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Shu-Mei Tseng

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Shu-Mei Tseng
Department of Information Management, I-Shou University, Kaohsiung, Taiwan

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Abstract

Purpose – The purpose of this paper is to explore the influence of knowledge management capability (KMC) and customer knowledge gaps (CKG) on corporate performance, as well as proposing concrete suggestions for filling CKG and enhancing corporate performance.

Design/methodology/approach – In order to explore on KMC, CKG, and corporate performance, the questionnaire and partial least square (PLS) techniques were used.

Findings – The results showed that KMC is the major factor for enhancing corporate performance, and suggested CKG to be a significant intervening factor between KMC and corporate performance.

Research limitations/implications – This research applied a purposive sampling method and obtained a slightly inadequate number of respondents. Therefore, it is suggested that future research should apply a random sampling method to collect more responses and increase the generalizability of the findings.

Practical implications – Firms should apply their KMC to gather knowledge for, from and about customers to decrease CKG and enhance their relationship with customers as well as improve corporate performance.

Originality/value – Developing a method by which to apply KMC in order to bridge CKG and to enhance corporate performance has become a significant issue. However, a holistic picture among KMC, CKG, and corporate performance has yet to emerge. This study thus applies a questionnaire survey method to explore the influence of KMC and CKG on corporate performance. Based on the results, specific recommendations are provided for enterprises planning to enhance their corporate performance in the future.

Keywords Knowledge management capability, Corporate performance, Customer knowledge gaps

Paper type Research paper

1. Introduction

Knowledge is the core competence required to face business challenges of firms. Therefore, companies should not only acquire critical knowledge from both the external market and from their own internal organizations (Lee and Sukoco, 2007), but should also effectively and efficiently manage the knowledge stored within both the organization and individuals in order to enable the firm to generate, communicate, and leverage its intellectual properties (Gao *et al.*, 2008). In other words, firms should equip the ability to accumulate critical knowledge resources and manage their assimilation and exploitation (Miranda *et al.*, 2011).

The main focusses in the marketing field have shifted from mass marketing into one-to-one marketing (Ngai *et al.*, 2009). One-to-one marketing is a personalized marketing activity supported by analysis, identification and prediction of changes in customer behaviors (Jiang and Tuzhilin, 2006; Kim and Moon, 2006). Therefore, in order

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to enhance one-to-one marketing, firms should thoroughly analyze customers' underlying characteristics and deepen their knowledge regarding how to satisfy customer needs and desires, as well as to enhance customer satisfaction and corporate performance (Ngai *et al.*, 2009; Sheth *et al.*, 2000). On the other hand, when a customer is becoming more familiar with a product or service, he/she will have more confidence and ability to evaluate product or service quality (both positive and negative sides). Customers also internalize their purchase experience as their knowledge and set this as a standard by which to evaluate the purchase process in the future. It means that the amount of knowledge the customers have keeps increasing. When an enterprise cannot outperform or cope with the growth of customer knowledge, meaning that these gaps are getting wider and it cannot provide products and services that satisfy customers. Therefore, firms need to continuously update their knowledge and should seize every opportunity to interact with their customers and enrich firms' customer knowledge database (García-Murillo and Annabi, 2002). Through these customer knowledge, firms can solve customer problems and satisfy customer needs quickly and embody knowledge in their strategy development and implementation, as well as can achieve their corporate performance objectives (Liao and Wu, 2010; Rowley, 2002). For example, Yeung *et al.* (2008) explain how customer knowledge can be used to improve operational performance under a supply chain environment in the clothing industry. They stated that if firms understand what their customers need, they could clearly define their firm goals and directions. With these goals and directions firmly established, they can effectively formulate their strategic plans, planning processes, and operational processes, as well as enhance their corporate performance.

Consequently, customer knowledge is a critical asset, and gathering, managing, and sharing customer knowledge can be a valuable competitive activity for organizations (Claycomb *et al.*, 2005; Da Silva *et al.*, 2002; Khodakarami and Chan, 2014). Therefore, finding ways to develop the skills necessary to apply knowledge management capability (KMC) in order to bridge these customer knowledge gaps (CKG) has become a significant issue. However, previous literature related to the relationship among KMC, CKG, and corporate performance is not sufficient, and issues related to these topics have not been thoroughly investigated (Yang *et al.*, 2014). Therefore, this research will explore the influence of KMC and CKG on corporate performance. At the same time, this study proposes concrete suggestions to help firms fill CKG in order to enhance corporate performance.

This study proceeds as follows. The theoretical background and hypotheses section introduces the key constructs of the study and develops the hypotheses linking KMC to corporate performance and CKG, and how CKG relates to corporate performance. The methodology section explains the procedures used for data collection and validation of the measurement properties of the constructs. The results section is illustrated the test of the proposed research model. Discussion and suggestion for future research are presented in the discussion section. Finally, this study concludes with a discussion of the findings.

