The Hong Kong Polytechnic University

Department of Management and Marketing

The Effects of Customer Knowledge Process on Improving Product/Service, Frontline Employee Performance and Customer Relationship Performance

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A thesis submitted in partial fulfilment of the requirements for the Degree of Master of Philosophy

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Certificate of Originality

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ABSTRACT

Abstract of thesis entitled 'The Effects of Customer Knowledge Process on Improving Product/Service, Frontline Employee Performance and Customer Relationship Performance' submitted by Shi Jia for the degree of Master of Philosophy at The Hong Kong Polytechnic University in 2007.

With the emphasis shifting increasingly to knowledge-based global economy, organizations have to frequently renew their learning systems to respond to fast-changing markets aiming to enable themselves to stay ahead of changes. Customer relationship management (CRM), as a strategic management tool for building customer asset, requires integration with customer knowledge management process for a more rapid response to changing markets. However, in the existing relationship marketing literature, the internal organization processes have not received adequate attention. To fill this gap, a conceptual framework of customer knowledge process (CKP), that is a crucial process for achieving effective CRM, is proposed in this research. In addition, this study examines the direct effect of CKP on the innovative capability and human resource function of an organization. Both outcomes of CKP result in product/service improvement (PSI) and frontline employee performance (FEP). An organization's customer knowledge, innovation ability, and employee capability are a firm's valuable resources that can produce optimal performance. The proposed framework is tested with data collected from 175 firms in Mainland China. The results show that CKP plays a vital role in enhancing a

firm's product/service improvement and frontline employee performance, which subsequently lead to customer relationship performance. The study has practical significance for Chinese firms to broaden their knowledge in organizing and managing customer knowledge. Our emphasis on internal organizational CKP with its consequential results, i.e., improvements in creativeness and employee performance, will add new dimensions to CRM and the relationship marketing literature.

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Chapter 1 Introduction

Introduction

This chapter provides an overall view of the study and comprises the research background, research problems, research objectives, significance of the study, scope of the study, and the dissertation structure.

The study and practice of customer relationship management (CRM) has experienced explosive growth over the past decade. It is widely known that, in the current competitive business world, a cooperative and long-lasting relationship with customers is crucial in gaining an upper hand for firm survival (Day 2000; Rust, Zeithaml and Lemon 2000). Firms' intense interest in CRM has driven marketing academics to pursue the relevant research (Dwyer, Schurr and Oh 1987; Morgan and Hunt 1994; Berry 1995; Sheth and Parvatiyar 1995; Kerstetter 2001; Winer 2001; Reinartz and Kumar 2002). Most extant CRM research focuses on the capabilities and functions of CRM on firm's performance (Kamakura et al. 2002; Johnson and Selnes 2004; Reinartz and Kumar 2002; Ryals 2005; Srinivasan and Moorman 2005). With the emphasis of the global economy shifting to knowledge-based management (Kogut and Zander 1992), customer knowledge as one type of organizational knowledge plays a crucial role in organizations' CRM process (Joshi and Sharma 2004; Mithas, Krishanan and Fornell 2005). Yet organizational customer-related knowledge remains under-represented in relationship marketing literature. It is, therefore, a promising area to empirically research in-house customer knowledge as

well as key organizational resources, such as innovations and the role of employees, that potentially influence and predict the performance of long-term organization-customer relationships. In addition, despite a tremendous amount of published materials reflecting CRM development in Western culture, studies in the Asian context are few and a contribution of CRM study in the Chinese context is called for. To fill this gap, this study attempts to explore the role of internal customer knowledge process in CRM in Mainland China. The aim is to find the added value of CRM in order to strengthen the power of CRM strategy. This would enable firms to adapt to China's complex, changing and highly competitive environment. In addition, this research is expected to generalize the external validity of concurrent CRM research work by using a China perspective.

1.1 Research Background

1.1.1 CRM Development

Customer relationship management (CRM) as a customer management tool has been gradually recognized by both practitioners and researchers since the mid-1990s. In practice, CRM has potential usefulness in enhancing management efficiency. Organizations that have been experiencing increased customer demands have attempted to launch CRM projects to manage growing customer demands and expectations.

In order to provide insightful direction for practitioners in CRM application,

researchers have been continuously investigating this topic (Reinartz, Krafft and Hoyer 2004, Mithas, Krishnan and Fornell 2005, Ryals 2005, Jayachandran, *et al.* 2005). CRM has become a very popular and fiercely debated topic in relationship marketing literature. Recently, scholars have proposed that integrating CRM with knowledge management process can improve a firm's competence (Menon and Varadarajan 1992; Bose and Sugumaran 2003).

1.1.2 Increasing Importance of Customer Knowledge

In today's fast-changing business environment, organizations have to frequently upgrade their learning systems to become change leaders. Meanwhile, the emphasis of marketing has seen an increasing shift from the traditional product-oriented approach to a knowledge-based market-oriented approach, which is consistent with the trends of the global economy (Rowley 2002). Organizational knowledge is identified as a key competitive factor in knowledge-enabled marketing (Marinova 2004). In order to respond to rapid market changes, both practitioners and academics have questioned how much firms know their customers and have started to pay attention to this major market asset — customer knowledge in organizations (García-Murillo and Annabi 2002; Rowley 2002; Gibbert, Leibold and Probst 2002; Joshi and Sharma 2004).

Customer knowledge is defined as an understanding of customer preferences (Joshi and Sharma 2004) that are derived from multiple sources and media (Mithas, Krishnan and Fornell 2005), such as transactions through different channels and

various customer-firm touch-points. Distinguished from customer information, customer knowledge is treated as interpreted customer information (Huber 1991), namely, a flow of customer messages consisting of experiences, values, contextual information and expert insight (Nonaka 1994). This knowledge-based perspective (Kogut and Zander 1992) provides a framework for evaluating and incorporating new experiences and customer information (Davenport and Prusak 1998). It is an information-knowledge transferring process. In particular, customer information is captured, screened, analyzed and converted into customer knowledge for identifying customers' latent needs and firms' future transactions (Li and Calantone 1998; Mithas, Krishnan and Fornell 2005). Marinova (2004) has highlighted that customer knowledge is one of the fundamental types of market knowledge which is a crucial source of competence (Li and Calantone 1998) leading to high firm performance (Day 1997).

More efforts should be made to study how customer knowledge evolves in order to establish a comprehensive organizational knowledge system as well as its relation to the CRM process.

1.1.3 Resource-Based View (RBV) and CRM

The resource-based view (RBV) proposed by Wernerfelt (1984) tells us that a firm should use minimal resources to produce great profitability. The resource-based perspective (Wernerfelt 1984; Barney 1991, 2001; Priem and Butler 2001) directs firms' focus on resources that are important antecedents to firm performance. The

RBV seminal works have started to influence other academic areas as well as inspire scholars in different fields to think about problems from the RBV perspective. For example, human resources and the RBV of the firm in management (Wright, Dunford and Snell 2001); in the marketing area, explanations of market-assets in gaining competitive advantage from a resource-based view (Srivastava, Fahey and Christensen 2001); information technology from the RBV perspective in management information systems (MIS) (Mata, Fuerst and Barney 2006); and customer relationship with a RBV perspective in the scope of relationship marketing (Gouthier and Schmid 2003).

The above extended studies from the RBV motivate this study to consider CRM as a crucial organizational resource. In Wernerfelt (1984)'s view, IT application, knowledge, innovation and employees' capability all belong to firms' resources. Hence, CRM with the key constructs of the hypothesized model in this study (i.e., customer knowledge process, product/service improvement, and frontline employee performance) are crucial organizational resources. These resources help companies build competitive advantage.

1.1.4 CRM in the China Context

Extant relationship marketing literature related to the CRM issue reflects CRM development in Western countries. This study targets the industries in Mainland China. In the modern customer relationship-centred era, aiming at retaining customers, many Mainland Chinese companies have adopted CRM in

running their business, e.g., CNC, Sinopec and TSINHUA TONGFANG, etc. Thus, studying CRM in the Mainland China context is very meaningful and will enrich the relationship marketing literature stream.

1.2 Research Problems

According to the feedback of many enterprises, the implementation of CRM has appeared to be unsuccessful in many aspects. Several studies (e.g., Sundaram, Schwarz, Jones and Chin 2007) conclude that 55 to 80% of all CRM-related projects failed or could not reach the original expectations. Further investigation is urgently needed on CRM issues for firms together with better methods of implementation.

Secondly, the end purpose of firms is to improve profitability that is actually created by selling products or services. Sales performance is therefore the primary concern of the top management. On the other hand, as Boulding *et al*. (2005) stated, future research on CRM needs to examine CRM's connection with a company's innovation patterns and value creation process for customers.

Thirdly, the role played by employees, the operators in the CRM process, in managing customer relationship is often neglected. It should be noted that, in relationship marketing, the frontline employee, in particular, is one of the key factors that helps firms build customer assets. Hence, frontline employee performance in CRM is an important factor that needs to be further investigated.

In addition, many famous CRM software providers (e.g., Oracle and

Microsoft) have started to pay more attention to the Mainland China market, since Chinese enterprises have gradually tried to utilize the CRM system to manage customer relationship. To discover the actual situation of CRM development in China for those CRM vendors, this study investigates in-house customer knowledge process in CRM by targeting Mainland Chinese organizations.

In short, this study attempts to answer the following three questions:

1) What is the actual situation of processing in-house customer knowledge and its influence on firm-customer relationship performance in industry in Mainland China?

2) How does product/service improvement through intra-customer knowledge process affect firm-customer relationship performance?

3) How can frontline employee performance be improved through internal customer knowledge process and how can this improved performance impact on firm-customer relationship performance?

1.3 Research Objectives

To fill the gap of current literature and try to answer the problems stated above, this study has the following aims:

1) To examine the intra-firm customer knowledge process and its effects on organization capability and customer relationship performance;

2) To assess the impact of customer knowledge process on product/service improvement and its influence on customer relationship performance;

3) To evaluate the impact of customer knowledge process on frontline employee performance and its influence on customer relationship performance.

