sharing and firm performance; the mere implementation of cross-functional knowledge sharing may not be sufficient for improved performance (Haas & Hansen, 2005; Wang, Sharma, & Cao, 2016).

Fourth, this study examines the interrelationships of cross-functional knowledge sharing, coordination, and competition within organizations operating in a developing country - a setting that has received scant attention in prior research. Most studies of cross-functional knowledge sharing refer to developed economy contexts, without sufficient insights into the C-S-P link in diverse settings, especially collectivist transitional contexts such as Vietnam. At a time when multinational organizations increasingly turn their focus to operations in Asia (Eyring, Johnson, & Nair, 2011), and considering the critical distinctions between Asian and Western cultures that clearly influence business operations (Chow et al., 2000), an improved understanding of operational intricacies is vital for navigating cross-functional knowledge sharing in various contexts. Our findings improve understanding of knowledge management in developing countries by providing empirically validated insights into the effects of various coordination mechanisms on the knowledge that gets shared across competing departments in firms in Vietnam. Moreover, this study shows that cross-functional competition has a *positive* moderating effect on the link between lateral relations and cross-functional knowledge sharing, but it *negatively* moderates the association between informal networking and cross-functional knowledge sharing. These moderating effects are contradictory, in line with the notion that cross-functional competition can be a double-edged sword (Ruekert & Walker, 1987), in this case in an Asian business context.

5.2. Managerial implications

Our findings provide several managerial implications. First, this

study issues guidance regarding cross-functional knowledge sharing for large business organizations, in their efforts to improve organizational performance. The benefit of enhancing cross-functional knowledge sharing between marketing and other departments is evident; the findings show that an elevated level of cross-functional knowledge sharing improves organizational performance through organizational innovativeness.

Second, the results suggest that large business organizations need to manage cross-functional coordination to enhance cross-functional knowledge sharing between departments. Attention should focus on three cross-functional coordination mechanisms that significantly determine cross-functional knowledge sharing: lateral relations, informal networking, and shared vision. Lateral relations and shared vision in particular have greater value for cross-functional knowledge sharing. Large business organizations thus should configure their resources and efforts with a view to building strong, lateral linkage devices and cultivating a shared vision throughout the organization. For lateral relations, they can develop project teams that facilitate collaboration between marketing and other departments, encourage a culture of teamwork, and authorize persons to be responsible for cooperative activities. To encourage a shared vision, organizations should ensure that the goals of specific departments are aligned with the overall goals of the organization, that employees commit strongly to these goals, and that employees perceive themselves as partners for determining the organization's direction. These activities can promote knowledge dissemination between marketing and other departments.

Third, competition can stimulate performance, such as when cross-functional competition strengthens the effect of lateral relations on cross-functional knowledge sharing. Lateral relations serve to coordinate different departments, and managers should consider using competition as a tool to stimulate learning and increase the speed of cross-functional knowledge sharing. However, the benefits of cross-functional competition may be outweighed by related issues, such as the threat of diminished informal networking and less cross-functional knowledge sharing. The insights of the present study may help managers maintain a dynamic balance between contradictory interaction logics (Bengtsson, Wilson, Bengtsson, Eriksson, & Wincent, 2010) by providing practical insights regarding the effective management of cross-functional competition to promote cross-functional knowledge sharing and thus improved performance.

5.3. Limitations and research directions

This study has several limitations that should be noted when interpreting the findings. The cross-sectional design cannot account for the potential time lags in cause-and-effect relationships between cross-functional knowledge sharing and its associated outcomes (innovativeness and performance). Adopting a successful knowledge management strategy to promote cross-functional knowledge sharing between departments does not immediately lead to increased innovativeness, nor can implementing innovativeness strategies lead immediately to better business performance. A delayed lead time may be necessary for an organization to adapt culturally to these strategies, and the effects of such change may be observable only in the long term (Rodriguez Cano, Carrillat, & Jaramillo, 2004). A longitudinal research design would offer more suitable inferences about the causal relationships between cross-functional knowledge sharing and outcomes.

