Asia Pacific Management Review xxx (xxxx) xxx

HOSTED BY

Contents lists available at ScienceDirect

Asia Pacific Management Review

journal homepage: www.elsevier.com/locate/apmrv

External and internal capabilities and organizational performance: Does intellectual capital matter?

Chao-Chin Huang [a], Shyh-Ming Huang [b, *]

[a] Department of Agribusiness Management, College of Management, National Pingtung University of Science and Technology, Pingtung, 91201, Taiwan, ROC
[b] Department of Marketing and Logistics Management, Southern Taiwan University of Science and Technology, Tainan City, 710, Taiwan, ROC

ARTICLE INFO

Article history:
Received 5 October 2018
Received in revised form
2 November 2019
Accepted 6 December 2019
Available online xxx

Keywords:
Intellectual capital
Organizational capability
Organizational performance
Knowledge-based view
Relationship-based view
Competence-based view

ABSTRACT

While prior research examines how firms' specific capabilities achieve organizational performance, few studies take a holistic perspective. In this study, we adopt a holistic model to examine how different capabilities actually account for organizational performance. We also consider how intellectual capital mediates the relationships between organizational capabilities and performance. We conducted a questionnaire survey involving 167 managers in the Taiwan Transportation Vehicle.

Manufacturers Association (TVMA). Using the structural equation modelling (SEM) based on partial least squares (PLS), we find that market knowledge, relationship and innovative capabilities, have positive effects on intellectual capital, while customer knowledge capabilities have no significant effects. Intellectual capital partially mediates the relationships between organizational capabilities and organizational performance. We contribute to the literature on organizational capabilities, by demonstrating the mediating effects of intellectual capital on the relationships between organizational capability, both in its external and internal dimensions, and organizational performance, as well as suggest to firms aiming to enhance organizational performance, particularly those in the transportation industry.

1. Introduction

Survival in the complexity of today's business environment demands multiple capabilities; such as those to handle market and customer knowledge and, relationship and innovation. While these static capabilities are important, dynamic capabilities are equally, if not more, important (Dyer & Singh, 1998; Garcia-Murillo & Annabi, 2002; Gummesson, 2002; Hooley, Greenley, Cadogan, & Fahy, 2004; Kianto, Ritala, Spender, & Vanhala, 2014; Roberts, Varki, & Brodie, 2003; Ramadan, Dahiyat, Bontis, & Al-Dalahmeh, 2017; Tamer Cavusgil, Calantone, & Zhao, 2003; Teece, Pisano, & Shuen, 1997; Wang, Wang, & Liang, 2014; Wang, Sharma, & Cao, 2016). Both static and dynamic capabilities are equally important in achieving organizational performance.

The extant literature tends to look at the relationships between each specific capability, e.g., market and customer knowledge, relationship and innovation, and firms' overall performance. This means that a holistic model of how these different types of capabilities influence firms' performance is under-explored (Kianto et al., 2014; Ngah, Tai, & Bontis, 2016; Ramadan et al., 2017; Wang et al., 2014, 2016). This study addresses this gap by proposing an innovative model to examine how these capabilities influence organizational performance.

Furthermore, the perspectives of each theory (the knowledge-based view (KBV), the relationship-based view (RBV), and the competence-based view (CBV) tend to dominate and so it is not clear how these capabilities act together to influence firms' organizational performance, namely, the mediator functions between these capabilities and organizational performance (Dyer & Singh, 1998; Gummesson, 2002; Morgan & Hunt, 1999; Nonaka & Takeuchi, 1995; Roberts et al., 2003; Tamer Cavusgil et al., 2003). Few, if any studies, examine the intermediate mechanism that operates between all these capabilities and firms' performance. In this study we develop the extant literature by considering how intellectual capital acts as a mediator between external and internal capabilities and firms' organizational performance.

* Corresponding author.
E-mail addresses: cchuang2019@mail.npust.edu.tw (C.-C. Huang), paulh@stust.edu.tw (S.-M. Huang).

Peer review under responsibility of College of Management, National Cheng Kung University.

https://doi.org/10.1016/j.apmrv.2019.12.001

Please cite this article as: Huang, C.-C., & Huang, S.-M., External and internal capabilities and organizational performance: Does intellectual capital matter?, Asia Pacific Management Review, https://doi.org/10.1016/j.apmrv.2019.12.001

The aims of this study are two-fold. First, to empirically test which organizational capabilities significantly influence firms' performance. Second, to test the mediating effects of intellectual capital on the relationships between these external and internal capabilities and organizational performance. This study answers two specific questions. First, what are the influences of organizational capabilities (i.e., market and customer knowledge, relationship, and innovation) on both intellectual capital and organizational performance? Second, does intellectual capital mediate on the relationships between the specified organizational capabilities and performance? In order to answer these research questions, we conducted a questionnaire survey on 167 managers in Taiwan's transportation industry. We find that market knowledge, relationship and innovative capabilities have positive effects on intellectual capital, while customer knowledge capabilities have no effects, and most importantly, intellectual capital mediates on the relationships between the organizational capabilities and firm performance.

We start by introducing the focal capabilities and relating outcomes (i.e., intellectual capital and organizational performance). Next, we develop hypotheses that elaborate how specific capabilities impact on outcomes. Then, we report our quantitative method and the results of our analysis from a sample of manufacturers, and end with a discussion followed by the theoretical and practical limitations of the work.

2. Literature review

2.1. Market knowledge capability

Market knowledge relates to information about customers, competitors and internal technology, and thus refers to either an internal or external perspective (Day, 1994; Li & Calantone, 1998; Martinez-Conesa, Soto-Acosta, & Carayannis, 2017; Jin, Shu, & Zhou, 2019; Moorman, 1995; Salunke, Weerawardena, & McColl-Kennedy, 2019; Mu, 2015). Li and Calantone (1998) define market knowledge capability as employees' understanding of market information (internal). While Day (1994) suggests it includes information relating not only to customers and competitors, but also to external markets, Moorman (1995) emphasizes the domain of networks and connected information. Recent studies also extend these well-developed definitions to relating constructs and dimensions; such as, market sensing, customer engaging, partner linking (Mu, 2015), market breadth and tacitness (Jin et al., 2019), and market integration capability (Salunke et al., 2019).This study draws on the work of Kohli and Jaworski (1990), to define market knowledge capability as the ability to acquire, create, diffuse, and accumulate market information, intelligence, and knowledge, particularly relating to customer, competitors, suppliers, industries and government.

2.2. Customer knowledge capability

Customer knowledge management refers to acquiring, managing and sharing customer knowledge (Garcia-Murillo & Annabi, 2002). Customer knowledge capability is embedded within customers and focuses on mutual interactions. Developing customer knowledge capability is critical for firms' performance (Garcia-Murillo & Annabi, 2002; Johansson, Raddats, & Witell, 2019; Menguc, Auh, & Uslu, 2013; Mithas, Krishnan, & Fornell, 2005; Nora, 2019). This study references Garcia-Murillo and Annabi's (2002) ideas to define customer knowledge capability as, the ability to efficiently acquire, exchange, share, diffuse, and accumulate customer knowledge. While customer knowledge capability previously was in a passive role (one-way exchange) it now plays a proactive and dominant role (interactive relationship).