1.4 Significance of this Study

First, this study identifies customer knowledge process as a key important organizational resource and a type of marketing competence for organizations. According to the resource-based view (RBV), a firm delivers sustainable competitive advantage by combining its bundle of resources in a unique pattern (Wernerfelt 1984). Resources that are valuable (i.e., contribute to firm efficiency or effectiveness) and rare (i.e., not widely held) can produce competitive advantage. Given that organizational process that generates customer knowledge in-house cannot be easily imitated by competitors, cannot be substituted by other resources, and is not available in resource markets (Dierickx and Cool 1989), then such resources can produce sustainable competitive advantage (Priem and Butler 2001).

Second, this customer knowledge process consists of four sub-processes, namely, customer information acquisition, customer knowledge development, distribution and utilization. This integrated knowledge process focuses on generating and sharing the knowledge about the customer among the internal departments within an organization to increase its ability to manage customer relationship, as well

as to fulfill the need for satisfied organization-customer relationship. It is expected to improve a firm's profitability. This knowledge-enabled customer information process has additional impacts on both new product/service development and frontline employee performance, which extends the relationship marketing literature stream.

Third, as for managerial significance, the delineation of the multi-stage customer knowledge process provides critical insights for managers to recognize, track, utilize and yield customer knowledge. It is an important capability that aids firms to better understand the customers' preferences and behaviours. In turn, customer knowledge process assists firms in meeting the customers' expectations and tailors superior offerings to satisfy their customers. As a result, it improves the firm's revenue earning capability.

Fourth, Boulding *et al*. (2005) pointed out that future CRM research needs to connect the company's innovation patterns and value creation process to customers. This study forges the link between customer knowledge process and product/service improvement, therefore it extends the scope of CRM research. The study explores innovation as an outcome of exchanging customer knowledge among departments within an organization, which helps managers think further about mining the potential resources of the existing CRM system.

Fifth, one of the main purposes of this study is to remind both researchers and practitioners that employees are the crucial group in CRM delivery. They are the interface between the organization and the customer. In particular, frontline

employees' skills may be reflected in knowledge, courtesy, competence and communication abilities, which represent aspects of service quality (Parasuraman, Zeithaml and Berry 1985). Thus, exploration of the influence of frontline employee performance in the CRM context can potentially enrich relationship marketing literature.

In addition, this empirical research adds a new perspective to existing CRM literature. Most published reports and papers about CRM concerned its development in Western countries. By contrast, this research study targets the industries in China undergoing reforms from a centrally planned economy to a market economy. Conducting such a study within the context of a transitional economy is more critical than doing it within a market economy. In a transitional economy, firms that have a deep understanding of customer knowledge are more likely to achieve superior firm performance, due to competitive advantages built from this knowledge. This study has practical significance to help Chinese managers broaden their knowledge in CRM implementation.

1.5 Scope of this Study

This study focuses on organizations, since firms implement the CRM process to manage and foster relationships with their customers in order to earn more profitability from customers. In particular, the scope of this study is the industries in Mainland China.

1.6 Structure of this Dissertation

This thesis comprises seven chapters. Chapter One provides a brief introduction to the background and primary objectives of the study. In the next chapter, previous research involving customer relationship management (CRM), customer knowledge process (CKP), innovation patterns, i.e., product/service improvement (PSI), employee capability enhancement, i.e., frontline employee performance (FEP), and customer relationship performance (CRP), is reviewed. The conceptual model of this study with its relevant hypotheses is presented in Chapter Three. The fourth chapter addresses the research methodology, including the research instrument, measurement of variables, research design, data collection procedure, and data analysis. The results of hypotheses tests are provided in Chapter Five and the findings of this study are discussed in Chapter Six. Finally, both theoretical and managerial implications, limitations of this study, and future research directions are given in Chapter Seven.

Chapter 2 Literature Review

Introduction

The purposes of this study are, firstly, to delineate the in-house process concerning customer knowledge with the detailed explorations into its impact on the performance of organization-customer relationships. Secondly, we examine two mediators — product/service improvement (innovation effort) and frontline employee performance (employee capability) — on the association between customer knowledge process (CKP) and customer relationship performance. The extant relationship marketing literature on CRM and each relationship among the constructs in the model is reviewed in this chapter. The clear definitions for each construct in relationship to this particular study are given as well.

2.1 Customer Relationship Management (CRM)

2.1.1 CRM Concept

The concept of customer relationship management (CRM) is one of the important streams of the relationship marketing literature. The spirit of CRM is keeping long-term customer relationship aiming to continue a firm's business growth (Child *et al.* 1995). In today's customer relationship-oriented market, both buyer and seller intend to reap mutual benefit from the relationship approaches (Grönroos 1996). CRM therefore attracts great attention and the body of literature on CRM has been growing since the last decade. Although there is extensive discussions about

CRM-related topics, people have not yet reached an agreement on the precise definition of CRM. Table 2.1 summarizes the five main perspectives defining CRM in the extant relationship marketing literature.

Bickert (1992) and Kutner and Cripps (1997) provided a narrow perspective describing CRM as a customer database with emphasis on customer information storage and promotion for marketing. Furthermore, Hamilton (2001) and Findlay (2000) shared the similar understanding of CRM which is a process of storing and analyzing the vast amounts of data collected from multiple touch-points with customers. The contact points include phone, mail, web or field.

The rapid development of information technology (IT) has led practitioners and researchers to see CRM from an IT perspective. Peppers and Rogers (1993) simplified CRM as an IT function that focuses on individual or one-to-one customer relationship. Along with the growing popularity of the Internet and the emergence of e-commerce application, CRM was developed and extended to a higher level information platform for managing customer relationship through Web-based tools and Internet presence (Gosney 2000; Khanna 2001; Stone and Woodcock 2001).

Relationship cultivation is another perspective to see CRM process. This viewpoint treats CRM as an approach not only seeking one time transaction with customers but also stressing the core of CRM is customer retention and customer bonding cultivation (Vavra 1992; Pepper, Rogers and Dorf 1999; Srivastava, Shervani and Fahey 1999). In addition, Hobby (1999) and Buttle (2001) added and

reinforced one point for this perspective. In particular, firms using CRM approach to develop and maintain long-term relationship with their customers need to select those profitable and valuable customers. Such relationship between organizations and customers is truly significant and mutually beneficial for both buyer and seller.

From a strategic viewpoint, CRM is not just a simple IT solution used by organizations to build the customer database, but also an organizational and comprehensive strategy developed to understand the nature of customer value, to utilize the appropriate resources and knowledge to manage customer relationships, and to operate CRM application to provide high-quality products and services to customers, in order to increase customer loyalty (Glazer 1991; Parvatiyar and Sheth 2001; Payne and Frow 2005; Smith 2006). Even though a CRM strategy has numerous aspects, the basic theme is for a firm to become more customer-centric and the final goal of CRM strategy is to improve the organization's profitability and regenerate the value for firms (Srivastava, Shervani and Fahey 1999).

With the emphasis shifting increasingly to knowledge-based global economy, some scholars pointed out that customer knowledge is an important asset in organizations' CRM process. Couldwell (1999) and Swift (2000) stated that CRM involves using existing customer information to generate customer knowledge aiming for improving customer loyalty and company profitability. This knowledge-based perspective highlights a way to improve CRM productivity and dig the potential ability of CRM by using existing customer information resources,

which is consistent with Bose and Sugumaran's (2003) definition on CRM that is

about managing customer knowledge to better understand and serve customers.

Table 2.1 Definitions of CRM

Studies	CRM Definitions
Database Perspective	
Bickert (1992)	- A database marketing; and - Emphasizing the promotional aspects of marketing.
Kutner & Cripps (1997)	- A data-driven marketing.
Hamilton (2001)	- A process of storing and analyzing the vast amounts of customer-related data; and - Supposedly yields greater insight into customer behavior.
Findlay (2000)	- Concentrates on customers' retention rate by collecting data from multiple touch-points with customers; and - Makes good use of this data for specific business purposes.
IT Perspective	
Peppers & Rogers (1993)	- An information technology; and - Focusing on individual or one-to-one relationships with customers.
Gosney (2000)	- A customer-centric information technology; and - Web-based tools and Internet presence.
Khanna (2001)	- An e-commerce application.
Stone & Woodcock (2001)	- A term for methodologies, technologies; and - E-commerce capabilities used by companies to manage customer relationships.
Relationship Cultivation Perspective	
Vavra (1992)	- An approach to seek customer retention; and - For leading to customer bonding or staying in touch with the customer after a sale is made.
Pepper, Rogers & Dorf (1999)	- An application of one-to-one marketing and relationship marketing.

Studies	CRM Definitions
Hobby (1999)	- A management approach; - Identify, attract, and increase retention of profitable customers by managing relationships with them.
Srivastava, Shervani & Fahey (1999)	- A process aiming on establishing maintaining and enhancing long-term associations with customers.
Buttle (2001)	- The development and maintenance of long-term, mutually beneficial relationships with strategically significant customers.

Strategy Perspective

Glazer (1991)	- A strategic bridge between information technology and marketing strategies; and - Requires "information-intensive strategies".
Parvatiyar & Sheth 2001)	- A comprehensive strategy and process; and - Creates superior value for the company and the customer.
Payne & Frow (2005)	- A profound synthesis of strategic vision.
Smith (2006)	- A strategic relationship managing process.

Knowledge & Information-based Perspective

Couldwell (1999)	- A process of using existing customer information/Knowledge.
Swift (2000)	- An enterprise approach to understanding and influencing customer behavior.
Bose & Sugumaran (2003)	- A way of managing customer knowledge to better understand and serve them.