2. Theoretical background and hypotheses

This study aims to investigate the effect of KMC and CKG on corporate performance. First, in order to understand how does the firm develop and exploit the special characteristics of customer knowledge and find a niche to obtain greater competitiveness, this study proposed "CKG" to depict the misfit between the existing customer knowledge and the customer knowledge a firm expects to have. Second, an

examination of how KMC influence corporate performance was conducted. Then, the association between the degree of KMC and corporate performance is mediated by CKG was investigated, and thus be able to provide specific recommendations for enterprises to enhance their performance. The research model is illustrated in Figure 1, and each concept and research hypothesis is elaborated below.

2.1 KMC

Capability is a system of knowledge comprising corresponding behaviors and abilities, reflected in organizational processes so that a business is able to cope with the changing markets and provide answers to market requirements (Lukas and Ferrell, 2000). KMC refers to the ability of a firm to utilize existing knowledge and continuous learning to generate new knowledge. Such a capability can stimulate knowledge creation, sharing, and reuse of information (Bose, 2003). Gold *et al.* (2001) stated that KMC consists of knowledge infrastructure capabilities and knowledge process capabilities. The knowledge infrastructure capabilities includes technology, structure, and culture; while knowledge process capabilities include the organizational capabilities of knowledge acquisition, conversion, application, and protection. According to Chuang (2004), KMC is an organizational capability with social complexity that competitors cannot perfectly imitate. Thus, it is imperative for a firm to understand its KMC in order to achieve efficiency in deploying knowledge resources and value growth (Miranda *et al.*, 2011). Chuang further explained that the KM resources are classified as social KM resources, and technical KM resources. The technical KM resource comprising the physical IT infrastructure components, and its KM capability, while the social KM resource comprising the structural, cultural, and human resource, and its KM capability. KM applications can be innovatively launched faster than those of competitors through deploying technical KM resources, while social KM resources can be deployed to create and implement these innovations faster as compared to competitors, all of which eventually will help firms leverage and implement their organizational competitive advantage.

Tanriverdi (2005) divided KMC into product KMC, customer KMC, and managerial KMC, and then knowledge creation, transfer, integration, and leverage as the four main

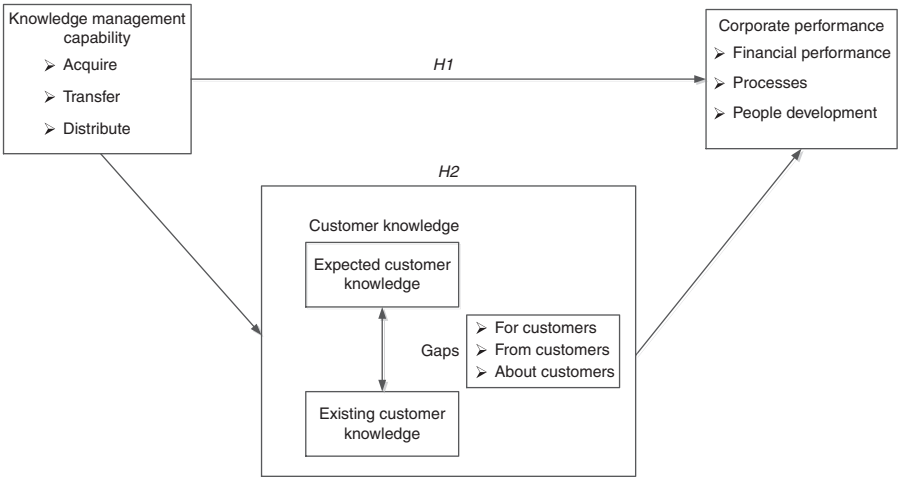


Figure 1.
Basic research model

dimensions to measure the influence of three kinds of KMC on corporate performance. Furthermore, Tanriverdi also described that the KMC creates and exploits cross-unit synergies from the product, customer, and managerial KMC of the firm. These synergies increase the financial performance of the firm. Under such conditions, the KMC of this organization will increase, and in turn, innovation, capability, and effectiveness will be greatly improved. Therefore, KMC is not only meant as a crucial ability of a firm used to predict organizational risks, but it also has become a crucial requirement for creating competitive advantage (Andrew, 2005; Booto Ekionea and Swain, 2008). Hence, firms that desire to enhance KMC utilize their own expertise and qualifications combined with external assistance in order to gradually achieve goals related to overall KMC. In turn, the overall KMC strengths will form a firm's KMC (Liu *et al.*, 2004). Aujirapongpan *et al.* (2010) pointed out that KMC is generated through integrating resources and activities from different sources in order to create and apply knowledge. A firm possesses KMC when it has the ability to prepare and deploy KM-based resources with other resources and capabilities. However, enhancing KMC is not an easy task that can be accomplished within a short period of time, as it requires accumulation of capital, technology, manpower, and experience.