2.3. Relationship capability

Relationship capability refers to the activities and skills a firm has, in order to build, develop and maintain relationships with their partners (Dwyer, Schurr, & Oh, 1987; Gummesson, 2002; Morgan & Hunt, 1994; Tzokas, Kim, Akbar, & Al-Dajani, 2015). The notion of relationship capability is very broad and so, for the purposes of this study, we refer to five particular dimensions: trust, satisfaction, commitment, joint actions, and interactive communication. Trust between partners facilitates improving mutual communications, and this lowers opportunistic behavior, as well as benefiting both parties in the long term (Andersen & Kumar, 2006; Dwyer et al., 1987; Morgan & Hunt, 1994; Sashi, 2012; Yang, Jiang, & Xie, 2019). Relationships are likely to be disrupted by low levels of trust (Das & Teng, 1998). Prior studies also emphasize the importance of both satisfaction and commitment in establishing relationships (Arli, Bauer, & Palmatier, 2018; Chumpitaz Caceres & Paparoidamis, 2007; Crosby, Evans, & Cowles, 1990; Ferro, Padin, Svensson, & Payan, 2016; Morgan & Hunt, 1994; Sashi, 2012). Joint action, a governance mechanism in relationships, might encourage parties to invest specific assets, in order to lower uncertainty risks, and to develop a longer-term partnership (Heide& John, 1990; Huang & Huang, 2019; Houston & Johnson, 2000; Johnston, Khalil, Jain, & Cheng, 2012; Zaheer & Venkatraman, 1995). Similarly, interactive communication between parties is an important driver in developing understanding of customer needs and building a longer-term relationship via knowledge sharing, which, in turn, creates a firm's competitive advantage (Chen, Li, & Arnold, 2013; de Ruyter, Moorman, & Lemmink, 2001; Morgan & Hunt, 1994; Murphy & Sashi, 2018; Nonaka, 1994; Schoenbachler &Gordon, 2002; Tamer Cavusgil et al., 2003). This study draws on these five important dimensions, that are well anchored in the literature, to measure relationship capability.

2.4. Innovation capability

Prior studies emphasize the importance of innovation capability in achieving organizational performance and competitive advantages (Higgins, 1995; Li & Calantone, 1998; Jayani Rajapathirana & Hui, 2018; Shin, He, & Kim, 2016; Tamer Cavusgil et al., 2003; Weerawardena & Mavondo, 2011; Yeşil and Doğan, 2019). Innovation capability is not easy to imitate and firms frequently use this capability to strengthen strategic activities; such as, lowering their manufacturing cost (Hooley et al., 2004). Innovation capability underlies the ability to offer value-added services to customers (Kandampully, 2002). This study draws on Nasution and Mavondo's (2008) notion of innovation capability as a process of generating new ideas, and incorporating into new products, processes and administrative procedures, in order to deliver superior customer values, related to competitors.

2.5. Intellectual capital

Saint-Onge (1996) defines intellectual capital as exercising tacit and explicit knowledge effectively. Bontis (1998) proposes three types of intellectual capital: human, structural, relationship. Human capital refers to knowledge, skills and experiences of

Please cite this article as: Huang, C.-C., & Huang, S.-M., External and internal capabilities and organizational performance: Does intellectual capital matter?, Asia Pacific Management Review, https://doi.org/10.1016/j.apmrv.2019.12.001

employees. Structural capital focuses on organizational efficiency. Relationship capital relates to cooperation with the external environments (Chen, Zhu, & Xie, 2004; Engström, Westnes, & Westnes, 2003). If a firm knows how to manage its intellectual capital then it can create value and maintain a competitive advantage (Allameh, 2018; Andreeva & Garanina, 2016; Asiaei & Jusoh, 2017; Chen et al., 2004; Engström et al., 2003; Hussinki, Ritala, Vanhala, & Kianto, 2017; Kianto, Sáenz, & Aramburu, 2017; Inkinen, 2015; Nahapiet & Ghoshal, 1998; Pedro, Leitão, & Alves, 2018; Sharabati, Naji Jawad, & Bontis, 2010; Stewart & Ruckdeschel, 1998; Zeghal & Maalou, 2010). With reference to these ideas, we define intellectual capital as those managing intangible and scarce assets, aiming to create firm's competitive advantages, in particular those involving human, structural and relationship perspectives. Specifically, this study defines human capital as, the knowledge, skills and experiences of employees', structural capital as, the procedures of value creation in a firm, and relationship capital as, the assets and relationships that a firm builds, develops and maintains with its customers and its suppliers.

2.6. Organizational performance

Organizational performance, a multidimensional construct, and cannot be measured by a single dimension (e.g., financial return). Prior studies, therefore, use a range of dimensions to measure organizational performance; such as, management and market performance, effectiveness and efficiency, subjective and objective performances, and corporate governance (Delaney & Huselid, 1996; González-Benito & González-Benito, 2005; Han, Kim, & Srivastava, 1998; Jiménez-Jiménez & Sanz-Valle, 2011; Richard, Devinney, Yip, & Johnson, 2009; Singh, Darwish, & Potočnik, 2016; Singh, Tabassum, Darwish, & Batsakis, 2018). The main purpose of this study is to test organizational capabilities on organizational performance. To this end, we adopt the subjective approach and definitions from Delaney and Huselid (1996) i.e., market knowledge, customer knowledge, relationship, and innovation.

3. Research model and hypotheses development

Our model draws on the rationale of the input-process-output (I–P–O) model (McGrath & Kelly, 1986). This theory is widely applied particularly in the system analysis of social, service, natural, computer, and human activity systems (Curry, Flett, & Hollingsworth, 2006; McGrath & Kelly, 1986: Maglio, Vargo, Caswell, & Spohrer, 2009). Inputs (I) include resources and capabilities (e.g., materials, money, human resources, or information) while processes(P) and outputs(O) might present in various forms (e.g., products, services, revenues, or profits). A firm might use its organizational capabilities (market and customer knowledge, and relationship) as an input (I), and elaborate its intellectual capital as a process (P), in order to achieve firm performance (an output (O). Fig. 1 shows our research framework and six hypotheses.

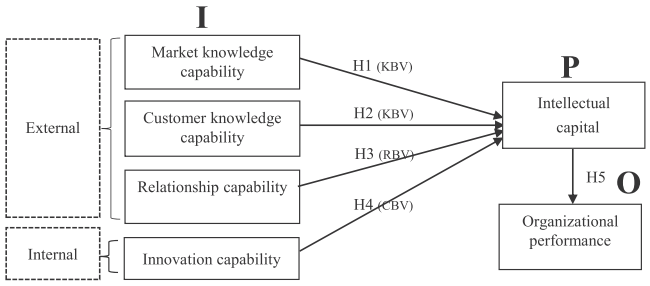

Fig. 1. Research modelNote
the mediating effect and hypothesis, i.e., H6, is not mentioned in this figure.
KBV: knowledge-based view; RBV: relationship-based view; CBV: competence-based view.

3.1. Market knowledge capability and intellectual capital

Market knowledge capability is not only an intangible asset, but also an important source of competitive advantage (Li & Calantone, 1998; Teece, 1998). Market knowledge can enhance the firms' capability to transfer, create, diffuse and accumulate knowledge (Zack, 1999). Since market knowledge capability bases on the assumption of market orientation, this guides a firm towards building close relationships with customers and so accumulating relationship capital (Day, 1994; Engström et al., 2003). Firms can meet market needs when they have a superior capability to manage market knowledge. That is to say, if a firm owns the internal resources to increase operational efficiency then it can enhance its structural capital (Teece, 1998). Prior work also proposes that knowledge transfer influences intellectual capital (Kianto et al., 2014). Additionally, market knowledge management capability (absorption, integration) influence firms' performance (in such areas as new product development and innovation, service quality and innovation, and supply chain performance) (Attia & Essam Eldin, 2018; Jin et al., 2019; Martinez-Conesa et al., 2017; Mu, 2015; Salunke et al., 2019; Tseng, 2016). Based on these rationales, we propose the following hypothesis:

H1. Market knowledge capabilities have positive influences on intellectual capital.