We also are limited in making inferences of causality from cross-sectional survey data. Cross-sectional survey data can test for correlations between variables but not always specify their causal directions (Rong & Wilkinson, 2011; Wiley, 2011). Using cross-sectional surveys to demonstrate cause-and-effect relationships between variables in a theoretical model can be problematic. For example, to be market- and innovation-oriented and outperform competitors likely requires cross-functional knowledge sharing and appropriate cross-functional coordination mechanisms, so these features actually might be outcomes of

organizational innovativeness. This alternative causal sequence should be examined in further research.

With our reliance on and adaptations of measurement scales from existing research, we begin with concepts introduced in developed, Western economies, which is a limitation because the scales may not adequately reflect the study constructs in our Vietnamese context and could lead to a measurement bias. This problem could be mitigated with qualitative studies to confirm the survey items. As Bagozzi and Heatherton (1994) recognize, with regard to newly identified models, some constructs are constrained by subsets of two-factor loadings. Three to four items per latent variable would be preferable (Hair, Black, Babin, & Anderson, 2010; Kline, 2015). Here again, a qualitative study would be beneficial to explore new measurement items for the study constructs in a Vietnamese context, to expand the measurement scales we applied herein. In terms of the reliability of the subjective firm performance scale, based on the respondents' perceptions, we acknowledge that job positions might bias these impressions. To mitigate this limitation, further research could use objective data to measure firm performance.

Finally, the generalizability of the results is limited; this study used data from a sample of large organizations in Vietnam. Further investigations involving samples from other emerging and transition economies in Asia, as well as companies of various sizes, would be beneficial to enhance the generalizability of the results.

References

- Adler, P. S., & Kwon, S.-W. (2002). Social capital: Prospects for a new concept. *Academy of Management Review*, 27(1), 17–40.
- Aiken, L. S., West, S. G., & Reno, R. R. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park: Sage Publications.
- Andrews, R. (2010). Organizational social capital, structure and performance. *Human Relations*, 63(5), 583–608.
- Ardichvili, A. (2008). Learning and knowledge sharing in virtual communities of practice: Motivators, barriers, and enablers. *Advances in Developing Human Resources*, 10(4), 541–554.
- Atuahene-Gima, K., & Evangelista, F. (2000). Cross-functional influence in new product development: An exploratory study of marketing and R&D perspectives. *Management Science*, 46(10), 1269–1284.
- Ayers, D., Dahlstrom, R., & Skinner, S. J. (1997). An exploratory investigation of organizational antecedents to new product success. *Journal of Marketing Research*, 34(1), 107–116.
- Bagozzi, R. P., & Heatherton, T. F. (1994). A general approach to representing multifaceted personality constructs: Application to state self-esteem. *Structural Equation Modeling: A Multidisciplinary Journal*, 1(1), 35–67.
- Baker, W., & Sinkula, J. (1999). The synergistic effect of market orientation and learning orientation on organizational performance. *Journal of the Academy of Marketing Science*, 27(4), 411–427.
- Barclay, D., Higgins, C., & Thompson, R. (1995). The partial least squares approach to causal modeling: Personal computer adoption. *Technology Studies*, 2(2), 285–309.
- Bartram, T., Stanton, P., & Thomas, K. (2009). Good morning Vietnam: New challenges for Hrm. *Management Research News*, 32(10), 891–904.
- Bengtsson, M., & Kock, S. (2000). "Cooperation" in business networks - to cooperate and compete simultaneously. *Industrial Marketing Management*, 29(5), 411–427.
- Bengtsson, M., Wilson, T., Bengtsson, M., Eriksson, J., & Wincent, J. (2010). Co-opetition dynamics—an outline for further inquiry. *Competitiveness Review: An International Business Journal*, 20(2), 194–214.
- Brandenburger, A. M., & Nalebuff, B. J. (1995). The right game: Use game theory to shape strategy. *Harvard Business Review*, 73(4), 57–71.
- Brettel, M., Heinemann, F., Engelen, A., & Neubauer, S. (2011). Cross-functional integration of R&D, marketing, and manufacturing in radical and incremental product innovations and its effects on project effectiveness and efficiency. *Journal of Product Innovation Management*, 28(2), 251–269.
- Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology*, 1(3), 185–216.
- Burt, R. S. (1995). *Structural Holes: The Social Structure of Competition*. Cambridge, MA: Harvard University Press.
- Calantone, R. J., Cavusgil, S. T., & Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance. *Industrial Marketing Management*, 31(6), 515–524.
- Cavusgil, S. T., Calantone, R. J., & Zhao, Y. (2003). Tacit knowledge transfer and firm innovation capability. *Journal of Business & Industrial Marketing*, 18(1), 6–21.
- Chen, C.-J., & Huang, J.-W. (2007). How organizational climate and structure affect knowledge management—The social interaction perspective. *International Journal of Information Management*, 27(2), 104–118.
- Child, J. (1973). Strategies of control and organizational behavior. *Administrative Science Quarterly*, 18(1), 1–17.
- Chow, C. W., Deng, F. J., & Ho, J. L. (2000). The openness of knowledge sharing within