2.2 KMC and corporate performance

In order to improve performance, it is crucial to successfully deploy tangible assets and natural resources, as well as to effectively manage knowledge (Mills and Smith, 2011). Moreover, the prerequisite for acquiring a leading position in the market is whether an enterprise is able to accumulate past experience and transform knowledge acquired by individuals into organizational knowledge, as well as be able to adapt to the environment through continuous learning and development (Dosi *et al.*, 2003). Due to the fact that organizational learning depicts the development of new knowledge or perspectives that make performance-enhancing organizational changes flourish (Zhou *et al.*, 2005). Yeşil *et al.* (2013) further explain that knowledge created, transferred, and shared in firms are the main sources for innovation, while organizational KMC not only directly influences the capability to innovate, grasp business opportunities, respond to a dynamic environment, and coordinate both external and internal resources, but also influences corporate performance (Felin and Hesterly, 2007; Fidel *et al.*, 2015). Hence, when an enterprise possesses rich strategic resources and capabilities, it is easier for it to survive, grow, and earn profits in a competitive market (Kiessling *et al.*, 2009). If a firm can be equipped with KMC, this will not only increase its operational agility, but also will create higher levels of customer value (Claycomb *et al.*, 2005; Jayachandran *et al.*, 2004; Tuominen *et al.*, 2004). Tseng (2014) explored the relation between KMC, supplier relationship management and corporate performance. The results indicate that KMC has a positive influence on corporate performance, while supplier relationship management is the partial intervening variable between KMC and corporate performance. Hence, it is assumed for the purposes of this research that if enterprises can equip themselves with excellent KMC, then it is possible to enhance corporate performance. This research therefore proposes the following hypothesis:

H1. The degree of KMC will have an effect on corporate performance.

2.3 KMC, CKG, and corporate performance

Customer knowledge is related to customer needs, customer characteristics or any possible knowledge that is related to customers both in the past and in the future. It is mainly established based on related experiences and interactions between a firm

and its customers (Nätti and Ojasalo, 2008). Taherparvar *et al.* (2014) stated that using customer knowledge to nourish a co-creative environment for customer participation and interaction can help firms attain superior performance. Firms thus have started to implement customer knowledge management to engage customers in the firms' processes and utilize their knowledge and ideas. Customer knowledge can be broadly categorized as knowledge for customers (i.e. knowledge provided to customers to satisfy their needs), knowledge about customers (i.e. knowledge about customers to optimize customer profiling and segmentation, and campaign management processes), and knowledge from customers (i.e. knowledge acquired from customers for product innovation), which is the knowledge that customers possess that organizations can obtain by interacting with them (Salomann *et al.*, 2005; Lopez-Nicolas and Molina-Castillo, 2008; Khodakarami and Chan, 2014). Yeung *et al.* (2008) pointed out that a firm can obtain knowledge regarding customer preferences through the following five aspects: product quality, customer service, effective sales personnel, effective communication, and social compliance. They further suggested that it is important to identify specific attributes of customer knowledge that are best suited for improving operational performance. For example, a firm should effectively identify, acquire, and classify customers in order to offer high-quality products and demonstrate a high level of flexibility toward customers' needs. Thus, firms should observe, communicate and interact with their customers to acquire customer knowledge so that it can be managed to support research and development and to improve innovation (Gibbert *et al.*, 2002), as well as it can facilitate sensing of emerging market opportunities and support the management of long-term customer relationships (Darroch and McNaughton, 2003).

Several studies have proposed the concept of "knowledge gap" to describe the difference between the enterprise's current capability and the capabilities required for KM (Lovrich and Pierce, 1984; Zack, 1999; Persaud, 2001; Wild *et al.*, 2002). However, there has been no in-depth investigation on CKG, this study thus analogous to service quality gaps and defines CKG as the gaps between existing customer knowledge and the customer knowledge a firm expects to have (Parasuraman *et al.*, 1985; Zeithaml *et al.*, 1988). Challenges in regard to CKG are common in many firms, where they do not have sufficient levels of current customer knowledge. These kinds of gaps are especially noticeable when the firm is introducing a new product or a new process (Hall and Andriani, 2002). If a firm wishes to bridge these CKG, it should put its main focus on its customers and acquire customer knowledge in order to understand the reasons why customers buy the products it is offering because customers possess a wide range of skills, experiences, and interests (Blazevic and Lievens, 2008; Davenport *et al.*, 2001; García-Murillo and Annabi, 2002; Wayland and Cole, 1997). Therefore, firms not only have to develop customer knowledge, but more importantly, they have to collaborate with their customers to develop this knowledge. Particularly if customer suggestions can be implemented in the early stages of new product development, this will help reduce development time and also lead to more successful development (Gemunden *et al.*, 1996; Bogue and Sorenson, 2009). In other words, firms can learn through collaboration with their customers and thus make it possible to meet customer expectations and eventually improve corporate performance (Prahalad and Ramaswamy, 2004).

According to the above, it can be concluded that the ability to retrieve customer knowledge occurs mainly through processes that generate, structure, and organize all information related to the customer (Li and Calantone, 1998). Hence, firms should equip

excellent KMC to effectively utilize, acquire, develop and maintain customer knowledge, and experiences. Moreover, after acquiring customer information regarding personal profiles, transaction data, service information, characteristics, preferences, and promotional data, a firm should systematically arrange this data to become customer information that is easily transferable. In other words, customer knowledge can be retrieved from a variety of existing and potential customer data and transformed into valuable knowledge to support operational and marketing strategies (Lin *et al.*, 2006). Through knowledge absorption, transformation, and conversion processes, such customer information will become internal customer knowledge and will create new customer value. Todorova and Durisin (2007) further indicated that knowledge source and prior knowledge determine the absorptive capacity, in which the appropriability regimes also condition and affect a firm's innovative performance.