3.2. Customer knowledge capability and intellectual capital

Campbell (2003) proposes that customer knowledge capability forms and accumulates through interacting with customers and then integrating that knowledge in the firms' internal processes. Firms need to direct their attention towards sharing knowledge, profits and power in their customer interactions in order to acquire more customer knowledge (Stewart & Ruckdeschel, 1998). Tiwana (2000) argues that when a firm engages in customer knowledge management then customer capital (a relationship) is created (Nonaka & Takeuchi, 1995). Firms need both high quality employees (employee capital) and effective procedures and systems (structural capital) in order to sustain its customer knowledge capability. There is support for the notion that knowledge exchange with customers effects firms' value (customer capital) (Chen et al., 2004; Kianto et al., 2014; Nahapiet & Ghoshal, 1998). Customer knowledge management capabilities (knowledge development) can influence a firm's positive performance in the area of customers' purchase intention, process innovation, and service and product innovation (Johansson et al., 2019; Nguyen & Harrison, 2019; Nora, 2019; Tseng & Fang, 2015). Based on the above, we hypothesize:

H2. Customer knowledge capabilities have positive influences on intellectual capital.

3.3. Relationship capability and intellectual capital

Relationship acts as a form of capital because it develops loyal

Please cite this article as: Huang, C.-C., & Huang, S.-M., External and internal capabilities and organizational performance: Does intellectual capital matter?, Asia Pacific Management Review, https://doi.org/10.1016/j.apmrv.2019.12.001

customers who associate with stable and sustainable profits (Dyer & Singh, 1998). Since relationship capability focuses on trust (Morgan & Hunt, 1994), satisfaction (Crosby et al., 1990; Mohr & Spekman, 1994), joint action (Joshi & Stump, 1999) and interactive communication (de Ruyter et al., 2001; Mohr & Spekman, 1994) it facilitates the development of relationship capital (Gummesson, 2002). Relationship capability forms via interpersonal communications, and this has a positive influence on human capital. When firms and their partners act jointly this may encourage them to establish internal procedures to create value, and this, in turn, enhances structural capital. Prior works also propose the importance of relationship capability on intellectual capital (Dyer & Singh, 1998; Nahapiet & Ghoshal, 1998; Ramadan et al., 2017), and on firms' performance (e.g., on service quality, customer engagement, and inter-firm capabilities) (Pham, Monkhouse, & Barnes, 2017; Tseng, 2016; Wang & Kim, 2017; Yang et al., 2019). Thus we hypothesize:

H3. Relationship capabilities have positive influences on intellectual capital.

3.4. Innovation capability and intellectual capital

Innovation capability involves both a management and a technical perspective. Intellectual capital consists of intangible assets; such as human capital (Stewart & Ruckdeschel, 1998). A firm which needs innovation capability might improve both the quality of its employees (human capital) and its connection with external resources (relationship capital). Caloghirou, Kastelli, and Tsakamilas (2004) suggest that if firms wish to perform better they require a better quality of innovation capabilities, in order to acquire external knowledge, and so improve internal processes (structural capital). Innovation capability has a positive effect on structural and social capitals (Subramaniam & Youndt, 2005; Wang et al., 2016). Innovation capability has a significant effect on firms' performance, such as innovation, market share, and financial returns (Jayani Rajapathirana & Hui, 2018; Shin et al., 2016; Yeşil and Doğan, 2019). We, therefore, hypothesize:

H4. Innovation capabilities have positive influences on intellectual capital.

3.5. Intellectual capital and organizational performance

Petty and Guthrie (2000) propose the importance of intangible assets (e.g., human resources) and technology in creating firms' value-added service and performance. Intellectual capital is also important to firms' long-term success (Bontis, 1998; Brennan & Connell, 2000; Engström et al., 2003). Intangible assets improve firms' performance by strengthening the intellectual capital (Baxter & Matear, 2004; Bollen, Vergauwen, & Schnieders, 2005; Hejazi, Ghanbari, & Alipour, 2016; Sharabati et al., 2010; Wang et al., 2014; 2016). Recent work also suggests the significance of intellectual capital on firms' performance, for example, in terms of innovation financial returns, and value creation (Andreeva & Garanina, 2016; Díaz-Fernández, Gonzalez-Rodríguez, & Simonetti, 2015; Hussinki, Kianto, Vanhala, & Ritala, 2019, pp. 101–117; Kianto et al., 2017; Pedro et al., 2018). Based on the above, we hypothesize:

H5. Intellectual capital has a positive influence on organizational performance.

3.6. The mediating effects of intellectual capital on the relationships between organizational capabilities and organizational performance

Based on the rationale of the I–P–O model, a firm's resources and capabilities (I), might be used and elaborated via a mechanism (P), and ended with an organizational performance(O) (McGrath & Kelly, 1986). This study thus hypothesizes that intellectual capital functions as the internal and mediating mechanism, linking a firm's multiple capabilities with its performance. Prior studies propose the mediating effects of intellectual capital on the relationships between a firm's internal capability and organizational performance, in a way that shows the particular importance of intellectual capital in achieving a firm's performance (Fainshmidt, Pezeshkan, Lance Frazier, Nair, & Markowski, 2016; Hejazi et al., 2016; Kianto et al., 2014, 2017; Ramadan et al., 2017; Wang et al., 2014; 2016). Thus, based on the rationale of the I–P–O model we hypothesize that intellectual capital plays a linking role on the relationships between organizational capabilities and performance, as follows:

H6. Intellectual capital has a mediating effect on the relationships between organizational capabilities (market knowledge, customer knowledge, relationship, and innovation), and organizational performance.

4. Method

4.1. Research design

We surveyed a total of 814 managers from the Taiwan Transportation Vehicle Manufacturers Association (TVMA) and received 167 usable questionnaires (an overall response rate of 20.5%). We chose TVMA as our research context for the following reasons. First, Taiwan is a global pioneer in the manufacture of bicycles which now includes global brands (e.g., Giant and Merida). Knowledge creation and transfer is important in this industry as it furthers development of associating products; such as electric bicycles. The TVMA is a central hub that connects these bicycle manufacturers and so is suitable to demonstrate the application of CBV and KBV. Second, the bicycle industry has an intensive network among its members, and so relationships are important for firms' performance (i.e., RBV). Third, firms in the TVMA are well-known in Taiwan and have well established capabilities and intellectual capital. The majority of our respondents (41%) work in large firms (over five hundred employees) with annual revenues of between 1 and 20 billion NT$ (44%).Our respondents are primarily supervisors and managers (39%) or project managers and team heads (26%). Half of the respondents have a university degree and have been employed for between 6 and 20 years (43%). Appendix 1 summarizes the sample profile.

4.2. Measurements

We created a Chinese mandarin version of all our measurements. Respondents assessed all items on a 5-point Likert scale. The scale adopted from prior works is used to measure market knowledge capability (Kohli & Jaworski, 1990; Moorman, 1995; Nonaka & Takeuchi, 1995). Five items (trust, satisfaction, commitment, joint action, interactive communication) are drawn from the works of Morgan & Hunt, 1994 and Mohr and Spekman (1994), to

Please cite this article as: Huang, C.-C., & Huang, S.-M., External and internal capabilities and organizational performance: Does intellectual capital matter?, Asia Pacific Management Review, https://doi.org/10.1016/j.apmrv.2019.12.001

measure relationship capability, and three items (product, institutional, production) are used to measure innovation capability (Damanpour, 1991; Higgins, 1995). Intellectual capital is measured by adopting three items (structural, human and relationship capitals) from the works of Damanpour (1991) and Higgins (1995). We draw from the work of Delaney and Huselid (1996) to measure organizational performance, and use firm size (number of employees) as a control variable by adopting from the works of Damanpour and Evan (1984) and Yasuda (2005).

5. Results

5.1. Validity & reliability

Table 1 shows AVE in a range from 0.680 to 0.723, and composite reliability (CR) ranging from 0.867 to 0.914. As both exceed the threshold values of 0.50 and 0.60, respectively, this demonstrates high convergent validity and reliability (Fornell & Larcker, 1981). We use Fornell and Larcker's (1981) test of shared variance between pairs of latent constructs to examine discriminant validity. The results show that the correlation values between each pair of constructs do not exceed the AVE's square roots of any single construct and this confirms the model's discriminant validity (Chin, Marcolin, & Newsted, 2003; Fornell & Larcker, 1981). Appendix 2 shows the factor loadings and cross-loadings for the items.