- organizations: A comparative study of the United States and the People's Republic of China. *Journal of Management Accounting Research*, 12(1), 65–95.
- Clugston, M., Howell, J. P., & Dorfman, P. W. (2000). Does cultural socialization predict multiple bases and foci of commitment? *Journal of Management*, 26(1), 5–30.
- Cordon-Pozo, E., Garcia-Morales, V. J., & Aragon-Correa, J. A. (2006). Inter-departmental collaboration and new product development success: A study on the collaboration between marketing and R&D in Spanish high-technology firms. *International Journal of Technology Management*, 35(1–4), 52–79.
- Cross, R., Nohria, N., & Parker, A. (2002). Six myths about informal networks—And how to overcome them. *MIT Sloan Management Review*, 43(3), 67–75.
- Dahlstrom, R., & Ingram, R. (2003). Social networks and the adverse selection problem in agency relationships. *Journal of Business Research*, 56(9), 767–775.
- Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, 34(3), 555–590.
- Dawes, P. L., & Massey, G. R. (2005). Antecedents of conflict in marketing's cross-functional relationship with sales. *European Journal of Marketing*, 39(11/12), 1327–1344.
- Dougherty, D. (1992). Interpretive barriers to successful product innovation in large firms. *Organization Science*, 3(2), 179–202.
- Edwards, J. R. (2001). Multidimensional constructs in organizational behavior research: An integrative analytical framework. *Organizational Research Methods*, 4(2), 144–192.
- Ernst, H., Hoyer, W. D., & Rübsaamen, C. (2010). Sales, marketing, and research-and-development cooperation across new product development stages: Implications for success. *Journal of Marketing*, 74(5), 80–92.
- Ettlie, J. E., & Rosenthal, S. R. (2011). Service versus manufacturing innovation. *Journal of Product Innovation Management*, 28(2), 285–299.
- Evangelista, F., & Hau, L. N. (2009). Organizational context and knowledge acquisition in IJVs: An empirical study. *Journal of World Business*, 44(1), 63–73.
- Eyring, M. J., Johnson, M. W., & Nair, H. (2011). New Business Models in Emerging Markets. *Harvard Business Review*, 89(1/2), 88–95.
- Fernandez, A.-S., Le Roy, F., & Gnyawali, D. R. (2014). Sources and management of tension in co-opetition case evidence from telecommunications satellites manufacturing in Europe. *Industrial Marketing Management*, 43(2), 222–235.
- Ganguli, S. (2007). Coopetition models in the context of modern business. ICAFI. *Journal of Marketing Management*, 6(4), 6–16.
- Ghobadi, S., & D'Ambra, J. (2011). Coopetitive knowledge sharing: An analytical review of literature. *Electronic Journal of Knowledge Management*, 9(4), 307–317.
- Ghobadi, S., & D'Ambra, J. (2012). Knowledge sharing in cross-functional teams: A coopetitive model. *Journal of Knowledge Management*, 16(2), 285–301.
- Ghoshal, S., Korine, H., & Szulanski, G. (1994). Interunit communication in multinational corporations. *Management Science*, 40(1), 96–110.
- Gnyawali, D. R., Madhavan, R., He, J., & Bengtsson, M. (2016). The competition-cooperation paradox in inter-firm relationships: A conceptual framework. *Industrial Marketing Management*, 53, 7–18.
- González-Benito, Ó., & González-Benito, J. (2005). Cultural vs. operational market orientation and objective vs. Subjective performance: Perspective of production and operations. *Industrial Marketing Management*, 34(8), 797–829.
- Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, 78(6), 1360–1380.
- Granovetter, M. S. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, 91(3), 481–510.
- Griesinger, D. W. (1990). The human side of economic organization. *Academy of Management Review*, 15(3), 478–499.
- Griffin, A., & Hauser, J. R. (1992). Patterns of communication among marketing, engineering and manufacturing - a comparison between two new product teams. *Management Science*, 38(3), 360–373.