Gatignon and Xuereb (1997) stated that better products with better performance are based on the customer orientation, because it makes market innovations more effective resulting in excellent performance. Lukas and Ferrell (2000) pointed out that if a firm becomes more customer oriented, it is possible to uncover latent customer needs and encourage customers to share ideas for developing new products outside the box. Customer orientation is the firm's sufficient understanding of its target customer preferences in order to be able to create superior value for them continuously. It means that firms should utilize existing and potential customer information to retrieve useful customer knowledge as well as to apply this knowledge in a manner that will enhance both customer and corporate value. If firms can understand how customers perceive and use their products, then it will be possible to develop customized sales solutions and enhance corporate performance. This study thus takes into consideration that KMC will influence the discrepancy between the customer knowledge needed to fulfill obligations and the customer knowledge acquired by employees as well as affecting the maintenance of other knowledge resources and corporate performance (McBriar *et al.*, 2003). Thus, this study proposes the following hypothesis:

H2. The association between the degree of KMC and corporate performance is mediated by CKG.

3. Methodology

3.1 Sampling

The purpose of this research is to understand how KMC bridges CKG, as well as how it can enhance corporate performance. The basic model examined the relationship between KMC and corporate performance. The effects of CKG on this relationship were explored. The integrity of collected data can be affected due to low willingness of respondents to participate. Therefore, purposive sampling was used in this study in order to ensure that respondents had high willingness to participate in the research. Samples were restricted to a list of the largest Taiwanese corporations compiled by China Credit Information Service (2013), from which 500 largest firms were selected. Administrators were asked to fill out the questionnaire, since they tend to play key roles in organizational activities. Afterwards, the online questionnaire was sent to the respondents in various companies via e-mail. The link to the online questionnaire for this study was distributed to the companies at the beginning of August 2013, with 107 questionnaires returned by September 2013. All returned questionnaires were valid, and the statistical results obtained from the questionnaire were analyzed. Table I shows the demographic breakdown of the sample, which includes industries, annual sales, number of employees, job position, and years of experience.

Percentage of firms		Percentage of firms	
Industries		*Job position of the interviewee*	
Traditional manufacturing industry	28.1	CEO, general/vice manager	9.3
High-tech industry	22.4	(Vice) division manager, assistant manager	25.3
Service industry	32.7	Chairperson, chief, project supervisor	16.8
Others	16.8	Administrator, executive board, engineer	29.9
		Others	18.7
Annual sales (NTD)		*Number of employees*	
$\leqslant$ 20 million	15.0	$\leqslant$ 100	30.8
$>$ 20 million and $\leqslant$ 1 billion	31.7	101-1,500	24.3
$>$ 1 billion and $\leqslant$ 10 billion	20.6	1,501-6,000	29.9
$>$ 10 billion and $\leqslant$ 50 billion	14.9	$\geqslant$ 6,001	15.0
$>$ 50 billion and	17.8		
Years of work experience			
$\leqslant$ 5 years	21.5		
$>$ 5 years and $\leqslant$ 15 years	41.1		
$>$ 15 years	37.4		

Note: $n = 107$

Table I.
Profile of the respondent firms

3.2 Measures instruments

For the purposes of this study, an in-depth review of literature on KMC, customer knowledge, and corporate performance was conducted in order to clarify the research constructs. Based on the literature, dimensions of each measure were identified to develop the draft questionnaire. As for KMC, this research is an attempt to understand how a firm applies its KMC to learn and project valuable customer knowledge in order to enhance corporate performance. Therefore, this study defined KMC as the capability to apply existing knowledge, as well as to continuously acquire, transfer, and distribute knowledge in order to create new knowledge (Bose, 2003; Holsapple and Singh, 2001). Therefore, this study is based on Holsapple and Singh's (2001) research in order to develop 12 questions that allow measurement through acquiring, transferring, and distributing knowledge. Due to the fact that there has been no in-depth investigation on CKG, this research defined customer knowledge as related to customer needs, characteristics, or past and future knowledge related to customers (Nätti and Ojasalo, 2008). Furthermore, this study is also analogous to service quality gaps and defines CKG as the discrepancy between existing customer knowledge and the customer knowledge a firm expects to have (Parasuraman *et al.*, 1985; Zeithaml *et al.*, 1988). The 12 questionnaire items developed regarding CKG in this study refer to "How to make knowledge for, from and about customers work" by Salomann *et al.* (2005). Moreover, corporate performance, the dependent variable in this research, refers to an evaluation on the effectiveness of individuals, groups, or organizations in regard to financial performance, processes, and people development. Thus, this research referred to dynamic multi-dimensional performance indexes proposed by Maltz *et al.* (2003) based on financial performance, processes, and people development to develop 12 measurement items. The draft questionnaire was tested by some scholars and experts, which led to minor modifications in the wording, sequence, format and layout, question content, and level of difficulty. After making sure that each item did not have any problems, the final questionnaire was sent to all respondents via an e-questionnaire. All of the items were measured on a seven-point Likert-type scale. The KMC and corporate performance were ranging from 1 (strongly disagree) though

4 (neutral) to 7 (strongly agree), while the CKG was ranging from 1 (strongly agree) though 4 (neutral) to 7 (strongly disagree). It means that the items of CKG should be reversed to measure the discrepancy between existing customer knowledge and the customer knowledge a firm expects to have. The final questionnaire items are shown in Table II.