5.2. Common method variance (CMV)

We adopt Harman's one-factor test to investigate common method bias (Podsakoff & Organ, 1986; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). A principal factor analysis of the measurement items yielded seven factors with Eigen values greater than 1, accounting for 76.54 percent of the total variance, and with the first factor accounting for 39.46 percent of the variance. We discount common method bias as a problem since a single factor does not emerge, and one general factor does not account for most of the variance. Second, following Williams, Edwards, and Vandenberg (2003), we include a common method factor, whose indicators include all the principal constructs' indicators and calculate each indicator's variances. Appendix 3 shows that the indicators' average substantively explained variance is 0.71, while the average method based variance is 0.03. The ratio of substantive variance to method variance is around 23:1. In addition, most factor loadings are not significant. Given the small magnitude and insignificance of variance, we contend that common method bias is unlikely to be a serious concern in this study.

5.3. Measurement model

We assess the model's predictive validity by its coefficient of determination R-square (R^2). The results show that both constructs of intellectual capital ($R^2 = 0.77$) and organizational performance ($R^2 = 0.67$) have adequate explanatory powers. In addition, Table 2 shows the results of testing the proposed model of this study (M1), a non-mediating model (M2) and a partial mediating model (M3). As the GoF values of M1 (0.704), M2 (0.533) and M3 (0.733), all exceed the threshold value of 0.27, the data shows as an excellent fit to our models (Fornell & Larcker, 1981; Tenenhaus, Vinzi, Chatelin, & Lauro, 2005). To re-confirm the robustness and stability of these models, we further conduct cross-validated (CV) redundancy Q^2 and CV communality Q^2 tests (omission distance = 3), using the blindfolding function in *SmartPLS 2.0*. We find that the CV Red values, range between 0.454 and 0.683, and those of CV Com, between 0.593 and 0.730. Since these values exceed the threshold value of 0, the cross-validity of the three models is re-confirmed. (Reinartz, Haenlein, & Henseler, 2009).

5.4. Structural model

We adopt structural equation modeling (SEM) to analyze the research hypotheses using *SmartPLS* 3.0. The bootstrap re-sampling method (5000 re-samples), determined the significance of the paths within the structural model (Hair, Black, Babin, & Anderson, 2013). Table 2 shows significant and positive relationships between organizational capabilities, i.e., market knowledge ($\beta = 0.242$, $t = 3.286$), relationship ($\beta = 0.288$, $t = 3.905$), and innovation ($\beta = 0.407$, $t = 5.301$), on intellectual capital. All the β and t values exceed the threshold, ($t \geqq 1.96$) and, thus H1, H3, H4 are supported (Hair et al., 2013). The impact of intellectual capital on organizational performance ($\beta = 0.829$, $t = 24.031$) is significant, and therefore H5is supported. Hypothesis 2 is not supported since customer knowledge capabilities do not exert a significant influence on intellectual capital ($\beta = 0.470$, $t = 0.571$).

In order to test the mediating effect of intellectual capital, the non-mediating model (M2), and the partial mediating model (M3) were constructed. The results of M2 shows the effects of the proposed four capabilities and INTC on OP, are significant (except for the RC). The results of M3, when all variables, including INTC, are

Table 1
Correlation matrix, AVE and CR.

	IC	MKC	INTC	RC	OP	CKC
Innovative capabilities (IC)	***.850***					
Market knowledge capabilities (MKC)	.669	***.828***				
Intellectual capital(INTC)	.820	.716	***.828***			
Organizational performance(OP)	.820	.737	.813	***.822***		
Relationship capabilities(RC)	.734	.557	.757	.740	***.824***	
Customer knowledge capabilities(CKC)	.699	.753	.720	.772	.675	***.826***
Mean	2.182	2.170	2.219	2.295	2.201	2.348
Standard deviation	0.647	0.607	0.566	0.611	0.544	0.647
α value	.809	.847	.770	.840	.882	.845
AVE	.723	.685	.686	.676	.680	.683
Composite reliability (CR)	.887	.897	.867	.893	.914	.896

Note: 1. AVE= (factor loading^2)/Σ (factor loading^2) +Σ e.
2. CR= (Σ factor loading)^2/(Σ factor loading)^2+Σ e.
3. *Diagonal italics denote the AVE is the square of AVE.
4. *** denotes $p < .0001$; ** denotes $p < .01$; * denotes $p < .05$.

Please cite this article as: Huang, C.-C., & Huang, S.-M., External and internal capabilities and organizational performance: Does intellectual capital matter?, Asia Pacific Management Review, https://doi.org/10.1016/j.apmrv.2019.12.001

Table 2
Research model and competitive model (β, t).

Path relationships	M1 Proposed model	M2 Non-mediating model	M3 Partial mediating model
MKC → INTC	.242(3.286)**		.244(3.232)**
CKC → INTC	.047(0.571)		.044(0.516)
RC → INTC	.288(3.905)***		.292(3.916)**
IC → INTC	.407(5.301)***		.402(5.195)***
INTC → OP	.829(24.031)***	.209(2.175)*	.205(2.052)*
MKC → OP		.146(2.534)*	.147(2.478)*
CKC → OP		.200(3.030)**	.203(2.971)**
RC → OP		.132(1.911)	.136(1.936)
IC → OP		.330(4.853)***	.324(4.777)***
Employee→ INTC	.105(1.758)	.197(1.816)	.108(1.727)
Employee→ OP	-.117(1.569)	-.100(1.582)	-.101(1.546)
Sales volumes→ INTC	-.240(1.987)*	-.240(1.987)*	-.086(1.441)
Sales volumes→ OP	.125(2.907)*	.125(2.092)*	.124(2.027)*
R^2 (INTC)	.770	.026	.766
R^2 (OP)	.670	.798	.796
GoF	.704	.533	.733
Path significant %	80.0%	80.0%	77.7%

Notes: *** denotes p < .0001; ** denotes p < .01; * denotes p < .05.
MKC: market knowledge capability; CKC: customer knowledge management capability; RC: relationship capability; IC: innovative capability; INTC: intellectual capital; OP: organization performance.

treated together as independent variables, shows a similar result, i.e., MKC, IC and INTC have effects, whereas RC does not. These results show the partial mediating effect of intellectual capital on the MKC-OP, RC-OP, and IC-OP relationships. To confirm the partial mediating effects, we also conduct both Sobel and VAF tests (Sobel, 1982). We find that Z values range from 3.20 to 5.20 in the Sobel test, and VAF values range from 50.98% to 63.73%, i.e., between 20% and 80%. These results re-confirm the partial mediating effects of intellectual capital on the RC-OP, MKC-OP, and IC-OP relationships (Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014).

6. Discussions and conclusions

6.1. Discussions

This study has two research questions. First, what are the influences of organizational capabilities (i.e., market and customer knowledge, relationship, and innovation) on intellectual capital and organizational performance? Second, does intellectual capital mediate on the relationships between the organizational capabilities and firm performance?

There are three main findings from this study. First, market knowledge, relationship and innovative capabilities all have significant effects on intellectual capital, but customer knowledge capabilities do not. Second, intellectual capital has a positive effect on organizational performance. Third, intellectual capital mediates the relationships between organizational capabilities and performance.

We find that market knowledge capabilities, relationship capabilities and innovation capabilities build intellectual capital. Innovation capabilities have the greatest influence, followed by relationship capabilities, and finally market knowledge capabilities. The results indicate that firms should prioritize building innovative capabilities. While prior works report similar results, we adopt a holistic approach that shows the effects of both external and internal capabilities on intellectual capital.