2.1.2 Defining CRM for This Study

The target of this research is to find the potential influences of in-house customer knowledge process on customer relationship performance. Bose and Sugumaran (2003) proposed that customer information and knowledge are the key elements that should be considered when defining CRM, since an organization's knowledge of its customer is the principal resource that can be utilized to identify profitable customers and provides appropriate input to marketing strategy. Further, sharing and transferring the knowledge of individuals with groups within an organization enhance firms' capabilities (Kogut and Zander 1992). Hence, defining CRM in this study follows the learning and knowledge base perspective. This paper merges the above perspectives together and simply defines ***CRM as a strategic management process that supports efficient and effective organization of customer knowledge leading to product/service improvement, great frontline employee performance, and customer satisfaction.***

2.1.3 CRM Literature

Relationship marketing scholars have long advocated that pursuing long-term relationships with customers is a more profitable approach for firms than transaction-orientation method (e.g., Morgan and Hunt 1994; Srivastava, Shervani and Fahey 1999; Rigby, Reichheld and Schefter 2002; Day 2000; Parvatiyar and Sheth 2001). Although CRM is defined from different perspectives mentioned in section 2.1.1, basically, CRM must be an organizational process having the function

for managing customer relationship. In other words, CRM comprises three essential traits: functional process, customer orientation and organization-wide (Reinartz, Krafft and Hoyer 2004). According to the three features of CRM, theorists in this area contribute to developing the comprehensive CRM process for firms with the emphases on cross-functions (Payne and Frow 2005), multiple phases (Winer 2001) and the dual creation of firm and customer value (Johnson and Selnes 2004; Rogers 2005; Vargo and Lusch 2004; Smith 2006) (see Table 2.2).

Table 2.2 Selected Literature on CRM Process Development

Studies	Study Design	Descriptions
Payne & Frow (2005)	Conceptual	Five key cross-functional processes (strategy, value creation, multi-channel, information management and performance assessment)
Winer (2001)	Conceptual	Seven phases (database creation, analysis, customer selection, customer targeting, relationship marketing, privacy issues and evaluation)
Parvatiyar & Sheth (2001)	Conceptual	CRM practice, Process and Discipline
Rogers (2005)	Conceptual	CRM strategy
Smith (2006)	Conceptual	CRM solutions
Boulding, Staelin, Ehret & Johnston (2005)	Conceptual	CRM future directions
Dwyer, Schurr & Oh (1987)	Conceptual	Developing buyer-seller relationships

In addition to theoretical development, a prerequisite for the applied implementation of CRM is that it should demonstrably enhance firms' performance, thus, one of the most widely researched topics is the influence of CRM on business performance. Table 2.3 presents the previous studies on the relationship between CRM and performance issues. Reinartz, Krafft and Hoyer (2004) shows that firms engaging in implementing CRM processes (initiation and maintenance stages) produce better economic performance. Ryals (2005) uses a case study approach revealing that CRM activities can increase great business unit profits. Cao and Gruca (2005) center the attention on selecting "right" customers for developing specific CRM application to increase the firm's performance. Lewis (2005) provides a process that identifies and considers dynamic customer behavior, thus enabling a pricing scheme that increases long-term profits. Apart from the financial aspect of firms' performance, some studies concern and evaluate the effects of CRM application on customer satisfaction (Mithas, Krishnan and Fornell 2005; Srinivasan and Moorman 2005; Anderson, Fornell and Mazvancheryl 2004).

Table 2.3 Selected Literature on CRM — Performance

Studies	Study Design	Sample Size	Analysis Unit	Study Context	Results/Comments
Verhoef (2003)	Longitudinal	2595	Consumer	Financial services	CRM activities increase customer retention and customer share development.
Mithas, Krishnan & Fornell (2005)	Cross-sectional	300	Organization	The U.S. firms	CRM applications improve customer satisfaction and customer knowledge.
Johnson & Selnes (2004)	Experiment	—	Company Data	Company data	Closer customer relationship creates more profitability.
Reinartz, Krafft & Hoyer (2004)	Cross-sectional	211	Strategic Business Unit (SBU)	Financial services/hospitality/ online retailing/ power utilities	Implementing CRM processes improves firms' economic performance.
Ryals (2005)	Longitudinal case study	—	Consumer	Financial services	CRM activities can deliver greater profits for firms.
Gustafsson, Johnson & Roos (2005)	Cross-sectional	2734	Consumer	Telecommunications services	Customer satisfaction increases customer retention
Cao & Gruca (2005)	Cross-sectional	7854	Consumer	Financial services	CRM application increases the firm's performance by selecting right customers.
Lewis (2005)	Experiment	—	Consumer	Company data	Pricing strategy in CRM leads to long-term profits.
Henning-Thurau, Gwinner & Gremler (2002)	Cross-sectional	336	Consumer	Three service categories	Customer satisfaction, commitment, confidence benefits and social benefits significantly contribute to relationship marketing outcomes.

The above studies provide the evidence that CRM as one of core competitive advantages can produce superior performance outcomes for organizations, however, in reality, approximately 70% of CRM projects result in either losses or no bottom-line improvement in company performance (Gartner Group 2003). Most investments on CRM technology have not reached the original expectations, companies continue to experience pain (e.g., lost sales) rather than profit (Thetgyi 2000). Several studies also speculate that despite substantial investments in CRM solutions, there has been no noticeable increase in productivity at the organizational level (Galvin and Berg 2003), nor there has been any impact on bottom-line performance (Speier and Venkatesh 2002). Thus, the results of implementing CRM have been mixed (Reinartz, Krafft and Hoyer 2004) and the failure cases of investing CRM have led to the concern about its viability and effectiveness.

2.2 Linking Knowledge/learning to CRM

Why does the paradox of CRM solution exist? This question raises the attention of practitioners and researchers to re-think about the goal of CRM and the current situation of firm-customer relationship. Boulding, Staelin, Ehret and Johnston (2005) pointed out that customer data management is probably the main problem. Although some attempts were made to organize these data for analytic purposes, many firms were overwhelmed by this onslaught of potentially useful information. The disappointing outcomes from CRM implementation could be the result of inappropriate information processes (Jayachandran *et al*. 2005).

Concurrently, other relationship marketing scholars turned their attention to the core capabilities of the firm that were necessary to develop and maintain good customer relationships. To this end, concepts such as market-based learning (Vorhies and Morgan 2005), marketing research (Javalgi, Martin and Young 2006), market information processing (Sinkula 1994), marketing information use (Toften and Olsen 2003) and market knowledge competence (Li and Calantone 1998) were developed that emphasized good information/knowledge processes and learning capabilities within the firm to understand the needs and wants of customers, thus making firms more efficient and effective in managing customer relationships. Therefore, research exploring organizational customer-related knowledge processes relevant to CRM could help shed light on the role of CRM process in firms.

Nonaka (1991, p. 96) reinforces that "in an economy where the only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge". Management research has presented extensive work on organizational learning (e.g., Argyris and Schön 1978; Huber 1991) and organizational knowledge (e.g., Kogut and Zander 1992; Nonaka 1994). Building on prior research in organizational knowledge, learning, and memory, there has been a number of research contributions linking knowledge-related themes to managing customer relationship in relationship marketing area. Such contributions have mainly focused on two streams, the first one suggests the conceptual framework for constructing customer knowledge-related management process, such as customer knowledge development model (Joshi and Sharma 2004) and customer knowledge management framework (García-Murillo

and Annabi 2002; Gibbert, Leibold and Probst 2002; Rowley 2002). The other stream concerns the organizational performance outcomes of customer knowledge/learning management process. For example, customer information processes in firms' CRM process increase firms' customer satisfaction and retention (Jayachandran *et al.* 2005). Moreover, customer knowledge process enhances the firms' customer response capability (Jayachandran, Hewett and Kaufman 2004). Table 2.4 shows the extant literature on knowledge-related themes in marketing area.

Table 2.4 Selected Literature on Knowledge/Learning in Marketing Area

Studies	Main Concepts	Study Design	Processes	Study Significance
Vorhies & Morgan (2005)	Market-based organizational learning	Empirical	A search, gap-assessment and capability improvement stage	(+) Marketing capabilities
Jayachandran, Hewtt & Kaufman (2004)	Customer knowledge process	Empirical	—	(+) Customer response capability
Jayachandran et al. (2005)	Customer-related information processes	Empirical	Information reciprocity; capture, integration, access; and use	(+) Customer relationship performance (i.e., customer satisfaction and customer retention)
García-Murillo & Annabi (2002)	Customer knowledge management	Conceptual	- Knowledge revealing, sorting, leveling; and - Coding and Sharing knowledge	Propose a three-step model.
Rowley (2002)	Customer knowledge management	Conceptual	- Knowledge repositories; - Knowledge access and knowledge tools; - Knowledge cultures; and - Knowledge assets.	Apply the nature of knowledge management to customer knowledge management in e-business.
Gibbert, Leibold & Probst (2002)	Customer knowledge management	Conceptual	—	Suggest five styles of CKM: prosumerism, group learning, mutual innovation, communities of creativity and joint intellectual capital.
Joshi & Sharma (2004)	Customer knowledge development	Empirical	- Deployment of new product ideas; - Learning activities and analysis of customer feedback; and - Development of new products.	(+) New product success

Studies	Main Concepts	Study Design	Processes	Study Significance
Li & Calantone (1998)	Market Knowledge Competence	Empirical	- Customer knowledge process; - Marketing - R&D interface; and - Competitor knowledge process.	(+) New product advantage
Javalgi, Martin & Young (2006)	Marketing research	Case study	- Problem definition; - Design Methodology; - Capture data; and - Report and recommendations.	(+) CRM performance
Menon & Varadarajan (1992)	Marketing knowledge use	Conceptual	—	Explicate the nature of knowledge utilization.
Toften & Olsen (2003)	Market information use	Conceptual	- Information generation; - Information utilization; - Information interpretation; and - Information dissemination.	Link market information use and organizational knowledge to firm performance.
Sinkula (1994)	Market information processing	Conceptual	Market information acquisition, distribution, interpretation, and storage of market information.	Enhance the understanding of information processing and knowledge creation in organizations.
Bose & Sugumaran (2003)	Knowledge-enabled CRM	Conceptual	- Identification and generation; - Codification and storage process; - Distribution; and - Utilization and feedback process.	Provide a framework of knowledge-enabled CRM process.