4. Results

PLS aims to estimate parameters by minimizing the residual variances of all the dependent variables involved. The structural model describes the relationship among the latent variables posited by substantive theory, and the measurement model describes the relationships between the observed variables and latent variables. As compared to covariance-based SEM techniques, PLS is less stringent with distributional assumptions, measurement scale type, and sample size requirement (Chin, 1998; Fornell and Cha, 1994). The minimal demands on distributional assumptions and sample size made PLS an appropriate analysis technique for this study. The research model shown in Figure 2 was analyzed using the Smart PLS program.

4.1 The measurement model

Due to the fact that unidimensionality cannot be directly measured with PLS, but can be assessed using an exploratory factor analysis (EFA), this study applied EFA to establish whether the measurement items converge to the corresponding constructs (factors), whether each item loads with a high coefficient on only one factor, and whether this factor is the same for all items that are supposed to measure it. KMC, KMC3, KMC8, and KMC9 were omitted due to factor loadings that were below 0.6. CKG, CKG4, and CKG5 could not be classified into "for" dimensions and were therefore omitted. As for corporate performance, CP12 was omitted due to factor loadings below 0.6. Finally, the measurement model of this study achieved good unidimensionality (Gefen and Straub, 2005).

This study initially specified a null model for the first-order latent variables, in which this study included no structural relationships. To assess the reliability of the measures, this study calculated the Cronbach's α (CA), composite scale reliability (CR), and average variance extracted (AVE). Table III shows that the CR and CA exceed 0.80 (Nunnally and Bernstein, 1994); the AVE of all measures compellingly exceeds the cut-off value of 0.50 (Chin, 1998). Moreover, Table IV showsthat the square root of the AVE exceeds the intercorrelations of the construct with the other constructs in the model, in support of discriminant validity (Fornell and Larcker, 1981). Additional support for discriminant validity comes through inspection of the cross-loadings, which are not substantial in magnitude compared with the loadings (Chin, 1998; Fornell and Larcker, 1981). As shown in Tables III and IV, it can be found that internal consistency reliability, indicator reliability, convergent validity, and discriminant validity were assured for all of our measurement scales (Urbach and Ahlemann, 2010).

In Table V, this study includes theCR and AVE of the measures in the second-order model; these also show CR equals to or greater than 0.80 and AVE greater than 0.5, which provides evidence of reliable measures. As we demonstrate in Table IV, the loadings of the first-order latent variables on the second-order factors exceed 0.7, which is in support of the second-order model of KMC, CKG, and corporate performance.

4.2 The structural model

The structural model aims to examine the relationship among a set of dependent and independent constructs. A bootstrapping analysis with 5,000 samples and the original

Constructs	Factors	Items	Measurements
KMC	Acquire	KMC1	Our company can identify knowledge needed from external sources
		KMC2	Our company can acquire the knowledge needed from external sources
		KMC3	Our company is able to identify the knowledge from internal sources that will be used by our company.
	Transfer	KMC4	Our company can collate and synthesize knowledge acquired from external sources
		KMC5	Our company can transfer (to record and store) the knowledge acquired from an external source to become internal knowledge
		KMC6	Our company is able to collate and systematize knowledge acquired from internal sources
		KMC7	Our company is able to organize internal knowledge to be transferred to (shared with) staff who require this knowledge
		KMC8	Our company is able to apply existing knowledge to create new knowledge
		KMC9	Our company will transfer (share) this new knowledge to staff who need it
	Distribute	KMC10	Our company will periodically evaluate which internal knowledge should be shared with the public
		KMC11	Our company will organize the knowledge that will be shared with the public into handouts, videos, or reports
		KMC12	Our company will share the knowledge with the public through lectures, seminars, market reports, or advertisements
CKG	For	CKG1	Our company is able to immediately fulfill our customers' needs
		CKG2	Our company is able to answer our customers' queries in a professional manner
		CKG3	Our company is able to quickly help solve our customers' problems
		CKG4	Our company has service personnel who can provide comprehensive training
		CKG5	Our company has provided a user-friendly knowledge platform so that our service personnel are able to quickly find knowledge they require
	From	CKG6	Our company has stored all of our customers' suggestions (including complaints) in our database
		CKG7	Our company periodically review customers' suggestions (including complaints) stored in our database
		CKG8	Our company has systemized the frequently encountered problems with their solutions and have presented them on our website so that our customers can find these solutions by themselves
	About	CKG9	Our company is able to identify customers with the highest value (highest profit) based on the past customer information
		CKG10	Our company has tailored the most appropriate marketing activities for our customers with the highest value (highest profit)
		CKG11	Our company has tailored special marketing activities for our customers based on their personal preferences
		CKG12	Our company collates statistical data regarding the success rate of customer-oriented marketing activities

(*continued*)

Table II. The final questionnaire items

Constructs	Factors	Items	Measurements
CP	Financial performance	CP1	Our company has a good level of revenue
		CP2	Our company has a good profit rate
		CP3	Our company has excellent income performance
		CP4	Our company has a very high rate of return on investment
	Process	CP5	Our company introduces new products or services in a timely manner
		CP6	Our company is equipped with the ability to develop new and high-quality products
		CP7	Our company launches new products much faster than our competitors
		CP8	Our company possesses a much higher level of sophistication in automation
	People development	CP9	Our company is able to retain outstanding staff
		CP10	Our company actively nurtures the leadership skills of our staff
		CP11	Our company focusses on employee satisfaction in our corporate measures
		CP12	Our company has a comprehensive staff welfare policy

Table II.