We draw on the following arguments to explain why customer knowledge capability does not have a significant effect on intellectual capital. First, we use exploratory factor analyses, and delete some items in customer knowledge capability, due to their low reliabilities, and these deleted items might be needed to well measure this construct. Second, while customer knowledge capability involves a need to interact with customers, many firms might not invest much effort on this dimension, and so fail to accumulate intellectual capital. Third, we find that intellectual capital has positive impacts on organizational performance. This result is consistent with prior studies (Baxter & Matear, 2004; Bontis, 1998; Kianto et al., 2014; Wang et al., 2014; 2016). This result shows that an accumulation of intellectual capital can help firms 'organizational performance.

Most importantly, this study finds that intellectual capital partially mediates the relationships between RC, MKC, IC, and organization performance. These results reveal the critical importance of intellectual capital in enhancing organizational performance. Specifically, a firm's internal relationship capability cannot function well, without properly managing the firm's intellectual capital. In addition, the external capability of market knowledge, and the internal capability of innovation need proper management. This will ensure that intellectual capital is effectively used to achieve organizational performance. These results echo those of prior studies which show the importance of intellectual capital on organizational performance (Kianto et al., 2014; Wang et al., 2014; 2016).

This study, as with others, is subject to a number of limitations. First, in this study we only focus on the effects of the relationships among the constructs which may overlook the influence of other factors. Second, while we adopt across-sectional approach, many important elements, for example, knowledge absorption and storage, are more dynamic, than static. Third, this study does not include reference to innovation capital (Chen et al., 2004). Four, the results of this study are only contextualized to transportation industry. The bicycle industry in Taiwan is mature, and the majority of firms in this industry tends to use an OEM strategy. Consequently, marketing (a relates to market knowledge and customer capabilities) is not considered as particularly important, whereas innovation capabilities (R&D), are prioritized in this context.

Please cite this article as: Huang, C.-C., & Huang, S.-M., External and internal capabilities and organizational performance: Does intellectual capital matter?, Asia Pacific Management Review, https://doi.org/10.1016/j.apmrv.2019.12.001

6.2. Managerial and theoretical implications

This study finds the positive effects of both external (market knowledge, relationship), and internal capabilities (innovation) on firms' organizational performance. We demonstrate how external, complement internal capabilities, in order to enhance their organizational performance. We, therefore, suggest that firms, aiming to enhance their performance, should develop their internal capability (e.g., research and development), together with its external capabilities (e.g., as partnerships or joint-ventures). We also find that innovation capability is the most important driver of the intellectual capital and organizational performance, followed by relationship and market knowledge capabilities. Hence, it is advisable for firms, particularly those in mature industries; such as transportation, to prioritize their limited resources towards innovation capabilities while maintaining and using established networks of relationships.

The fact that customer knowledge capability lacks influence on intellectual capital suggests firms need to take a longer-term perspective. This might occur, for example, through the use of customer knowledge management (CKM) or establishment of a customer community (Garcia-Murillo & Annabi, 2002). Garcia-Murillo and Annabi (2002) propose three phases of customer knowledge management, i.e., acquiring, sharing and diffusing. We suggest firms wishing to develop their CKM should make good use of these three mechanisms to establish customer satisfaction and loyalty to the mutual benefits of both firm and its customers (Gummesson, 2002; Nonaka & Takeuchi, 1995; Zack, 1999).

Our findings that there is a partially mediating effect of intellectual capital on the relationships between market knowledge, relationship, innovation capabilities and organizational performance, reveals the importance of, and need for intellectual capital as an outcome of organizational capabilities. It is thus suggested that while companies establish these capabilities, they should allocate resources related to the development of intellectual capital; such as, human resources so as to turn these well-established capabilities, into organizational performance.

The results of this study suggest two theoretical implications. First, this integration of the I–P–O model extends its underlying logic to the transportation industry. Second, we integrate external and internal capabilities relating to three theories of the knowledge-based view (KBV), relationship-based view (RBV), and competence-based view (CBV) into in a single model. This sophisticated approach to modeling may well be a closer approximation of the complexity of firms relationships with their environment (Fainshmidt et al., 2016; Hurley & Hult, 1998; Grant, 1996; Kianto et al., 2014; Lenoard-Barton, 1995; Li & Calantone, 1998; Lorenzoni & Lipparini, 1999; Ramadan et al., 2017; Tamer Cavusgil et al., 2003).

6.3. Suggestions to future studies

In light of the above research limitations, first, we suggest future studies to include other environment-related factors, such as firm size and typology in this model. Second, in order to capture the dynamic nature of important elements, e.g., knowledge absorption, we suggest future studies to take a longitudinal approach, in order to better understand the way these inter-relationships develop. Third, studies in the future might include important dimensions of intellectual capital (e.g., innovation capital) in this model. Four, other research contexts (e.g., telecommunication) can be tested, in order to further understand how these capabilities and intellectual capital interact in influencing firms' performance.

Acknowledgment

The authors wish to thank the Editors of *Asia Pacific Management Review and* the anonymous reviewers, for their valuable insights in improving the quality of this manuscript, and also to acknowledge a financial support from the Ministry of Science and Technology (NSC-99-2410-H-218-004-MY2) for this research.

Appendix 1. Descriptions of the sample portfolio

Position	frequency	%	Company history (years)	frequency	%
Team head	16	9.6	Under 5year	20	12.0
Supervisor	22	13.2	6–10 year	34	20.4
Manager	43	25.7	11–20 year	38	22.7
Project manager	28	16.8	21–30year	29	17.4
Other	58	34.7	Over 31year	46	27.5
Numbers of employee			**Sale volume(NT$)**		
Under 20	14	8.4	Under 10 million	17	10.2
21–50	25	15.0	10-50 million	20	12.0
51–100	16	9.6	50-100 million	11	6.6
101–200	18	10.8	100million – 1 billion	45	26.9
201–500	26	15.5	1- 20 billion	54	32.3
Over 501	68	40.7	Over 20 billion	20	12.0
Education					
High school	15	9.0			
Junior College	54	32.3			
University	84	50.3			
Undergraduate	14	8.4			

Appendix 2. Cross loadings

	MKC	CKC	RC	IC	INTC	OP	Employee	Sales
Comm	0.436	0.629	***0.860***	0.610	0.657	0.650	−0.076	−0.094
Ducom	0.492	0.534	***0.818***	0.614	0.615	0.616	−0.017	−0.098
Jact	0.500	0.537	***0.792***	0.571	0.588	0.591	−0.147	−0.172
Trust	0.433	0.527	***0.835***	0.599	0.616	0.588	−0.015	−0.044
Satif	0.442	0.552	***0.816***	0.629	0.643	0.603	−0.056	−0.118
Kco	0.486	***0.730***	0.420	0.391	0.428	0.515	0.206	0.059
Kcre	0.641	***0.846***	0.590	0.610	0.642	0.653	0.105	−0.003
Kdif	0.688	***0.864***	0.584	0.620	0.628	0.712	0.066	0.056
Kgath	0.649	***0.858***	0.609	0.644	0.644	0.650	0.105	0.038
Macq	***0.803***	0.484	0.410	0.508	0.532	0.570	−0.061	−0.058
Mcre	***0.877***	0.604	0.432	0.559	0.634	0.584	0.107	0.067
Mdif	***0.807***	0.699	0.523	0.597	0.582	0.640	−0.009	−0.048
Mgath	***0.822***	0.697	0.479	0.551	0.616	0.646	0.144	0.086
Mino	0.509	0.473	0.539	***0.837***	0.723	0.616	−0.025	−0.109
Sino	0.616	0.700	0.718	***0.859***	0.696	0.761	−0.032	−0.092
Pino	0.584	0.615	0.617	***0.855***	0.671	0.719	−0.089	−0.159
Hc	0.583	0.548	0.545	0.633	***0.814***	0.661	0.039	−0.005
Sc	0.686	0.701	0.673	0.748	***0.881***	0.732	0.041	−0.077
Rc	0.500	0.528	0.661	0.651	***0.787***	0.622	−0.037	−0.152
Rper	0.631	0.707	0.695	0.671	0.680	***0.842***	0.014	−0.030
Mper	0.577	0.636	0.564	0.675	0.664	***0.844***	−0.032	−0.023
Kper	0.634	0.584	0.554	0.685	0.704	***0.775***	0.157	0.083
Inoper	0.576	0.609	0.620	0.662	0.618	***0.826***	−0.132	−0.101
Employee	0.060	0.135	−0.075	−0.056	0.019	0.007	***1.000***	0.742
Sales	0.018	0.043	−0.127	−0.141	−0.094	−0.018	0.742	***1.000***