2.3 Reviewing Knowledge/Learning, Innovation and Employee Capability Researches

As organizations move towards a competitive knowledge-based environment, the business processes supporting the organization become increasingly, highly knowledge-intensive in order to ensure organization's long-term success and growth. CRM is no exception to this trend, it is moving away from being a simply customer-centered, operational system of the past to a more knowledge oriented, analytical system of the future. It could provide the means by which a company can maintain a progressive relationship with a customer across that customer's lifetime relationship with the company. Thus, companies should equip the ability to track and analyze a range of customer actions and events over time through using a knowledge-enabled operational CRM system (Bose and Sugumaran 2003).

Following this tradition, this study investigates the role of customer knowledge process in CRM from a China perspective. Two accompanied outcomes, i.e., product/service improvement and frontline employee performance which are expected to influence customer relationship performance directly and positively, are also examined in this study. Discussing innovation efforts and employee capability in firms' CRM process since there has been extensive literature showing that the learning and knowledge process creates core competencies for firms and benefits firms in innovation activities (Moorman and Miner 1997; Li and Calantone 1998; Madhavan and Grover 1998; Hoopes and Postrel 1999; Lievens and Moenaert 2000;

Tsai 2001; Spencer 2003; Toften and Olsen 2003; Marinova 2004; Joshi and Sharma 2004; Kontoghiorghes, Awbrey and Feurig 2005; Brockman and Morgan 2006). In addition, the role played by employees during CRM process is extremely important but often being neglected. Several marketing studies show that capable employees satisfy customers and help firms increase customer loyalty (Schmit and Allscheid 1995; Hartline and Ferrell 1996; Schneider, White and Paul 1998; Hartline, Maxham III and McKee 2000; Abbott 2003; Donavan, Brown and Mowen 2004;Burke, Graham and Smith 2005; Schneider, Mayer, Saltz and Niles-Jolly 2005; Chun and Davies 2006). Therefore, investigating frontline employee's performance in CRM process deserves more attention.

2.4 The Role of Customer Knowledge Process (CKP) in CRM

2.4.1 The Role of Customer Knowledge

To comprehend the meaning of customer knowledge process, customer knowledge should be perceived in the first place. Customer knowledge is defined as an understanding of customer preferences possessed by an organization (Joshi & Sharma 2004). It is the fundamental component of knowledge-enabled CRM (Bose and Sugumaran 2003). Using García-Murillo and Annabi's (2002) statement that the distinction between information and knowledge lies in the usage of information, customer knowledge is the processed information, being screened, analyzed and interpreted to help firms to identify customers' latent needs (Li and Calantone 1998; Rowley 2002a, 2002b; Jayachandran, Hewett and Kaufman 2004; Mithas, Krishnan

and Fornell 2005). Subsequently, the firm is enabled to provide more customized exchange with its customers.

From the perspective of the RBV, customer knowledge is an intangible asset that is valuable because customer knowledge is fundamental for the organization's well-being, and it is rare as it is not available in the market. Such processed information will not be easily imitated by competitors or substituted by other resources. Therefore, customer knowledge when properly managed will produce sustainable competitive advantage.

2.4.2 Processing Customer Knowledge

The in-house knowledge of a customer cannot be formed without systematical processing and development. It must be a multi-stage process with a front-to-back solution achieved by transferring customer information into knowledge. This transferring process can be conceptualized as the market knowledge process (Li and Calantone 1998). Properly managed customer knowledge enables internal organizational actors to create value for its customers. Thus, processing knowledge requires internal organizational units' cooperation to recognize the value of incoming customer information, assimilate it, and use it strategically.

Furthermore, the knowledge acquired is of no practical use unless it is shared with those people who need to know. In management literature, knowledge sharing (Hoopes and Postrel 1999; Bell, Giordano, and Putz 2002; Spencer 2003) focuses on

the collection, sharing, and use of organizational knowledge (e.g. market intelligence, technology knowledge) with insiders/outsiders to improve the firm's comprehensive capability (Hoopes and Postrel, 1999). Moreover, knowledge sharing ability is crucial to innovation (Cohen and Levinthal 1990) and to gain performance advantages (Day 1997). It is therefore necessary to share the in-house customer knowledge within the whole organization and increase the firm's knowledge of its customers with the aim of serving and satisfying them better.

From the customer orientation perspective, the ability to use customer knowledge is also significant to benefit firms in the areas of product/service improvement, frontline employee achievement, and successful customer relationship performance. In the current customer-centric marketing environment, organizational customer knowledge has become increasingly important, in particular in its implications for organizational effectiveness and competitiveness. Products and services can be improved using the timely updated customer needs and preferences. Frontline employees can better perform their jobs from learning knowledge. Satisfied customers tend to be loyal customers. Therefore, processing the customer knowledge effectively and efficiently is an essential value creation process for firms.

2.4.3 Customer Knowledge Process

Based upon prior research on customer information processes (Jayachandran et al. 2005), customer knowledge management (García-Murillo and Annabi 2002; Gibbert, Leibold and Probst 2002), customer knowledge process (Li and Calantone

1998; Jayachandran, Hewett and Kaufman 2004), market information processing (Sinkula 1994), marketing information use (Toften and Olsen 2003), knowledge sharing (Hoopes and Postrel 1999; Bell, Giordano and Putz 2002; Spencer 2003), and organizational learning (Argyris and Schön 1978; Fiol and Lyles 1985; Kohli and Jaworski 1990; Huber 1991; Menon and Varadarajan 1992; Schulz 2001), this study centers on customer knowledge process among firms' internal departments, and attempts to explore how customer knowledge process influences product/service improvement, frontline employees' performance, and customer relationship performance.

The construct of customer knowledge process is based on two major concepts:

1) The customer information processes (Jayachandran *et al.* 2005) include five customer-related information processes focusing on enhancing customer relationship performance, i. information reciprocity, ii. information capture, iii. information integration, vi. information access, and v. information use.

2) Market knowledge competence (Li and Calantone 19981) focuses on innovation advantage, which refers to the processes that generate and integrate marketing knowledge (e.g., market intelligence, technology knowledge) with three dimensions: i. customer knowledge process, ii. marketing – R&D interface, and iii. competitor knowledge process.

Customer knowledge process can be regarded as one specific aspect of market knowledge competence (Li and Calantone 1998), which focuses on processing customer knowledge among internal departments within a firm to increase the firm's knowledge of its customers with the goal of serving and satisfying them better. Moreover, customer knowledge process has the set of activities associated with acquiring customer information mainly from internal sources, developing, sharing the customer knowledge with relevant members of the organization, as well as using it to create new knowledge and improve customer relationship performance. These sub-processes of customer knowledge processing are consistent with management models on organizational learning processes (Kohli and Jaworski 1990; Huber 1991; Menon and Varadarajan 1992; Slater and Narver 1995), customer information processes (Jayachandran *et al*. 2005), and market information processing (Deshpandé and Zaltman 1987; Sinkula 1994).

We therefore define customer knowledge process as a management process including customer information acquisition, customer knowledge development, customer knowledge sharing, and customer knowledge utilization. The procedure enables the firm to analyze a customer's past behaviour and project his/her future needs, so that the firm can enhance the customer's value with better service.

2.4 The Role of Product/Service Improvement (PSI) in CRM

Successful enterprises depend on change through the old to bring forth the new. Peter Drucker (1954) has highlighted the importance of innovation in

organization by making such a remark: "…any business enterprise has two and only these two basic functions: marketing and innovation."

By and large, the term innovation in marketing literature largely refers to new product-related breakthroughs (Im and Workman Jr., 2004). Most marketing literature focuses on such new product-related aspects of innovation with a number of different themes. From Min, Kalwani and Robinson's (2006) comparison between breakthrough and incremental new products on new market entry, the latter was found to have lower market survival risk for the market pioneer. New product breakthrough is in fact rare in actual practice. Moreover, marketing literature examining innovation in relation to customer relationship performance is non-existent. To fill such a gap, we study incremental product development (product improvement) and its impacts on customer relationship performance.

Marketing scholars have called for more research on services. In response to such service dominant logic (Vargo and Lusch 2004), we will also examine the role of services improvement in the CRM context.

In this study, our model examines to what extent product/service improvement mediates the relationship between customer knowledge process and customer relationship performance.

2.6 The Role of Frontline Employee Performance (FEP) in CRM

Employee's motivation and behaviour have been the focus in human resource

management area. Recently, the role of the employee has also aroused marketing scholars' interest with an increasing number of studies on employee-related themes concerning the service interfaces between customers and organizations, such as the study of services relating to employee satisfaction (Harter, Schmidt, and Hayes 2002; Chun and Davies 2006), employee performance (Singh 2000; Liao and Chuang 2004;Netemeyer, Maxham III and Pullig 2005), employee behaviours (Ramaswami 1996), employee turnover effects (Bendapudi and Leone 2002), and employee management (Hartline and Ferrell 1996). Front office employees, such as sales and customer service personnel, are in direct contact with customers. The capability and performance of employees during interactions with customers directly affect customers' experiences and their satisfaction.

Similarly, employees act in a key position in managing customer relationship. Generally, frontline employees deliver offerings to customers on behalf of the organization; their capability and performance therefore determine whether the trade-off relationship can be continued or stopped. Chebat and Kollias (2000) demonstrated that capable marketing employees can help firms to produce happier and more satisfied customers and thereby foster the customer-organization relationship.

Frontline employees' skills are reflected in their knowledge, courtesy, competence and communication ability. These skills represent the quality aspect of service of the firm (Parasuraman, Zeithaml and Berry 1985). Accordingly, bonded

personal relationships between employees and customers create institutional relationships, i.e., the relationships between organizations and their customers. In addition, the frontline personnel are the collectors of knowledge from customers and will then use that knowledge to help other customers (García-Murillo and Annabi 2002). It is therefore important to highlight the role played by frontline employees in the relationship marketing area.

This study seeks to find the influence of frontline employees on customer relationship performance, in terms of capability improvement and performance enhancement through the in-house customer knowledge process. In this research, frontline employee performance refers to an individual's performance which is improved to manage customer relationship, including productivity, effectiveness and usefulness, and benefits from processing organizational customer knowledge. In other words, an individual's comprehensive ability and performance benefit from the customer knowledge process but also will be passed along to the organizational customer knowledge base to foster customer relationship for firms. Thus, this study takes into account the frontline employee performance in order to investigate CRM in a deeper and broader manner.