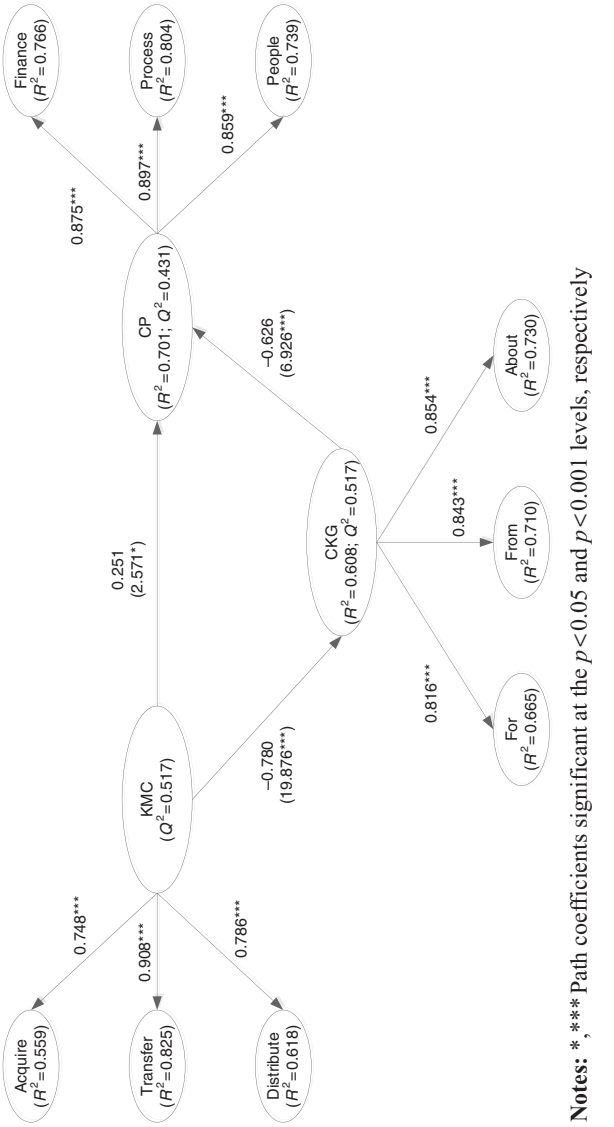
107 cases was performed to examine the significance of the path coefficients. The structural model resulting from this analysis is presented in Figure 2.

R^2 measures the relationship of a latent variable's explained variance to its total variance. Values of approximately 0.670 are considered substantial; values around 0.333 are considered average, and values around 0.190 are considered weak (Chin, 1998). Table V shows a substantial R^2 of 0.701 for corporate performance and a moderate level of 0.608 for CKG. Specifically, the exogenous variables explained 70.1 percent of the variation in the corporate performance construct. The research model accounted for 60.8 percent of the variation in the CKG construct.

Another criterion for predictive validity of the model is to apply the Q-square test (also known as the cross-validated redundancy index) developed by Stone (1974) and Geisser (1975). To measure Q-square, a blindfolding procedure was performed. A Q-square value larger than 0 means that the model has predictive relevance (Barroso *et al.*, 2010). As can be seen from Table V, it could be concluded that the proposed model had good predictability.

The significance of each path coefficient can also be seen from Figure 2. All path coefficients were found to be significant (T-values for all path coefficients are statistically significant at the $\alpha = 0.05$ level), providing support for propositions *H1*. *H1* states that the degree of KMC will have a positive effect on corporate performance.

This study also tested for a mediation effect of CKG in the relationship between KMC and corporate performance. As suggested by Baron and Kenny (1986), a direct path from KMC to corporate performance was first estimated. Second, a direct path from KMC to corporate performance was estimated and then an indirect path from KMC to CKG and from CKG to corporate performance was estimated. The standardized β of the direct path was 0.740 and 0.251 after the CKG was introduced as a mediator. The amount of the relationship between KMC and corporate performance accounted for by the mediator was 0.489, which indicates 66.08 percent of the direct effect. The significance of the mediation effect was assessed using the Sobel test. The z-value



Notes: *, *** Path coefficients significant at the $p<0.05$ and $p<0.001$ levels, respectively