- Griffin, A., & Hauser, J. R. (1996). Integrating R&D and marketing: A review and analysis of the literature. *Journal of Product Innovation Management*, 13(3), 191–215.
- GSO (2016). *Business results of Vietnamese Enterprises in the Period 2010–2014*. Statistical Publishing House.
- Gulati, R. (1998). Alliances and networks. *Strategic Management Journal*, 19(4), 293–317.
- Gupta, A. K., & Govindarajan, V. (2000). Knowledge flows within multinational corporations. *Strategic Management Journal*, 21(4), 473–496.
- Haas, M. R., & Hansen, M. T. (2005). When using knowledge can hurt performance: The value of organizational capabilities in a management consulting company. *Strategic Management Journal*, 26(1), 1–24.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). New Jersey: Pearson Prentice Hall.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139–152.
- Hansen, M. T. (1999). The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits. *Administrative Science Quarterly*, 44(1), 82–111.
- Hansen, M. T. (2002). Knowledge networks: Explaining effective knowledge sharing in multiunit companies. *Organization Science*, 13(3), 232–248.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2013). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135.
- Henseler, J., Hubona, G., & Ray, A. (2016). Using PLS path modeling in new technology research: Updated guidelines. *Industrial Management & Data Systems*, 116(1), 2–20.
- Hill, C. W. L. (1990). Cooperation, opportunism, and the invisible hand: Implications for transaction cost theory. *Academy of Management Review*, 15(3), 500–513.
- Hofstede, G. H. (1980). *Culture's consequences: International differences in WORK-RELATED values*. Beverly Hills, Calif.: Sage Publications.
- Houston, M. B., Walker, B. A., Hutt, M. D., & Reingen, P. H. (2001). Cross-unit competition for a market charter: The enduring influence of structure. *Journal of Marketing*, 65(2), 19–34.
- Hsu, I.-C. (2008). Knowledge sharing practices as a facilitating factor for improving organizational performance through human capital: A preliminary test. *Expert Systems with Applications*, 35(3), 1316–1326.
- Hui, C. H., & Triandis, H. C. (1986). Individualism-collectivism a study of cross-cultural researchers. *Journal of Cross-Cultural Psychology*, 17(2), 225–248.
- Hui, M. K., Au, K., & Fock, H. (2004). Empowerment effects across cultures. *Journal of International Business Studies*, 35(1), 46–60.
- 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.
- Hult, G. T. M., Hurley, R. F., & Knight, G. A. (2004). Innovativeness: Its antecedents and impact on business performance. *Industrial Marketing Management*, 33(5), 429–438.
- Hurley, A. E., Scandura, T. A., Schriesheim, C. A., Brannick, M. T., Seers, A., Vandenberg, R. J., & Williams, L. J. (1997). Exploratory and confirmatory factor analysis: Guidelines, issues, and alternatives. *Journal of Organizational Behavior*, 18(6), 667–683.
- Hutt, M. D., Walker, B. A., & Frankwick, G. L. (1995). Hurdle the cross-functional barriers to strategic change. *Sloan Management Review*, 36(3), 22–30.
- IMF (2016). *List of countries by projected GDP growth*.
- Inkpen, A. C., & Tsang, E. W. K. (2005). Social capital, networks, and knowledge transfer. *Academy of Management Review*, 30(1), 146–165.
- Jansen, J. J. P., Van Den Bosch, F. A. J., & Volberda, H. W. (2005). Managing potential and realized absorptive capacity: How do organizational antecedents matter? *Academy of Management Journal*, 48(6), 999–1015.
- Jaworski, B. J., & Kohli, A. K. (1993). Market orientation: Antecedents and consequences. *Journal of Marketing*, 57(3), 53–70.
- Kahn, K. B., & Mentzer, J. T. (1998). Marketing's integration with other departments. *Journal of Business Research*, 42(1), 53–62.
- Ketchen, D. J., Hult, G. T. M., & Slater, S. F. (2007). Toward greater understanding of market orientation and the resource-based view. *Strategic Management Journal*, 28(9), 961–964.