2.7 Customer Relationship Performance (CRP)

2.7.1 Customer Satisfaction (CS)

As Drucker (1954) once said, the principal purpose of a business is to create

satisfied customers. Customer satisfaction is regarded as an important criterion in evaluating the result of marketing practices.

Firstly, understanding the cause of customer satisfaction is more crucial than how to measure customer relationship performance to firms. Firms intend to satisfy their customers in order to consolidate the firm-customer relationship (Jayachandran *et al.* 2005). In marketing literature, one of the important customer satisfaction researches is the disconfirmation paradigm which postulates that customer satisfaction is made up of performance-specific expectation and expectancy disconfirmation (Oliver 1980).

Further, customer satisfaction is treated as a comparison of the level of service performance, or any other outcomes perceived by the consumer with an evaluative standard (Westbrook and Oliver 1991). In accordance with relationship research, we adopt the customer overall evaluation view and consider customer satisfaction as the customer's overall appraisal of all relevant aspects of the customer-firm relationship.

2.7.2 CRP Measurement of This Study

In this study, the customer relationship performance metric is focused on two key aspects of relationships: customer satisfaction and long-term customer relationship.

Most of the previous work has measured customer relationship performance

by customer satisfaction (Jayachandran *et al*. 2005). Nevertheless, CRM is largely implemented by firms focusing on the customer side. Therefore, it is believed that customer relationship performance should be weighted by customer-based indicators, such as, customer satisfaction, customer retention, customer commitment, customer loyalty, customer value, and so on. These indicators are generated from the ongoing relationships between firms and customers, which is the underlying source of the future revenue of a firm. Among those customer-based monitors, customer satisfaction has direct influence on the success of implementing CRM. It is also widely used by marketing scholars to measure customer relationship performance (Jayachandran *et al*. 2005). We therefore use customer satisfaction as one indicator of customer relationship performance.

The fundamental objective of CRM is to win and maintain customers, ensure long-term organization-customer relationship, and drive organizations' economic growth (Srivastava, Shervani and Fahey 1999). High-level customer satisfaction leads to customer loyalty and then sustains the long-term relationships between customers and organizations (Chebat and Kollias 2000). Therefore, in this study, a long-term relationship with a customer is the other monitor of customer relationship performance.

Chapter 3 Conceptual Framework and Hypotheses

Introduction

Reviewing the extant literature on CRM in the relationship marketing area, most literature focuses on CRM strategy with its impacts on a firm's financial performance (Reinartz, Krafft and Hoyer 2004; Johnson and Selnes 2004; Ryals 2005; Payne and Frow 2005). Although there is a growing emphasis on equipping CRM with knowledge and learning elements (Bose and Sugumaran 2003; Jayachandran, Sharma, Kaufman and Raman 2005), more effort is required to investigate customer knowledge issues in the CRM process. To address this need, this study conceptualizes and examines the role of customer knowledge process with its two preceding requirements (i.e., innovation and employee performance) in CRM. The conceptual model is also developed and illuminated in this chapter.

3.1 Theoretical Foundation

The role of knowledge in building advantage has been well documented in the literature on the resource-based perceptive (Wernerfelt 1984; Barney 1991, 2001; Priem and Butler 2001) as well as the literature on the knowledge-based view of firms (Kogut and Zander 1992).

CRM has been increasingly designed as a strategic customer relationship solution. In strategic management literature, a well-known theory, resource-based view (RBV), attracted many scholars to contribute to its development (Wernerfelt

1984; Barney 1991, 2001; Priem and Butler 2001). From the RBV perspective, the firm is viewed as a bundle of resources, such as brand names, in-house knowledge of technology, employment of skilled personnel, trade contacts, machinery, efficient procedures and capital (Wernerfelt 1984). According to the boundary of resources, the in-house customer knowledge, innovation ability, employee performance and CRM process proposed in this study can be regarded as a firm's partial resources that would improve customer relationship performance.

Extending the RBV perspective, the knowledge-based view approach suggests that firms should combine their existing capability, even imitate and replicate the skills possessed by competitors to transfer, apply and generate new and comprehensive knowledge for themselves. Following this tradition, customer-related knowledge as one of the types of organizational knowledge concerns the understanding of customer needs and preferences. Processing customer knowledge in an ongoing manner can construct and enrich the firm's comprehensive knowledge base (Jayachandran, Hewett and Kaufman 2004). Transferring and applying in-house customer knowledge affects and sustains the bond between organization and customers. The organization-customer relationship is also pointed out by Gouthier and Schmid (2003) as an essential resource of firms.

Hence, based on the above interpretations and reviewing relationship marketing literature, Jayachandran *et al*. (2005) initially established a multiple-level information process related to the customer that enhances the relationship between

firms and customers. A further exploration on the associations of customer knowledge process with customer relationship performance is conducted in this research.

3.2 Developed Conceptual Model

Drawing on the knowledge-based view (Kogut and Zander 1992), resource-based view (RBV) (Wernerfelt 1984; Barney 1991, 2001; Priem and Butler 2001) and organizational learning (Argyris and Schön 1978; Schulz 2001) research streams, this study conceptualizes one internal CRM process, one important resource for firms, through initializing in-house customer knowledge process to enhance organization-customer relationships. This model also identifies product/service improvement (innovation efforts) and frontline employee performance (employee capability enhancement) both of which have mediating effects on the associations between customer knowledge process and customer relationship performance. This is shown in Figure 3.1.

Figure 3.1 The Model of the Role of Customer Knowledge Process with Its Two Consequent Outcomes in CRM
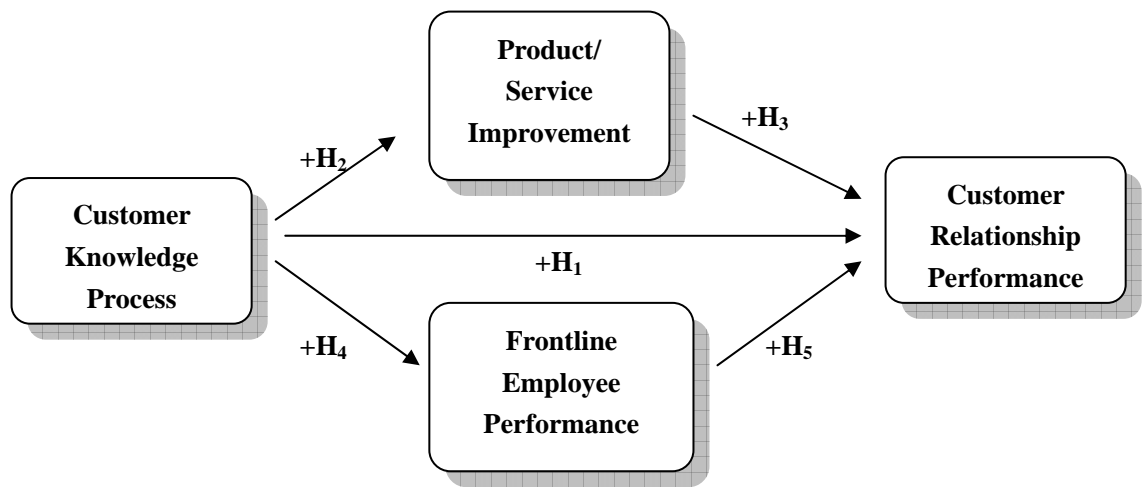
3.3 Customer Knowledge Process and Customer Relationship Performance

Customer knowledge which is an organizational knowledge, as well as being one type of market knowledge (Marinova 2004), is very helpful for the establishment of the long-term customer-firm relationship that is essential to relationship performance. Sharing and transferring such organization-wide knowledge, i.e., in-house customer knowledge has significant and positive effects on business unit performance (Tsai 2001). In this study, therefore, customer knowledge process is expected to lead to the success of customer relationship managing.

Processing customer knowledge helps firms build complete profiles for each customer, owing to the fact that systematically documented customer knowledge supports organizations to clarify customers' needs and then customizes the offerings to different customer categories and market segments. Correct market segmentations lead to efficient response to customers and business growth. Furthermore, effectively manipulating customer knowledge benefits firms to appropriately utilize resources managed by different intra-departments. Customer knowledge process facilitates the functional units in charge of product or service development to meet existing and potential customers' needs.

In addition, processing customer knowledge through the whole organization is helpful to improve group-work effectiveness and efficiency in resolving customers' problems, as well as to achieve synergy of collaboration. Quick problem resolving can usually satisfy customers and retain those customers who may intend

to switch to competitors. Apart from the above logic, the companies which better understand customer knowledge have more competencies in identifying high value customers. Meeting those valuable customers' expectations, pleasing them and keeping long-term relationships with them are absolutely necessary to continue the strong profit chain for organizations. Based on the above reasons, we propose that customer knowledge process has a positive influence on customer relationship performance.

H_1: *Customer knowledge process has a positive effect on customer relationship performance.*

3.4 Customer Knowledge Process and Product/Service Improvement

Statistical results show that the failure rate of new products is somewhere between 40 and 75% (Stevens, Burley and Divine 2003). One main reason for new product failure is the lack of systematic customer knowledge and customer knowledge managing process in organizations. In other words, firms possessing the ability to identify, use and share customer knowledge are expected to be more knowledgeable about how to improve their products and services to serve their customers better and lead to a high percentage of innovation success.

Organizational learning and knowledge creation are often treated as antecedents of innovations (Moorman and Miner 1997; Tsai 2001;Hurley and Hult 1998; Real, Leal and Roldán 2005; Kontoghiorghes, Awbrey and Feurig 2005),

meaning that products or services improved in companies are normally deemed as an outcome of learning process and utilizing organizational knowledge. Based on the chain of market orientation – innovation – performance (Han, Kim and Srivastava 1998; Im and Workman Jr. 2004), Joshi and Sharma (2004) have examined and identified that customer knowledge development process is a key prerequisite for fostering new product success. In addition, customer knowledge process is consistent with conceptualizations of knowledge utilization in models of market information processing (Sinkula 1994) and market research use (Deshpandé and Zaltman 1987). Both have also been demonstrated to have the positive impacts on innovation issues. Hence, companies that have already developed the ability to absorb customer knowledge will have a greater capability to innovate products and services in the present and future. Therefore, it is necessary to investigate the association between customer knowledge process and product/service improvement.