Figure 2.
Structural model

Construct	Items	Loading	CA	CR	R^2	AVE
KMC						
Acquire	KMC1	0.956	0.917	0.960	0.559	0.923
	KMC2	0.965				
Transfer	KMC4	0.914	0.894	0.926	0.825	0.759
	KMC5	0.872				
	KMC6	0.852				
	KMC7	0.846				
Distribute	KMC10	0.889	0.887	0.930	0.618	0.815
	KMC11	0.915				
	KMC12	0.905				
CKG						
For	CKG1	0.906	0.911	0.944	0.665	0.848
	CKG2	0.934				
	CKG3	0.922				
From	CKG6	0.940	0.848	0.910	0.710	0.772
	CKG7	0.932				
	CKG8	0.752				
About	CKG9	0.911	0.949	0.963	0.730	0.868
	CKG10	0.944				
	CKG11	0.963				
	CKG12	0.907				
CP						
Financial	CP1	0.926	0.946	0.961	0.766	0.860
	CP2	0.954				
	CP3	0.917				
	CP4	0.911				
Process	CP5	0.888	0.915	0.940	0.804	0.798
	CP6	0.884				
	CP7	0.908				
	CP8	0.891				
People	CP9	0.880	0.912	0.944	0.739	0.850
	CP10	0.944				
	CP11	0.940				

Table III.
Psychometric properties in null model for first-order constructs

Notes: CA = Cronbach's α; CR = composite reliability; AVE = average variance extracted

Construct	Acquire	Transfer	Distribute	For	From	About	Financial	Process	People
Acquire	*0.961*								
Transfer	0.581	*0.871*							
Distribute	0.419	0.573	*0.903*						
For	−0.489	−0.599	−0.479	*0.921*					
From	−0.431	−0.592	−0.567	0.557	*0.879*				
About	−0.454	−0.574	−0.524	0.558	0.581	*0.932*			
Financial	0.498	0.562	0.549	−0.590	−0.484	−0.576	*0.927*		
Process	0.421	0.507	0.561	−0.630	−0.556	−0.680	0.716	*0.893*	
People	0.495	0.560	0.523	−0.620	−0.557	−0.608	0.653	0.660	*0.922*

Table IV.
Intercorrelations of the latent variables for first-order constructs

Note: Square root of the AVE is on the diagonal

Secondorder model					
KMC		CKG		Corporate performance	
CR	0.946	CR	0.944	CR	0.963
AVE	0.597	AVE	0.587	AVE	0.638
Acquire	0.748***	For	0.816***	Financial	0.875***
Transfer	0.908***	From	0.843***	Process	0.897***
Distribute	0.786***	About	0.854***	People	0.859***
Structural model					
		CKG		Corporate performance	
	KMC	−0.780***		0.251*	
	CKG			−0.626***	
	R^2	0.608**		0.701**	
Q^2 (CV redundancy)		0.517		0.431	

Notes: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table V. Assessing the second-order model of KMC, CKG, and corporate performance

for the indirect path was 6.458, $p < 0.000$. The VAF (variance account for) is 66 per cent of total effect. Hence, the result provides support for the partially mediating role of CKG between KMC and corporate performance, as proposed in hypothesis *H2*. *H2* states that the association between the degree of KMC and corporate performance is mediated by CKG. Therefore, if a firm wishes to enhance its corporate performance, it not only has to improve its KMC, but should also decrease CKG so that it is possible to effectively enhance corporate performance. In other words, the influence of KMC on corporate performance during the process will partially affect CKG and then, in turn, will affect corporate performance.

5. Conclusions

5.1 Theoretical implications

In order to satisfy customers' real desires and needs, the ability to sense and respond quickly to changes in consumer preferences, is critical for survival and corporate performance (Jayachandran *et al.*, 2004; Hosseini *et al.*, 2011). Hence, the two main objectives of the present study are: to study the relationship between KMC and corporate performance; and to analyze the association between the degree of KMC and corporate performance is mediated by CKG. According to the results of the structural model (Table V and Figure 2), the β value for KMC on corporate performance was 0.251 ($p < 0.05$) and show that KMC has a significant effect on corporate performance. This means that if the KMC of an enterprise is superior, this will significantly enhance corporate performance. The β values for KMC on CKG were −0.780 ($p < 0.001$), and show that KMC has a significant negative effect on CKG. This means that if KMC of an enterprise is superior, the CKG of enterprise will significantly decrease. Thus, an enterprise should enable it to equip KMC that facilitates the effective management and flow of information and knowledge within the firm (Mills and Smith, 2011). Due to the fact that different resources make up the KMC of a firm (Gold *et al.*, 2001), while these resources also determine the KMC of a firm (e.g. technology, organizational structure, and culture, and the capabilities of knowledge acquisition, conversion, application, and protection). In order to enhance the KMC, top leaders should accommodate members of the staff with a culture of continuous learning, a flexible knowledge management infrastructure, and should provide critical evaluation of the relevance of knowledge assets (Cepeda and Vera, 2007).

According to the results of the structural model (Table V and Figure 2), the β values for CKG on corporate performance are -0.626 ($p < 0.001$) and show that CKG has a significant negative effect on corporate performance. This means that if the CKG of an enterprise is larger, corporate performance will significantly decrease. Therefore, in order to enhance corporate performance, enterprises must derive a method to decrease CKG. Based on the results of testing the mediating effects of CKG, it was found that KMC holds a direct influence in regard to enhancing corporate performance; moreover, CKG is also indirectly interrelated in terms of enhancing corporate performance. This shows that KMC determines how information and knowledge can be acquired, transferred and distributed from the internal and external environment while the degree of CKG determines how knowledge for, from and about customers work can be made. Therefore, firms should apply their KMC to gather knowledge for, from and about customers to decrease CKG and enhance their relationship with customers as well as improve corporate performance.