Please cite this article as: Huang, C.-C., & Huang, S.-M., External and internal capabilities and organizational performance: Does intellectual capital matter?, Asia Pacific Management Review, https://doi.org/10.1016/j.apmrv.2019.12.001

Appendix 3. Common method variance test

Items	Substantive factor loading	R1 [2]	Substantive factor loading(t)	Method factor loading	R2 [2]	Method factor loading(t)
MKC - > macq1	0.962	0.925	14.085	−0.179	0.032	2.207
MKC - > mcre1	0.988	0.977	15.925	−0.134	0.018	1.713
MKC - > mdif1	0.642	0.413	2.990	0.196	0.039	0.918
MKC - > mgath1	0.710	0.504	5.606	0.126	0.016	0.901
CKC - > kco1	1.091	1.190	11.009	−0.382	0.146	3.547
CKC - > kcre1	0.760	0.577	7.690	0.092	0.008	0.938
CKC - > kdif1	0.748	0.559	7.788	0.126	0.016	1.411
CKC - > kgath1	0.753	0.567	8.526	0.111	0.012	1.212
RC - > comm1	0.853	0.728	11.126	0.007	0.000	0.086
RC - > ducom1	0.794	0.630	9.024	0.029	0.001	0.301
RC - > jact1	0.766	0.587	7.152	0.033	0.001	0.286
RC - > satif1	0.779	0.607	5.636	0.037	0.001	0.263
RC - > trust1	0.926	0.857	11.073	−0.103	0.011	1.150
IC - > mino1	1.065	1.133	12.025	−0.267	0.071	2.364
IC- > pino1	0.875	0.766	11.612	−0.015	0.000	0.180
IC - > sino1	0.617	0.381	7.236	0.275	0.076	3.124
INTC - > hc1	0.989	0.979	8.449	−0.190	0.036	1.315
INTC - > rc1	0.814	0.662	6.814	−0.029	0.001	0.232
INTC - > sc1	0.699	0.488	7.157	0.198	0.039	1.928
OP - > inoper1	1.010	1.020	9.060	−0.187	0.035	1.755
OP - > kper1	0.530	0.281	3.266	0.245	0.060	1.514
OP - > mper1	1.059	1.122	10.067	−0.229	0.052	2.053
OP - > rper1	0.675	0.455	5.705	0.186	0.034	1.450
Average		0.713			0.031	
Ratio		23.227				

References

Allameh, S. M. (2018). Antecedents and consequences of intellectual capital: The role of social capital, knowledge sharing and innovation. *Journal of Intellectual Capital, 19*(5), 858–874.

Andersen, P. H., & Kumar, R. (2006). Emotions, trust and relationship development in business relationships: A conceptual model for buyer–seller dyads. *Industrial Marketing Management, 35*(4), 522–535.

Andreeva, T., & Garanina, T. (2016). Do all elements of intellectual capital matter for organizational performance? Evidence from Russian context. *Journal of Intellectual Capital, 17*(2), 397–412.

Arli, D., Bauer, C., & Palmatier, R. W. (2018). Relational selling: Past, present and future. *Industrial Marketing Management, 69*, 169–184.

Asiaei, K., & Jusoh, R. (2017). Using a robust performance measurement system to illuminate intellectual capital. *International Journal of Accounting Information Systems, 26*, 1–19.

Attia, A., & Essam Eldin, I. (2018). Organizational learning, knowledge management capability and supply chain management practices in the Saudi food industry. *Journal of Knowledge Management, 22*(6), 1217–1242.

Baxter, R., & Matear, S. (2004). Measuring intangible value in business-to-business buyer–seller relationships: An intellectual capital perspective. *Industrial Marketing Management, 33*(6), 491–500.

Bollen, L., Vergauwen, P., & Schnieders, S. (2005). Linking intellectual capital and intellectual property to company performance. *Management Decision, 43*(9), 1161–1185.

Bontis, N. (1998). Intellectual capital: An exploratory study that develops measure and models. *Management Decision, 36*(2), 63–76.

Brennan, N., & Connell, B. (2000). Intellectual capital: Current issues and policy implications. *Journal of Intellectual Capital, 1*(3), 206–240.

Caloghirou, Y., Kastelli, I., & Tsakamilas, A. (2004). Internal capabilities and external knowledge source: Complements or substitute for innovative performance. *Technovation, 24*(1), 29–39.

Campbell, A. J. (2003). Creating customer knowledge competence: Managing customer relationship management programs strategically. *Industrial Marketing Management, 32*(5), 375–383.

Chen, Y.-C., Li, P.-C., & Arnold, T. J. (2013). Effects of collaborative communication on the development of market-relating capabilities and relational performance metrics in industrial markets. *Industrial Marketing Management, 42*(8), 1181–1191.

Chen, J., Zhu, Z., & Xie, H. Y. (2004). Measuring intellectual capital: A new model and empirical study. *Journal of Intellectual Capital, 5*(1), 195–212.

Chin, W. W., Marcolin, B. L., & Newsted, P. R. (2003). A Partial Least Squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Information Systems Research, 14*(2), 189–217.

Chumpitaz Caceres, R., & Paparoidamis, N. (2007). Service quality, relationship satisfaction, trust, commitment and business-to-business loyalty. *European Journal of Marketing, 41*(7/8), 836–867.

Crosby, L. A., Evans, K. R., & Cowles, D. (1990). Relationship quality in services selling: An interpersonal influence perspective. *Journal of Marketing, 54*(3), 68–81.

Curry, A., Flett, P., & Hollingsworth, I. (2006). *Managing information & systems: The business perspective*. Routledge.

Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal, 34*(3), 555–590.

Damanpour, F., & Evan, W. M. (1984). Organizational innovation and performance: The problem of" organizational lag". *Administrative Science Quarterly, 29*(3), 392–409.

Das, T. K., & Teng, B.-S. (1998). Between trust and control: Developing confidence in partner cooperation in alliances. *Academy of Management Review, 23*(3), 491–512.

Day, G. S. (1994). The capabilities of market-driven organization. *Journal of Marketing, 58*(4), 37–52.

Delaney, J. T., & Huselid, M. A. (1996). The impact of human resource management practices on perceptions of organizational performance. *Academy of Management Journal, 39*(4), 949–969.

Díaz-Fernández, M. C., Gonzalez-Rodríguez, M. R., & Simonetti, B. (2015). Top management team's intellectual capital and firm performance. *European Management Journal, 33*(5), 322–331.

Dwyer, F. R., Schurr, P. H., & Oh, S. (1987). Developing buyer-seller relationship. *Journal of Marketing, 51*(2), 11–27.

Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review, 23*(4), 660–679.

Engström, T. E. J., Westnes, P., & Westnes, S. F. (2003). Evaluating intellectual capital in the hotel industry. *Journal of Intellectual Capital, 4*(3), 287–303.

Fainshmidt, S., Pezeshkan, A., Lance Frazier, M., Nair, A., & Markowski, E. (2016). Dynamic capabilities and organizational performance: A meta-analytic evaluation and extension. *Journal of Management Studies, 53*(8), 1348–1380.