Comparing with previous marketing researches on the linkage between knowledge and innovation, in this study we regard product/service improvement, one form of innovation, as a consequence of customer knowledge process. We thereby hypothesize that the influence of customer knowledge process will have a positive impact on product/service improvement.

H$_2$: Customer knowledge process has a positive effect on product/service improvement.

3.5 Product/Service Improvement and Customer Relationship Performance

Both innovation and CRM have been used by leading-edge enterprises to gain competitive advantage (Hurley and Hult 1998). Considering the inter-relationship between innovation, such as offerings improvement, and CRM may provide new insights to empower firms' customer relationship management in the current competitive business environment. For that reason, we argue that product/service improvement is likely to increase and affect customer relationship performance positively.

Prior research uniformly indicates that a robust relationship exists between innovative action and organizational performance success (Han, Kim and Srivastava 1998; Marinova 2004; Im and Workman Jr. 2004). However, extant literature has not yet addressed how product/service improvement influences customer relationship performance that belongs to one type of organizational performance. It is meaningful to study this in the relationship marketing context, since customer knowledge-driven products/services improvement will create satisfied customers (Fornell, Johnson, Anderson, Cha and Bryant 1996) and eventually enhance firms' customer relationship performance (Jayachandran *et al.* 2005; Parvatiyar and Sheth 2001). Therefore, in this study, customer knowledge-enabled product/service improvement activities are expected to have a positive effect on customer relationship performance.

H₃: Product/service improvement has a positive effect on customer

relationship performance.

3.6 Customer Knowledge Process and Frontline Employee Performance

As explained in Chapter 2, human resources are an important asset in the implementation of CRM because the employee is the receiver, user, and creator of customer knowledge due to the following reasons. First, normally, frontline employees are the direct actor interacting with customers and represent their organizations in conveying the product/service to customers. The accumulated experiences of employees during their interactions with customers also generate new ideas that may form new customer knowledge (Nonaka 1994). Second, knowledgeable employees have the abilities to push and enhance the level of customer knowledge of firms since they are the disseminators of such knowledge. Third, the IT ability of an employee is very important to the success of system implementation. More specifically, frontline personnel with complete and skillful use of CRM information technology would benefit in terms of performance and capability enhancement (Sundaram, Schwarz, Jones and Chin 2007). Fourth, both management and marketing literature demonstrate that a capable employee leads to customer satisfaction and loyalty (Anderson, Fornell and Mazvancheryl 2004; Morgan, Anderson and Mittal 2005). Thus, front office employee capability is strongly expected to be a consequence of the customer knowledge process.

Furthermore, customer knowledge process equips the internal employees of a firm with various aspects of knowledge of each customer, as well as distributes

customer knowledge to the employees among different intra-departments within one organization. During that process, frontline employees absorb the knowledge of customers and then apply it into their working activities immediately. During the course of disseminating customer knowledge, frontline employees share their rich experiences accumulated in handling customer-related affairs, which can improve the firms' group-work efficiency and competency. From the platform of customer knowledge process, front office employees do not merely improve their capability to resolve customers' problems, but may also generate new ideas that form new customer knowledge (Nonaka 1994). In addition, customer knowledge process reduces the training period for new marketing employees significantly and improves their customer knowledge levels in a short time, which leads to cost-efficiency for firms. Thus, in light of the above interpretations, we argue that frontline employee performance is one subsequent outcome of the customer knowledge process.

H_4: *Customer knowledge process has a positive effect on frontline employee performance.*

3.7 Frontline Employee Performance and Customer Relationship Performance

Most transactions and service encounters involve dyadic interactions between customers and front office employees, such as sales, marketing, and customer services. Knowledgeable and skillful employees are enthusiastic about delivering excellent service to customers for their firms (Chebat and Kollias 2000) and generate high levels of customer satisfaction (Burke, Graham and Smith 2005). Those

satisfied customers are more likely to become loyal customers, as manifested by fewer complaints, higher repurchasing rate, and positive word-of-mouth recommendations (Anderson and Sullivan 1993). A greater degree of customer loyalty is indicated by a highly stable relationship with the organization, which enables firms to increase financial performance (Harter, Schmidt and Hayes 2002). Following from the above logic, capable frontline employees are expected to help firms satisfy customers and sustain their long-term relationship with loyal customers.

Further, the extensive research supports the positive relationship between employee issues and customer satisfaction (Harline and Ferrell 1996; Loveman 1998; Harter, Schmidt and Hayes 2002; Abbott 2003; Burke, Graham and Smith 2005; Chun and Davies 2006). For example, Morgan, Anderson and Mittal (2005) demonstrated that, in general, a happier and more satisfied employee positively affects customer satisfaction.

Apart from that, in the context of CRM, customer knowledge process provides an effective way to manage the customer information and deliver the customer knowledge to employees in different functional units (such as marketing and sales departments). Transferring organizational knowledge improves the productivity of these employees and the effectiveness of work-groups for handling customer-related affairs (Harter, Schmidt and Hayes 2002). Thus, having employees with the advantage of gained knowledge, and the improved job performance which results, would lead to high quality service for customers. Thus, we hypothesize that

there is a positive correlation between frontline employee performance and customer

satisfaction and long-term customer-organization relationship.

      H_5: Frontline employee performance has a positive effect on customer

relationship performance.

Chapter 4 Research Methodology

Introduction

This chapter presents a detailed explanation of the procedures and analysis of the research methodology for this study. It starts with a brief introduction about the research instrument and the phases of the research methodology used. The measurement for variables is then explained specifically. Sequentially, the pre-tests employed for the research instrument and pilot study are also described. Next, the use of the sample survey approach and the procedure of data collection are provided. Finally, the method used to analyze data is addressed.

4.1 Research Instrument

Since it is organizations, not individuals, who implement customer knowledge process (CKP) as well as customer relationship management (CRM), the unit of analysis for this study is therefore at the organizational level. The Mainland Chinese industry was selected to test the model. Two types of key informants, marketing managers and sales managers within one organization, were approached for this study. The reasons are that, firstly, marketing managers normally possess expertise and experience in companies' marketing strategy development and customer relationship policy formulation. In addition, they are actively involved in building customer information or knowledge process. Secondly, sales managers were chosen as the other informants for this study because they are normally responsible

to introduce firms' new product and service to customers. In addition, they are directly supervising the front office employees' ability and their performance.

A self-administered questionnaire served as the primary means for data collection. The purpose of the study and the strict confidentiality of the data stated in the cover message were sent along with the survey questionnaire. The subjects were asked to return the completed questionnaire using an enclosed self-addressed, reply-paid envelope within two weeks. In order to increase the response rate, three reminders were sent after the initial mailing.

Figure 4.1 shows an overview of the research methodology in this study highlighting the main tasks and methods in each phase.

Figure 4.1 Overview of Research Methodology

Phase 1:   **Method**

- Specify the domain and dimensionality of the construct

- Literature Review

Phase 2:

- Generate item pool
- Modify the instruments of questionnaire
- Exploratory sort of items into:
  - four dimensions of the independent variable,
  - two dimensions of one mediating variable and one dimension of the other mediating variable,
  - two dimensions of one dependent variable.
- Assess the reliability of the scales and add, delete or modify items

- Pretest (1 Professor & 3 Master Students)
- Pilot Study (Interview 33 Marketing Managers and Customer Relationship Related Managers)
- Simple Exploratory Factor Analysis and Reliability Test

Phase 3:

Questionnaire to a large sample random selected from The *Chinese Enterprises & Commodities Database (CECDB)* published by *Wang Fang Database China*

- Exploratory Factor Analysis
- Reliability Test
- Multiple Linear Regressions Analysis

4.2 Measurement

This section describes the measures on the independent variable, mediating variables and dependent variable. The variables identified in this research model were measured by using multi-item indicators that are presented in Table 4.1.

Table 4.1 Constructs Measurement

Variables	Operationalization	Source(s)	Question Number
Independent Variables: Customer Knowledge Processes (CKP)			
1. Customer Information Acquisition	Mean of 4 items	Jayachandran et al. (2005); Reinartz et al. (2004)	Section A: Part III — A1-A4
2. Customer Knowledge Development	Mean of 7 items	Li & Calantone (1998); Jayachandran et al. (2005); Reinartz et al. (2004)	Section A: Part III — B1-B7
3. Customer Knowledge Sharing	Mean of 4 items	Jayachandran et al. (2005); Srinivasn & Moorman (2005)	Section A: Part III — C1-C4
4. Customer Knowledge Use	Mean of 4 items	Jayachandran et al. (2005); Reinartz et al. (2004)	Section A: Part III — D1-D4
Mediating Variables: Product/Service Improvement (PSI)			
5. Product/Service Improvement Meaningfulness	Mean of 3 items	Im & Workman Jr. (2004)	Section B: Part I — A1-A3
6. Product/Service Improvement Success	Mean of 3 items	Im & Workman Jr. (2004)	Section B: Part I — B1-B3
Mediating Variables: Frontline Employee Performance (FEP)			
7. Frontline Employee Performance	Mean of 4 items	Bhattacherjee (2001)	Section B: Part II — A1-A4
Control Variables			
8. Ownership	Ownership of Organization	——	Organization Background
9. City	Location of Organization	——	Organization Background
10. Firm Size	Total no. of Employees	Im & Workman Jr. (2004); Mithas, Krishnan, & Fornell (2005)	Organization Background
11. Industry	Nature of Business	Reinartz et al. (2004); Mithas, Krishnan, & Fornell (2005)	Organization Background
Dependent Variables: Customer Relationship Performance (CRP)			
12. Customer Satisfaction	Mean of 4 items	Wang et al. (2004); Jayachandran et al. (2005); Srinivasn & Moorman (2005)	Section A: Part V — A1-A4
13. Long-term Relationship	Mean of 4 items	Hennig-Thurau et al. (2002); Jayachandran et al. (2005); Kumar et al. (1995)	Section A: Part V — B1-B4

4.2.1 Independent Variable: Customer Knowledge Process (CKP)

Based on the model of customer information processes in CRM (Jayachandran *et al*. 2005), we conceptualized the framework of customer knowledge process (CKP) in CRM. In this study, CKP consisting of four sequential aspects (customer information acquisition, customer knowledge development, sharing and use) was developed from the multiple processes of customer information (Jayachandran *et al*. 2005). Seven items for CKP were adapted from Jayachandran *et al*.'s (2005) instrument. To enhance the power of this construct, 13 items for measuring customer knowledge process were adopted from other literature sources identified below with appropriate modifications.