- Kline, R. B. (2015). *Principles and practice of structural equation modeling* (4th ed.). New York: Guilford Publications.
- Kuan Yew, W., & Aspinwall, E. (2004). Characterizing knowledge management in the small business environment. *Journal of Knowledge Management*, 8(3), 44–61.
- Law, C. C., & Ngai, E. W. (2008). An empirical study of the effects of knowledge sharing and learning behaviors on firm performance. *Expert Systems with Applications*, 34(4), 2342–2349.
- Lawson, B., Petersen, K. J., Cousins, P. D., & Handfield, R. B. (2009). Knowledge sharing in interorganizational product development teams: The effect of formal and informal socialization mechanisms. *Journal of Product Innovation Management*, 26(2), 156–172.
- Lee, M. R., & Lan, Y.-C. (2010). Knowledge management and innovation performance in SMEs. *Journal of Informatics and Regional Studies*, 2(1), 3–15.
- Leenders, M. A. A. M., & Wierenga, B. (2002). The effectiveness of different mechanisms for integrating marketing and R&D. *Journal of Product Innovation Management*, 19(4), 305–317.
- Li, L. (2005). The effects of trust and shared vision on inward knowledge transfer in Subsidiaries' intra- and inter-organizational relationships. *International Business Review*, 14(1), 77–95.
- Li, T., & Calantone, R. J. (1998). The impact of market knowledge competence on new product advantage: Conceptualization and empirical examination. *Journal of Marketing*, 62(4), 13–29.
- Li, P.-C., & Chen, Y.-C. (2012). How does social orientation influence R&D-marketing collaboration? *Asia Pacific Journal of Management*, 29, 151–168.
- Liker, J. K., Collins, P. D., & Hull, F. M. (1999). Flexibility and standardization: Test of a contingency model of product design - manufacturing integration. *Journal of Product Innovation Management*, 16(3), 248–267.
- Lin, H.-F. (2007). Knowledge sharing and firm innovation capability: An empirical study. *International Journal of Manpower*, 28(3/4), 315–332.
- Lindell, M. K., & Whitney, D. J. (2001). Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology*, 86(1), 114–121.
- Luo, X., & Hassan, M. (2009). The role of top management networks for market knowledge creation and sharing in China. *Journal of Business Research*, 62(10), 1020–1026.
- Luo, X., Slotegraaf, R. J., & Pan, X. (2006). Cross-functional “coopetition”: The simultaneous role of cooperation and competition within firms. *Journal of Marketing*, 70(2), 67–80.
- Mai, A., Bilbard, L., & Som, A. (2009). Conducting business in Vietnam: A brief for international managers. *Global Business and Organizational Excellence*, 28(3), 55–78.
- Mäkelä, K., & Brewster, C. (2009). Interunit interaction contexts, interpersonal social capital, and the differing levels of knowledge sharing. *Human Resource Management*, 48(4), 591–613.
- Malhotra, N. K., Kim, S. S., & Patil, A. (2006). Common method variance in is research: A comparison of alternative approaches and a reanalysis of past research. *Management Science*, 52(12), 1865–1883.
- Maltz, E., & Kohli, A. K. (1996). Market intelligence dissemination across functional boundaries. *Journal of Marketing Research*, 33(1), 47–61.
- Maltz, E., & Kohli, A. K. (2000). Reducing marketing's conflict with other functions: The differential effects of integrating mechanisms. *Journal of the Academy of Marketing Science*, 28(4), 479–492.
- Maltz, E., Souder, W. E., & Kumar, A. (2001). Influencing R&D/marketing integration and the use of market information by R&D managers: Intended and unintended effects of managerial actions. *Journal of Business Research*, 52(1), 69–82.
- Martinez, J. I., & Jarillo, J. C. (1989). The evolution of research on coordination mechanisms in multinational corporations. *Journal of International Business Studies*, 20(3), 489–514.
- Massey, G. R., & Dawes, P. L. (2007). The antecedents and consequence of functional and