Ferro, C., Padin, C., Svensson, G., & Payan, J. (2016). Trust and commitment as mediators between economic and non-economic satisfaction in manufacturer-supplier relationships. *Journal of Business & Industrial Marketing, 31*(1), 13–23.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable and measurement errors. *Journal of Marketing Research, 18*(1), 39–50.

Garcia-Murillo, M., & Annabi, H. (2002). Customer knowledge management. *Journal of the Operational Research Society, 53*(8), 875–884.

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.

Grant, R. M. (1996). Prospering in dynamically-competitive environment: Organizational capability as knowledge integration. *Organization Science, 7*(4), 375–387.

Please cite this article as: Huang, C.-C., & Huang, S.-M., External and internal capabilities and organizational performance: Does intellectual capital matter?, Asia Pacific Management Review, https://doi.org/10.1016/j.apmrv.2019.12.001

Gummesson, E. (2002). *Total relationship marketing* (2nd ed.). Oxford: Butterworth-Heinemann Publications.
Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2013). *Multivariate data analysis*. Upper Saddle River, NJ: Pearson.
Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM) an emerging tool in business research. *European Business Review, 26*(2), 106–121.
Han, J. K., Kim, N., & Srivastava, R. K. (1998). Market orientation and organizational performance: Is innovation a missing link. *Journal of Marketing, 62*(4), 30–45.
Heide, J. B., & John, G. (1990). Alliances in industrial purchasing: The determinants of joint action in buyer-supplier relationships. *Journal of Marketing Research, 27*(1), 24–36.
Hejazi, R., Ghanbari, M., & Alipour, M. (2016). Intellectual, human and structural capital effects on firm performance as measured by Tobin's Q. *Knowledge and Process Management, 23*(4), 259–273.
Higgins, J. M. (1995). Innovation: The core competence. *Planning Review, 23*(6), 32–35.
Hooley, G. J., Greenley, G. E., Cadogan, J. W., & Fahy, J. (2004). The performance impact of marketing resources. *Journal of Business Research, 58*(1), 18–27.
Houston, M. B., & Johnson, S. A. (2000). Buyer–supplier contracts versus joint ventures: Determinants and consequences of transaction structure. *Journal of Marketing Research, 37*(1), 1–15.
Huang, M. C., & Huang, H. H. (2019). How transaction-specific investments influence firm performance in buyer-supplier relationships: The mediating role of supply chain integration. *Asia Pacific Management Review, 24*(2), 167–175.
Hurley, R. F., & Hult, G. T. M. (1998). Innovation, market orientation, and organizational learning: An integration and empirical examination. *Journal of Marketing, 62*(3), 42–54.
Hussinki, H., Kianto, A., Vanhala, M., & Ritala, P. (2019). *Happy employees make happy customers: The role of intellectual capital in supporting sustainable value creation in organizations Intellectual Capital Management as a Driver of Sustainability*. Springer.
Hussinki, H., Ritala, P., Vanhala, M., & Kianto, A. (2017). Intellectual capital, knowledge management practices and firm performance. *Journal of Intellectual Capital, 18*(4), 904–922.
Inkinen, H. (2015). Review of empirical research on intellectual capital and firm performance. *Journal of Intellectual Capital, 16*(3), 518–565.
Jayani Rajapathirana, R., & Hui, Y. (2018). Relationship between innovation capability, innovation type, and firm performance. *Journal of Innovation & Knowledge, 3*(1), 44–55.
Jiménez-Jiménez, D., & Sanz-Valle, R. (2011). Innovation, organizational learning, and performance. *Journal of Business Research, 64*(4), 408–417.
Jin, J. L., Shu, C., & Zhou, K. Z. (2019). Product newness and product performance in new ventures: Contingent roles of market knowledge breadth and tacitness. *Industrial Marketing Management, 76*, 231–241.
Johansson, A. E., Raddats, C., & Witell, L. (2019). The role of customer knowledge development for incremental and radical service innovation in servitized manufacturers. *Journal of Business Research, 98*, 328–338. https://doi.org/10.1016/j.jbusres.2019.02.019.
Johnston, W. J., Khalil, S., Jain, M., & Cheng, J. M.-S. (2012). Determinants of joint action in international channels of distribution: The moderating role of psychic distance. *Journal of International Marketing, 20*(3), 34–49.
Joshi, A. W., & Stump, R. L. (1999). The contingent effect specific asset investments on joint action in manufacturer-supplier relationships: An empirical test of the moderating role of reciprocal asset investments, uncertainty, and trust. *Journal of the Academy of Marketing Science, 27*(3), 291–305.
Kandampully, J. (2002). Innovation as the core competency of a service organisation: The role of technology, knowledge and networks. *European Journal of Innovation Management, 5*(1), 18–26.
Kianto, A., Ritala, P., Spender, J.-C., & Vanhala, M. (2014). The interaction of intellectual capital assets and knowledge management practices in organizational value creation. *Journal of Intellectual Capital, 15*(3), 362–375.
Kianto, A., Sáenz, J., & Aramburu, N. (2017). Knowledge-based human resource management practices, intellectual capital and innovation. *Journal of Business Research, 81*, 11–20.
Kohli, A. K., & Jaworski, B. J. (1990). Market orientation: The construct, research propositions, and managerial implications. *Journal of Marketing, 54*(2), 1–18.
Leonard-Barton, D. (1995). *Wellsprings of knowledge: Building and sustaining the sources of innovation*. Boston, Masachusetts: Harvard Business School Press.
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.
Lorenzoni, G., & Lipparini, A. (1999). The leveraging of interfirm relationships as distinctive organizational capability: A longitudinal study. *Strategic Management Journal, 20*(4), 317–338.
Maglio, P. P., Vargo, S. L., Caswell, N., & Spohrer, J. (2009). The service system is the basic abstraction of service science. *Information Systems and e-Business Management, 7*(4), 395–406.
Martinez-Conesa, I., Soto-Acosta, P., & Carayannis, E. G. (2017). On the path towards open innovation: Assessing the role of knowledge management capability and environmental dynamism in SMEs. *Journal of Knowledge Management, 21*(3), 553–570.
McGrath, J. E., & Kelly, J. R. (1986). *Time and Human Interaction: Toward a Social Psychology of Time*. Guilford Press.
Menguc, B., Auh, S., & Uslu, A. (2013). Customer knowledge creation capability and performance in sales teams. *Journal of the Academy of Marketing Science, 41*(1), 19–39.
Mithas, S., Krishnan, M. S., & Fornell, C. (2005). Why do customer relationship management applications affect customer satisfaction? *Journal of Marketing, 69*(4), 201–209.
Mohr, J., & Spekman, R. (1994). Characteristics of partnership success: Partnership attributes, communication behavior, and conflict resolution techniques. *Strategic Management Journal, 15*(2), 135–152.
Moorman, C. (1995). Organizational market information processes: Cultural antecedents and new product outcomes. *Journal of Marketing Research, 32*(3), 318–335.
Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship. *Journal of Marketing, 58*(3), 20–38.
Morgan, M. R., & Hunt, S. D. (1999). Relationship-based competitive advantage: The role of relationship marketing in marketing strategy. *Journal of Business Research, 46*(3), 281–290.
Mu, J. (2015). Marketing capability, organizational adaptation and new product development performance. *Industrial Marketing Management, 49*, 151–166.
Murphy, M., & Sashi, C. M. (2018). Communication, interactivity, and satisfaction in B2B relationships. *Industrial Marketing Management, 68*, 1–12.
Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review, 23*(2), 242–266.
Nasution, H. N., & Mavondo, F. T. (2008). Organisational capabilities: Antecedents and implications for customer value. *European Journal of Marketing, 42*(3/4), 477–501.
Ngah, R., Tai, T., & Bontis, N. (2016). Knowledge management capabilities and organizational performance in roads and transport authority of Dubai: The mediating role of learning organization. *Knowledge and Process Management, 23*(3), 184–193.
Nguyen, H., & Harrison, N. (2019). Leveraging customer knowledge to enhance process innovation: Moderating effects from market dynamics. *Business Process Management Journal, 25*(2), 307–322.
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*. New York: Oxford University Press.
Nora, L. (2019). Trust, commitment, and customer knowledge: Clarifying relational commitments and linking them to repurchasing intentions. *Management Decision*. https://doi.org/10.1108/MD-10-2017-0923.
Pedro, E., Leitão, J., & Alves, H. (2018). Intellectual capital and performance: Taxonomy of components and multi-dimensional analysis axes. *Journal of Intellectual Capital, 19*(2), 407–452.
Petty, R., & Guthrie, J. (2000). Intellectual capital literature review: Measurement, reporting and management. *Journal of Intellectual Capital, 1*(2), 155–176.
Pham, T. S. H., Monkhouse, L. L., & Barnes, B. R. (2017). The influence of relational capability and marketing capabilities on the export performance of emerging market firms. *International Marketing Review, 34*(5), 606–628.
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.
Podsakoff, P. M., & Organ, D. W. (1986). Self-report in organizational research: Problems and prospects. *Journal of Management, 12*(4), 531–544.
Ramadan, B. M., Dahiyat, S. E., Bontis, N., & Al-Dalahmeh, M. A. (2017). Intellectual capital, knowledge management and social capital within the ICT sector in Jordan. *Journal of Intellectual Capital, 18*(2), 437–462.
Reinartz, W., Haenlein, M., & Henseler, J. (2009). An empirical comparison of the efficacy of covariance-based and variance-based SEM. *International Journal of Research in Marketing, 26*(4), 332–344.
Richard, P. J., Devinney, T. M., Yip, G. S., & Johnson, G. (2009). Measuring organizational performance: Towards methodological best practice. *Journal of Management, 35*(3), 718–804.
Roberts, K., Varki, S., & Brodie, R. (2003). Measuring the quality of relationships in consumer services: An empirical study. *European Journal of Marketing, 37*(1/2), 169–196.
de Ruyter, K., Moorman, L., & Lemmink, J. (2001). Antecedents of commitment and trust in customer-supplier relationships in high technology market. *Industrial Marketing Management, 30*(3), 271–286.
Salunke, S., Weerawardena, J., & McColl-Kennedy, J. R. (2019). The central role of knowledge integration capability in service innovation-based competitive strategy. *Industrial Marketing Management, 76*, 144–156.
Saint-Onge, H. (1996). Tacit knowledge the key to the strategic alignment of intellectual capital. *Planning Review, 24*(2), 10–16.
Sashi, C. (2012). Customer engagement, buyer-seller relationships, and social media. *Management Decision, 50*(2), 253–272.
Schoenbachler, D. D., & Gordon, G. L. (2002). Trust and customer willingness to provide information in database-driven relationship marketing. *Journal of Interactive Marketing, 16*(3), 2–16.
Sharabati, A.-A. A., Naji Jawad, S., & Bontis, N. (2010). Intellectual capital and business performance in the pharmaceutical sector of Jordan. *Management Decision, 48*(1), 105–131.
Shin, S., He, X., & Kim, S. Y. (2016). Innovation capability, marketing capability and firm performance: A two-nation study of China and Korea. *Asian Business & Management, 15*(1), 32–56.
Singh, S., Darwish, T. K., & Potočnik, K. (2016). Measuring organizational performance: A case for subjective measures. *British Journal of Management, 27*(1),