Following Jayachandran *et al*.'s (2005) study, customer knowledge process in this study is a process comprising four stages: 1) customer information acquisition, 2) customer knowledge development, 3) customer knowledge sharing, and 4) customer knowledge use. The scales consisted of seven-point Likert-type indicators, ranging from 1 = strongly disagree to 7 = strongly agree. Four items, adapted from Reinartz, Krafft and Hoyer (2004) and Jayachandran *et al*. (2005), were used for measuring customer information acquisition that focus on customer information/knowledge collection on an ongoing basis. The customer knowledge development measurement reflects the efforts of the organization to bring together the information captured from various internal functional units on a customer basis and sequentially. Processing and analyzing the customer information generates and forms customer

knowledge in order to help firms to conduct marketing activities. Seven items used

to measure this sub-process were adapted from Li and Calantone (1998), Reinartz,

Krafft and Hoyer (2004), and Jayachandran *et al.* (2005). Four items used for

measuring customer knowledge sharing which emphasizes the distribution and

sharing level of customer knowledge to relevant employees and internal departments

were adopted from Srinivasan & Moorman (2005) and Jayachandran *et al.*'s (2005)

instruments. Measurement for customer knowledge use, including 4 items, assesses

the extent to which the firm used customer knowledge to undertake actions that

improve the product or service quality. The measurement scale for customer

knowledge use was adapted from Reinartz, Krafft and Hoyer (2004) and

Jayachandran *et al.* (2005).

4.2.2 Mediating Variable: Product/Service Improvement (PSI)

The construct of product/service improvement in this study concerns the incremental performance of products or services after the learning process of customer knowledge. The improvement of these offerings is also expected to facilitate the success of customer relationship. Thus, the measurement scale for product/service improvement reflects the outcomes of customer knowledge process which are expected to benefit customer relationship management. To improve the offerings' performance firstly it should meet customers' needs to ensure the meaningfulness of the improvement. Secondly, customers satisfaction with the tailored and improved offerings should appear to encourage loyalty with good word-of-mouth recommendations to others. The criteria for evaluating successful innovation concern not only customer satisfaction but also several other aspects, such as sales, profits, return on investment, market share and technological advancement. Thus, two indicators (product/service improvement meaningfulness and success) were used to measure this construct, which was adapted from Im and Workman Jr. (2004). The scale for meaningfulness of product/service improvement was chosen because the 4 items are related to satisfying customer needs which is fundamental to maintaining good relationships with firms' customers. The 3 items used to measure product/service improvement success accessed different perspectives of innovation performance, such as market share, customer satisfaction and technological advancement, which are supposed to lead to high performance of customer relationship.

4.2.3 Mediating Variable: Frontline Employee Performance (FEP)

The measurement for the performance of frontline employees during customer knowledge process was derived from Bhattacherjee's (2001) instrument. The reasons for choosing this measure for a construct in the management information system (MIS) area are as follows. Firstly, this is a system application in an organizational level study, firm-implemented CRM application in order to improve effectiveness and efficiency in managing customer relationship. Secondly, the performance of frontline employees concerns their achievements and usefulness after implementing the organizational knowledge process, which is consistent with the instrument in Bhattacherjee's (2001) study. Thirdly, customer knowledge process and CRM are one type of information system that equips employees' with higher capability to improve their knowledge and productivity. Four items in this scale consist of 7-point Likert-type indicators, ranging from 1 (strongly disagree) to 7 (strongly agree).

4.2.4 Dependent Variable: Customer Relationship Performance (CRP)

Customers' experiences and perceptions directly influence whether the relationship between buyers and sellers can be continued or has to be stopped. Reviewing extant literature in relationship marketing, customer satisfaction was found as a crucial performance metric for measuring CRM success (Jayachandran *et al.* 2005). Anderson, Fornell, and Mazvancheryl (2004) reinforced that customer satisfaction positively affects other performance metrics, including share-of-wallet,

shareholder value and may influence customer intention to stay. Since customer-centred organizations' decision making on business objectives is driven by customer satisfaction, this research uses customer satisfaction as one indicator of CRM performance. The 4 items for measuring customer satisfaction were borrowed from Wang, Lo, Chi and Yang (2004), Srinivasan and Moorman (2005), and Jayachandran *et al.* (2005).

In addition, the fundamental objective of CRM is to win and maintain customers, aiming at ensuring a long-term organization-customer relationship for constant business growth. Thus, in this study, the customer-organization's long-term relationship was used as the other monitor of customer relationship performance. Both Dwyer, Schurr and Oh's (1987) and Sheer and Stern's (1992) studies highlighted that commitment concerns a party's intention to continue the relationship, since there is a strong likelihood that customers exhibiting affective commitment desire to maintain long-term relationships with organizations. The measurement scale for the customer-organization's long-term relationship was derived from the measure of customer commitment (Kumar, Scheer and Steenkamp 1995; Hennig-Thurau, Gwinner and Gremler 2002) and customer retention (Jayachandran *et al.* 2005).

4.2.5 Control Variables

In order to control the variances of some variables that may have a direct influence on customer relationship performance, four control variables were included

in this study. The first is *Industry*. Different industries may have different types of

customers. As a result, the degree of customers' demands and the methods for

managing customer relationship are different. Therefore, considering the type of

industry as a control variable can account for mean differences of customer

relationship performance across industries. A measurement such as industry is

commonly controlled by organizational study (Reinartz, Krafft and Hoyer 2004).

Firm Size was measured by the total number of employees in an organization, which

is also widely used in organizational level study (Im and Workman Jr. 2004; Mithas,

Krishnan and Fornell 2005). *Ownership* reflects types of ownership including, more

specifically in Mainland China, state-owned, Chinese-foreign joint venture, foreign

capital, and privately operated enterprise in this study. The fourth measure is *City*. In

Mainland China the level of economic development in different areas varies widely;

accordingly, the organizations in different cities may treat customers and manage

customer relationships in a dissimilar manner. Thus, in this study, the city in which

the organization is located was taken into consideration as having a direct influence

on the performance success of customer relationship.

4.3 Methodology of this study

4.3.1 Pre-test of Research Instruments

The purpose of pre-testing the questionnaire was for confirming the

appropriateness, accuracy and understanding of all variables and their measurement

scales for the respondents. One professor and three research students in the Faculty

of Business at The Hong Kong Polytechnic University checked the questionnaire carefully. They reviewed the initial questionnaire comprehensively with detailed correction on each question. Items were revised in terms of ambiguity, structural fault, sequencing and the flow of wording. Since the informants are Chinese, questionnaire translation was administered in the pre-test stage (Harkness, Van de Vijver and Mohler 2003). The questionnaire was translated into Chinese and back-translated (Brislin 1970) by two independent translators who is skilled in both English and Chinese languages. Inconsistencies were identified and corrected, followed by careful comparisons between the original and back-translated questionnaires.

4.3.2 Pilot Study

A pilot study was then conducted with firstly interviewing three senior marketing and customer service managers from Mainland Chinese enterprises in Beijing. This was carried out to ensure all questions were understandable and could be answered smoothly by the practitioners. Next, the pilot survey was involved and the pilot sample was 30 marketing and customer relationship related managers from the enterprises in Beijing. They were asked to fill out the questionnaire as well as provide comments on the items lacking clarity. Simple exploratory factor analysis (EFA) and reliability tests were implemented after raw data was collected from the pilot study to evaluate levels of reliability and validity. Principal components analysis with varimax rotation was employed for this procedure. The preliminary

results of EFA and reliability were as anticipated. Slight modifications based on the constructive comments received from these subjects were made.

4.4 Common Method Variance

Common method bias may arise from the use of self-report questionnaire measures within organizational research when all data derive from the same source (Campbell and Fiske 1959). To avoid the common method bias, one possible and popular method used in extant literature is separating sections of a questionnaire-based tool into distinct areas of investigation (Brewerton and Millward 2001). The questionnaire in this study was therefore divided into two sections, each of which targets experts in different fields. Section A included the measurements of customer knowledge process (CKP) and customer relationship performance (CRP), which were distributed to the marketing managers, because they have rich experience in customer relationship strategy and have a good understanding of overall customer satisfaction with respect to their organizations. Section B contained the items for measuring the product/service improvement (PSI) and frontline employee performance (FEP), which targeted the managers of sales sectors, since those managers are familiar with introducing new products/services to customers and the performance of frontline employees in management practices. Finally, the two sections were combined as one complete questionnaire to analyze the data collected.

4.5 Sample Frame

The targeted sample of this study is Mainland Chinese enterprises. The *Chinese Enterprises & Commodities Database (CECDB)* published by *Wang Fang Database China* was chosen as the sampling frame for several reasons. First, it contains 96 industries and 20,000 Chinese firms and has the most comprehensive information. Second, this database is updated on an ongoing basis. It provides yearly 100% up-to-date information about Chinese companies. Third, it was evaluated as the first-choice Chinese economic information database by American DIALOG On-line System. Finally, detailed information is provided including the full name of the company, nature of business, business address, telephone number, e-mail address, the names of proprietors or contact person, registered capital, the total employee number, as well as the official website, which helped with selection of the targeted companies and improved the response rate. The sample selected therefore from the *Chinese Enterprises & Commodities Database (CECDB)* could be representative of Chinese industry.