- dysfunctional conflict between marketing managers and sales managers. *Industrial Marketing Management*, 36(8), 1118–1129.
- Massey, G. R., & Kyriazis, E. (2007). Interpersonal trust between marketing and R&D during new product development projects. *European Journal of Marketing*, 41(9/10), 1146–1172.
- McAdam, R., & Reid, R. (2001). SME and large organisation perceptions of knowledge management: Comparisons and contrasts. *Journal of Knowledge Management*, 5(3), 231–241.
- Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological Methods*, 17(3), 437–455.
- Menon, A., Bharadwaj, S. G., Adidam, P. T., & Edison, S. W. (1999). Antecedents and consequences of marketing strategy making: A model and a test. *Journal of Marketing*, 63(2), 18–40.
- Michailova, S., & Hutchings, K. (2006). National cultural influences on knowledge sharing: A comparison of China and Russia. *Journal of Management Studies*, 43(3), 383–405.
- Moenaert, R. K., & Souder, W. E. (1990). An information transfer model for integrating marketing and R&D personnel in new product development projects. *Journal of Product Innovation Management*, 7(2), 91–107.
- Mom, T. J., Van Den Bosch, F. A., & Volberda, H. W. (2009). Understanding variation in managers' ambidexterity: Investigating direct and interaction effects of formal structural and personal coordination mechanisms. *Organization Science*, 20(4), 812–828.
- Monteiro, L. F., Arvidsson, N., & Birkinshaw, J. (2008). Knowledge flows within multinational corporations: Explaining subsidiary isolation and its performance implications. *Organization Science*, 19(1), 90–107.
- Moorman, R. H., & Blakely, G. L. (1995). Individualism-collectivism as an individual difference predictor of organizational citizenship behavior. *Journal of Organizational Behavior*, 16(2), 127–142.
- Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23(2), 242–266.
- Narver, J. C., & Slater, S. F. (1990). The effect of a market orientation on business profitability. *Journal of Marketing*, 54(4), 20–35.
- Ng, I., Lee, Y.-T., & Cardona, P. (2012). Building teams in Chinese organizations. In X. Huang, & M. H. Bond (Eds.). *Handbook of Chinese organizational behavior: Integrating theory, research and practice* (pp. 236–257). UK: Edward Elgar Publishing.
- Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5(1), 14–37.
- Nonaka, I., & Takeuchi, H. (1995). The knowledge-creating company: How Japanese companies create the dynamics of innovation. *Harvard Business Review*, 69(6), 96–104.
- Olavarrieta, S., & Friedmann, R. (2008). Market orientation, knowledge-related resources and firm performance. *Journal of Business Research*, 61(6), 623–630.
- O'Rourke, N., & Hatcher, L. (2013). *A step-by-step approach to using SAS for factor analysis and structural equation modeling*. SAS Institute.
- Padula, G., & Dagnino, G. B. (2007). Untangling the rise of coopetition. *International Studies of Management & Organization*, 37(2), 32–52.
- Park, M. H.-J., Lim, J. W., & Birnbaum-More, P. H. (2009). The effect of multiknowledge individuals on performance in cross-functional new product development teams. *Journal of Product Innovation Management*, 26(1), 86–96.
- Peng, M. W., & Luo, Y. (2000). Managerial ties and firm performance in a transition economy: The nature of a micro-macro link. *Academy of Management Journal*, 43(3), 486–501.
- Persson, M. (2006). The impact of operational structure, lateral integrative mechanisms and control mechanisms on intra-MNE knowledge transfer. *International Business Review*, 15(5), 547–569.
- Pertusa-Ortega, E. M., Zaragoza-Sáez, P., & Claver-Cortés, E. (2010). Can formalization, complexity, and centralization influence knowledge performance? *Journal of Business Research*, 63(3), 310–320.