Based on the conceptual perspective, CKGs in organizations are in existence when there is an emphasis on the distinction between desired and available customer knowledge configurations. From a practical viewpoint, this distinction is useful because it can be a part of a methodology to guide managers when they have to decide which customer knowledge they should have in order to support a strategy and when they need to compare that particular customer knowledge with the base of knowledge they currently have. This information can also provide valuable insight into how to develop or obtain missing customer knowledge due to the fact that customer needs continuously shift in hypercompetitive environments (Jarratt and Fayed, 2001; Nath and Newell, 1998).

5.2 Managerial implications

The objective of this study was to assess the impact of KMC on corporate performance by considering CKG. The results showed that KMC is the major factor for enhancing corporate performance, and suggested CKG to be a significant intervening factor between KMC and corporate performance. In other words, whether an enterprise can effectively enhance corporate performance determines the pros and cons of both KMC and CKG. Hence, both KMC and CKG have become key strategic tools and significant attributes of corporate performance (Chen *et al.*, 2005; Yang *et al.*, 2014). Through the evaluation of CKS, enterprises can reduce the misfit between existing customer knowledge and the customer knowledge a firm expects to have, and thus, enterprises can make corrections and adjustments accordingly to greatly enhance the corporate performance.

In order to decrease the CKG of enterprises, top leaders should first have an explicit understanding of how their critical knowledge can be leveraged to renew their knowledge-based value creation capabilities when needed. Second, enterprises should able to identify and acquire the customer knowledge available from both internal and external sources that will be used by their company. In general, customer knowledge comes from different sources. This includes information regarding the market, competitors, customers, orders, contracts, products, and services, and customer complaints (Tiwana, 2001). Based on real practice, customer knowledge can be acquired from the interactions between customers and a firm; for example, personal visits, project activities, regular meetings or discussions, problem solving, and so on. On the other hand, customer knowledge can also be acquired from strategic partners (e.g. parent and sister companies, etc.), and secondary data (Campbell, 2003).

Third, enterprises should able to collate and systematize the customer knowledge acquired from internal and external sources, as well as to transfer (share) this information to (with) staff who require it. It means creating a valuable leverage and direct interaction with the customers (Dimitrova *et al.*, 2009). Thus, firms should develop a set of customer knowledge management systems to integrate customer information and market analysis in order to obtain usable, immediate customer knowledge (Chen and Yan, 2008). Finally, enterprises should periodically evaluate which internal knowledge should be released into the environment. The process of embodiment of knowledge in outward forms can add value to an organization. The value can be added in various forms such as profits, image, customer loyalty, and visibility (Holsapple and Singh, 2001).

Furthermore, in regard to knowledge for customers, enterprises should introduce and maintain a knowledge platform to support staff in order to determine what information they need as well as to provide faster answers that are of higher quality (Salomann *et al.*, 2005). In regard to knowledge from customers, enterprises should systematically collect knowledge from all touch points (e.g. phone, mail, customer contact centers, customer self-service system, and local stores) about customer needs. They should then be able to generate know-how about services and product innovation (Sen and Sinha, 2011). In regard to knowledge about customers, enterprises should introduce a data warehouse to organize the knowledge that they have gained about the product experiences of their customers over time. Through warehouse data and data mining, as well as other techniques that integrate customer and marketing information, the staff can then retrieve valuable customer knowledge (Liao *et al.*, 2009, 2010). Such knowledge will be provided as a reference to employees so that they can develop and promote new products and manage customer relationships. When a firm possesses better KMC, the degree of CKG can decrease so that corporate performance will ultimately be enhanced.

5.3 Study limitations

Although the findings of this study have a number of meaningful implications for practitioners, the study has some limitations. First, this research applied a purposive sampling method and obtained a slightly inadequate number of respondents. Therefore, it is suggested that future research should apply a random sampling method to collect more responses and increase the generalizability. Second, this research investigated the impact of KMC and CKG on corporate performance in a Taiwanese context, which contains a specific set of societal, cultural, and linguistic attitudes and behaviors. Moreover, the measurement scale items of this study were translated from "plain" Chinese to English, which may cause slight variations in meaning. Therefore, future research could extend this study to other regions of the world.

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About the author

Shu-Mei Tseng is an Associate Professor in the Department of Information Management at the I-Shou University, Taiwan. She received her PhD in the Department of Industrial and Information Management at the National Cheng Kung University, Taiwan. Her works have been published in the *International Journal of Information Management*, *International Journal of Production Economics*, *Journal of Knowledge Management*, *Expert Systems with Applications*, *Industrial Management and Data Systems*, *Journal of Enterprise Information Management*, *International Journal of Quality and Service Sciences*, *Journal of Retailing and Consumer Services*, and *Management Research News*. Her current research interests include knowledge management, information technology management, customer relationship management, and service quality. Associate Professor Shu-Mei Tseng can be contacted at: y97576@isu.edu.tw