Please cite this article as: Huang, C.-C., & Huang, S.-M., External and internal capabilities and organizational performance: Does intellectual capital matter?, Asia Pacific Management Review, https://doi.org/10.1016/j.apmrv.2019.12.001

214–224.
Singh, S., Tabassum, N., Darwish, T. K., & Batsakis, G. (2018). Corporate governance and Tobin's Q as a measure of organizational performance. *British Journal of Management, 29*(1), 171–190.
Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. *Sociological Methodology, 13*, 290–312.
Stewart, T., & Ruckdeschel, C. (1998). Intellectual capital: The new wealth of organizations. *Performance Improvement, 37*(7), 56–59.
Subramaniam, M., & Youndt, M. A. (2005). The influence of intellectual capital on the types of innovative capabilities. *Academy of Management Journal, 48*(3), 450–463.
Tamer Cavusgil, S., Calantone, R. J., & Zhao, Y. (2003). Tacit knowledge transfer and firm innovation capability. *Journal of Business & Industrial Marketing, 18*(1), 6–21.
Teece, D. J. (1998). Capturing value from knowledge assets: The new economy, markets for know-how, and intangible assets. *California Management Review, 40*(3), 55–79.
Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509–533.
Tenenhaus, M., Vinzi, V. E., Chatelin, Y.-M., & Lauro, C. (2005). PLS path modeling. *Computational Statistics & Data Analysis, 48*(1), 159–205.
Tiwana, A. (2002). *The Knowledge Management Toolkit: Practical Techniques for Building a Knowledge Management System* (2nd ed.). Upper Saddle River, New Jersey: Prentice Hall.
Tseng, S.-M. (2016). Knowledge management capability, customer relationship management, and service quality. *Journal of Enterprise Information Management, 29*(2), 202–221.
Tseng, S. M., & Fang, Y. Y. (2015). Customer knowledge management performance index. *Knowledge and Process Management, 22*(2), 68–77.
Tzokas, N., Kim, Y. A., Akbar, H., & Al-Dajani, H. (2015). Absorptive capacity and performance: The role of customer relationship and technological capabilities in high-tech SMEs. *Industrial Marketing Management, 47*, 134–142.
Wang, Z., & Kim, H. G. (2017). Can social media marketing improve customer relationship capabilities and firm performance? Dynamic capability perspective. *Journal of Interactive Marketing, 39*, 15–26.
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.
Wang, Z., Wang, N., & Liang, H. (2014). Knowledge sharing, intellectual capital and firm performance. *Management Decision, 52*(2), 230–258.
Weerawardena, J., & Mavondo, F. T. (2011). Capabilities, innovation and competitive advantage. *Industrial Marketing Management, 40*(8), 1220–1223.
Williams, L. J., Edwards, J. R., & Vandenberg, R. J. (2003). Recent advances in causal modeling methods for organizational and management research. *Journal of Management, 29*(6), 903–936.
Yang, Z., Jiang, Y., & Xie, E. (2019). Buyer-supplier relational strength and buying firm's marketing capability: An outside-in perspective. *Industrial Marketing Management, 82*, 27–37. https://doi.org/10.1016/j.indmarman.2019.03.009.
Yasuda, T. (2005). Firm growth, size, age and behavior in Japanese manufacturing. *Small Business Economics, 24*(1), 1–15.
Yeşil, S., & Doğan, I. F. (2019). Exploring the relationship between social capital, innovation capability and innovation. *Innovation, 21*(4), 506–532. https://doi.org/10.1080/14479338.2019.1585187.
Zack, M. H. (1999). Managing codified knowledge. *Sloan Management Review, 40*(4), 45–58.
Zaheer, A., & Venkatraman, N. (1995). Relational governance as an interorganizational strategy: An empirical test of the role of trust in economic exchange. *Strategic Management Journal, 16*(5), 373–392.
Zeghal, D., & Maaloul, A. (2010). Analysing value added as an indicator of intellectual capital and its consequences on company performance. *Journal of Intellectual Capital, 11*(1), 39–60.

Please cite this article as: Huang, C.-C., & Huang, S.-M., External and internal capabilities and organizational performance: Does intellectual capital matter?, Asia Pacific Management Review, https://doi.org/10.1016/j.apmrv.2019.12.001