- Petrescu, M. (2013). Marketing research using single-item indicators in structural equation models. *Journal of Marketing Analytics*, 1(2), 99–117.
- Piercy, N. (2010). Improving marketing-operations cross-functional relationships. *Journal of Strategic Marketing*, 18(4), 337–356.
- Pinto, M. B., Pinto, J. K., & Prescott, J. E. (1993). Antecedents and consequences of project team cross-functional cooperation. *Management Science*, 39(10), 1281–1297.
- Pitt, M. A., Myung, I. J., & Zhang, S. (2002). Toward a method of selecting among computational models of cognition. *Psychological Review*, 109(3), 472–491.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903.
- Preacher, K. J. (2006). Quantifying parsimony in structural equation modeling. *Multivariate Behavioral Research*, 41(3), 227–259.
- PwC (2016). *Doing business in Vietnam 2016* (5th ed.). Vietnam: PricewaterhouseCoopers (Vietnam) Ltd.
- Quintana-García, C., & Benavides-Velasco, C. A. (2004). Cooperation, competition, and innovative capability: A panel data of European dedicated biotechnology firms. *Technovation*, 24(12), 927–938.
- Raza-Ullah, T., Bengtsson, M., & Kock, S. (2014). The coopetition paradox and tension in coopetition at multiple levels. *Industrial Marketing Management*, 43(2), 189–198.
- Reagans, R., & McEvily, B. (2003). Network structure and knowledge transfer: The effects of cohesion and range. *Administrative Science Quarterly*, 48(2), 240–267.
- Rindfleisch, A., & Moorman, C. (2001). The acquisition and utilization of information in new product alliances: A strength-of-ties perspective. *Journal of Marketing*, 65(2), 1–18.
- Rindskopf, D., & Rose, T. (1988). Some theory and applications of confirmatory second-order factor analysis. *Multivariate Behavioral Research*, 23(1), 51–67.
- Rodriguez Cano, C., Carrillat, F. A., & Jaramillo, F. (2004). A meta-analysis of the relationship between market orientation and business performance: Evidence from five continents. *International Journal of Research in Marketing*, 21(2), 179–200.
- Rogers, E. M. (1995). *Diffusion of innovations*. Free Press.
- Rong, B., & Wilkinson, I. F. (2011). What do Managers' survey responses mean and what affects them? The case of market orientation and firm performance. *Australasian Marketing Journal*, 19(3), 137–147.
- Ruekert, R. W., & Walker, O. C. (1987). Marketing's interaction with other functional units: A conceptual framework and empirical evidence. *Journal of Marketing*, 51(1), 1–19.
- Sagie, A., & Aycan, Z. (2003). A cross-cultural analysis of participative decision-making in organizations. *Human Relations*, 56(4), 453–473.
- Salomo, S., Talke, K., & Strecker, N. (2008). Innovation field orientation and its effect on innovativeness and firm performance. *Journal of Product Innovation Management*, 25(6), 560–576.
- Sandvik, I. L., & Sandvik, K. (2003). The impact of market orientation on product innovativeness and business performance. *International Journal of Research in Marketing*, 20(4), 355–376.
- Serenko, A., Bontis, N., & Hardie, T. (2007). Organizational size and knowledge flow: A proposed theoretical link. *Journal of Intellectual Capital*, 8(4), 610–627.
- Shih, M.-H., Tsai, H.-T., Wu, C.-C., & Lu, C.-H. (2006). A holistic knowledge sharing framework in high-tech firms: Game and co-Operation perspectives. *International Journal of Technology Management*, 36(4), 354–367.
- Shultz, C. J. (2012). Vietnam: Political economy, marketing system. *Journal of Macromarketing*, 32(1), 7–17.
- Sivadas, E., & Dwyer, F. R. (2000). An examination of organizational factors influencing new product success in internal and alliance-based processes. *Journal of Marketing*, 64(1), 31–49.
- Song, M., & Parry, M. (1993). R&D-marketing integration in Japanese high-technology firms: Hypotheses and empirical evidence. *Journal of the Academy of Marketing Science*, 21(2), 125–133.
- Strese, S., Meuer, M. W., Flatten, T. C., & Brettel, M. (2016). Examining cross-functional coopetition as a driver of organizational ambidexterity. *Industrial Marketing Management*, 57, 40–52.
- Tagliaventi, M. R., Bertolotti, F., & Macri, D. M. (2010). A perspective on practice in interunit knowledge sharing. *European Management Journal*, 28(5), 331–345.
- Tsai, W. (2001). Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance. *Academy of Management Journal*, 44(5), 996–1004.
- Tsai, W. (2002). Social structure of “coopetition” within a multiunit organization: Coordination, competition, and Intraorganizational knowledge sharing. *Organization Science*, 13(2), 179–190.
- Tsai, W., & Ghoshal, S. (1998). Social capital and value creation: The role of intrafirm networks. *Academy of Management Journal*, 41(4), 464–476.
- Uzzi, B. (1997). Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 42(1), 35–67.
- Uzzi, B. (1999). Embeddedness in the making of financial capital: How social relations and networks benefit firms seeking financing. *American Sociological Review*, 64(4), 481–505.
- Van der Meer-Kooistra, J., & Scapens, R. W. (2008). The governance of lateral relations between and within organisations. *Management Accounting Research*, 19(4), 365–384.
- VCCI (2016). *Vietnam business annual report 2015*. Vietnam: Vietnam Chamber of Commerce and Industry.
- Vietnamese-Government (2009). *56 ND/CP- on assistance to the development of small- and medium-sized enterprises*. Hanoi: Economica Vietnam.
- Walley, K. (2007). Coopetition. *International Studies of Management & Organization*, 37(2), 11–31.
- Walton, R. E., & Dutton, J. M. (1969). The management of interdepartmental conflict: A model and review. *Administrative Science Quarterly*, 14(1), 73–84.
- Wang, Z., Wang, N., & Liang, H. (2014). Knowledge sharing, intellectual capital and firm performance. *Management Decision*, 52(2), 230–258.
- Wang, Z., Sharma, P. N., & Cao, J. (2016). From knowledge sharing to firm performance: A predictive model comparison. *Journal of Business Research*, 69(10), 4650–4658.
- van Wijk, R., Jansen, J. J. P., & Lyles, M. A. (2008). Inter- and intra-organizational knowledge transfer: A meta-analytic review and assessment of its antecedents and consequences. *Journal of Management Studies*, 45(4), 830–853.
- Wiley, J. B. (2011). Issues in theory testing using structural equation modeling: Causation and ontological status of models and constructs. *Australasian Marketing Journal*, 19(3), 151–152.
- Willem, A., & Buelens, M. (2007). Knowledge sharing in public sector organizations: The effect of organizational characteristics on interdepartmental knowledge sharing. *Journal of Public Administration Research & Theory*, 17(4), 581–606.
- Willem, A., & Buelens, M. (2009). Knowledge sharing in inter-unit cooperative episodes: The impact of organizational structure dimensions. *International Journal of Information Management*, 29(2), 151–160.
- Willem, A., Buelens, M., & Scarbrough, H. (2006). The role of inter-unit coordination mechanisms in knowledge sharing: A case study of a British MNC. *Journal of Information Science*, 32(6), 539–561.
- Yuan, M., & Vogel, D. (2006). Cultural impact on intergroup coordination in software development in China: A qualitative analysis. *Paper presented at the system sciences, 2006. HICSS'06. Proceedings of the 39th Annual Hawaii International Conference on System Sciences*.
- Zhang, Y., & Begley, T. M. (2011). Power distance and its moderating impact on empowerment and team participation. *International Journal of Human Resource Management*, 22(17), 3601–3617.