A large-scale field survey was sent based on the hypotheses and measurements developed in this study. Since firms pursue customer relationship programmes in both product and service industries, as well as in business-to-consumer and business-to-business markets, it was decided not to constrain the sample to specific industries. Due to the information management concept of CRM, most firms administering the CRM mechanism or implementing CRM software are located in cities with a high level of economic development. These areas have mature markets with a competitive environment. Thus, the sample

enterprises targeted were located in the economically well-developed cities, such as, Beijing, Shanghai, Guangzhou, Shenzhen, Hangzhou, Tianjin, Chengdu, Nanjing, Dalian and Wuhan. The selected organizations were considered to be representative of firms in these cities. Finally, 1200 sample companies were randomly selected from The *Chinese Enterprises & Commodities Database (CECDB)* for receipt of the research questionnaires.

4.6 Data Collection Procedures

Since organization structure exists in several forms and there are no standards regarding title naming of marketing and sales related positions in Chinese Mainland companies, data collection was started through a series of phone-calls to confirm the responsibilities of managers of the firms in the sampling pool and ensure that the two informants for each company were appropriate. After the pre-screening process, the two distinctly separate questionnaire parts, Section A and Section B (see Appendix 1), in traditional Chinese, were mailed to the marketing-related managers and sales-related managers of 1200 companies in Mainland China in late February 2007. A brief covering message, along with a pre-paid reply envelope, was sent with each mail. The covering message described the purpose and objectives of this study, and the importance of respondents' inputs which were guaranteed to be confidential and used for only academic purposes. To increase the response rate, the covering message also mentioned that one summarized report would be offered as an incentive for respondents who completed questionnaires.

One reminder phone-call was delivered to the participating respondents two weeks after the initial mailing. For those companies in which only one company informant responded and returned only one section of the questionnaire, a reminder message (see Appendix 2) with a second copy of the questionnaire was sent out three weeks after the first round of mailing. The last reminder (see Appendix 3) was mailed to the non-respondents two weeks after the second round of mailing to encourage further replies. A 'Thank You' letter (see Appendix 4) was used to show appreciation to all those who participated in this survey. The whole data receiving procedure was closed in early May 2007.

4.7 Statistical Power

A total number of 179 companies returned both sections of the questionnaire, with 96% from Beijing, Shanghai and Guangzhou, only 4% from other areas. Table 4.2 shows the detailed background information statistics. Four out of the 179 questionnaires were incomplete. Therefore, the final effective sample size was 175 and the response rate was 14.58%, which is consistent with the average response rate in Mainland China. According to the sample size table in Cohen (1988, p. 101), using a one-tail test with the alpha level at 0.05 and effect size at r = 0.2, the sample size should be 153 to achieve 80% statistical power. Hence, 175 usable questionnaires in this study can achieve a statistical power of 0.8.

Table 4.2 Statistics of Enterprises' Information

Organizations			
1 Firm size	Small: 117 (66.86%)	Medium: 31 (17.7%)	Large: 27 (15.4%)
2 Customer information database implementation	Implemented: 166 (94.86%)		Non-implemented: 9 (5.10%)
3 CRM software adoption	Adopted: 93 (53%)		Non-adopted: 82 (46.9%)
4 Industry	Manufacturer: 14 (8%)		Service: 161 (92%)
5 City	Beijing, Shanghai and Guangzhou: 168 (96%)		Other cities: 7 (4%)
6 Ownership	State-owned enterprise: 21 (12%)		Chinese-foreign joint venture enterprise: 30 (17.1%)
	Foreign capital enterprise: 45 (25.7%)		Privately operated enterprise: 79 (45.1%)
Informants			
7 Position	Manager: 164 (93.7%)		Top management: 11 (6.3%)
8 Education	Post-secondary and Under-graduate: 152 (86.9%)		Master and Doctorate degree: 23 (13.1%)
9 Managerial experience	Under 10 years: 159 (90.9%)		Above 10 years: 16 (9.1%)
10 Industry experience	Under 10 years: 150 (85.7%)		Above 10 years: 25 (14.3%)

N=175.

4.8 Research Analysis

4.8.1 Scale Validity

Although an instrument may be of high reliability, it may not be valid. Validity refers to the extent to which any measuring instrument measures what it is intended to measure. The content validity and construct validity were assessed to support the measurement validity of the instrument in this study.

4.8.1.1 Content Validity

Content validity is defined as the extent to which an empirical measurement reflects a specific domain of content (Lewis-Beck 1994). Therefore, the internal

multi-processes of customer knowledge in organizations in this study need to be well specified and the items should be developed for representativeness of the domain of concept (Morgan, Gliner and Harmon 2001). To demonstrate the content validity, the definition of each construct was evaluated critically based on the extant literature. In addition, the items for each construct were adapted from existing scales reported in the literature. Hence, the content validity of the measures in this study was considered to have sufficient evidence.

4.8.1.2 Construct Validity

Construct validity generally is used to refer to the approximate truth of the conclusion that the measurement accurately reflects in its construct. Both convergent and discriminant validity are considered subcategories of construct validity. To demonstrate construct validity, three evidences – convergent evidence, discriminant evidence, and factorial evidence – should be provided to support the instrument measurement (Morgan, Gliner and Harmon 2001). Convergent validity, i.e., a direct and positive relationship, examines the degree to which the scale converges on other measures that it theoretically should be similar to. Examining correlation coefficient is suggested as one usual method to determine convergent validity (Brewerton and Millward 2001). The inter-item correlation coefficients of each construct in this study were assessed. The results are shown in Table 4.3. All the inter-item correlations are high, at least above 0.50, which reveals that all the items are strongly associated with its scale. Therefore convergent validity was achieved.

Table 4.3 Correlation between the four components of CKP

	1	2	3	4
1. Customer Information Acquisition	1.000			
2. Customer Knowledge Development	0.532	1.000		
3. Customer Knowledge Sharing	0.459	0.637	1.000	
4. Customer Knowledge Use	0.497	0.686	0.559	1.000

N=175; All the correlations are significant at $p < .001$ (2-tailed).

Discriminant validity, i.e., a lack of relationship, is determined by obtaining a relatively low relationship between the scale and measures that the theory suggests should not be related to it. Discriminant evidence can also be assessed by considering a correlation matrix (Morgan, Gliner and Harmon 2001). The weak correlations between conceptually different constructs in this study support discriminant validity. When a construct is complex or contains several aspects, factorial evidence should be provided to support the construct validity by using factor analysis (Morgan, Gliner and Harmon 2001). The constructs with more than one dimension in this study were assessed by exploratory factor analysis (EFA). The good results obtained from factor analysis are a witness to the fact that the constructs of this study achieved construct validity.

4.8.2 Reliability of Constructs

Reliability refers to the extent to which an empirical indicator contains random measurement error. Cronbach's alpha as a measurement to assess the internal consistency of the multi-item scales was used in this study. High values of Cronbach's alpha indicate high internal consistency of the multiple items measuring

each construct, hence indicating high reliability of the individual constructs. The threshold requirement of scale reliability in social science needs to surpass 0.70 as suggested by Churchill (1979). After one item in the scale of customer information acquisition was deleted, all the Cronbach's alpha of the measurement scales exceeded 0.70. The results of the scale reliability of this study are summarized in Table 4.4. Thus, the variables in this study were reliable.

Table 4.4 Reliability for the Study Variables

Variable(s)	Cronbach's Alpha
CKP (Customer Knowledge Process)	**0.8408**
Customer Information Acquisition	0.7103
Customer Knowledge Development	0.8788
Customer Knowledge Sharing	0.8183
Customer Knowledge Use	0.8045
PSI (Product/Service Improvement)	**0.7660**
Improvement Meaningfulness	0.8910
Improvement Success	0.9287
FEP (Frontline Employee Performance)	**0.9327**
CRP (Customer Relationship Performance)	**0.7860**
Customer Satisfaction	0.8703
Long-Term Relationships	0.8952

4.9 Exploratory Factor Analysis

Exploratory factor analysis (EFA) was used to test the constructs developed in this study, owing to the fact that the model of the measures did not exist prior to this research. Although the measurement for customer knowledge process (CKP) with four dimensions – acquisition, development, sharing and use – was built into Jayachandran *et al.*'s (2005) study, over half of the items used were adapted from other literature related to customer knowledge process issues. Apart from that, the

items of frontline employee performance (FEP) were revised from individual level (Bhattacherjee 2001) to organizational level in order to fit this research scenario. A principal components factor analysis using varimax rotation was performed to test thirty-seven items proposed for the four constructs in the model, comprising customer knowledge process (CKP), product/service improvement (PSI), frontline employee performance (FEP), and customer relationship performance (CRP).

Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test were conducted to evaluate the sampling adequacy of this study, which can provide the appropriateness of performing factor analysis. The KMO measure of all the scales in this study was 0.898, surpassing the accepted value of 0.50, which can qualify the degree of inter-correlations among the variables and the appropriateness of factor analysis (Hair 1998). Another measure for the sample adequacy for factor analysis, Bartlett's test of all the scales in this study, achieved a significant level at $p<0.001$; this data set was therefore appropriate to conduct further factor analysis.

Eigenvalue as a criterion for determining the extracted number of factors is suggested to be greater than or equal to one. The eigenvalues of all the factors extracted in this study were above 1.00. Dimensionality of each of the factors was assessed by computing the factor loadings. When factor loading of an item is greater than .50, this item is considered to adequately indicate that factor (Hair et al. 1995). Nine factors emerged from thirty-seven items with 73.21% variance explained by performing EFA with SPSS after deleting the cross-loading items. The factor

loadings of all the items were greater than 0.50 as shown in Table 4.5. Four factors were generated for measuring the scale of customer knowledge process (CKP) as these were the expected four sub-processes in CKP: customer knowledge acquisition, development, sharing and use. Another two factors were product/service meaningfulness and success which were hypothesized for the scale of the product/service improvement (PSI) construct. For the customer relationship performance (CRP) scale in the model of this study, customer satisfaction and customer-organization long-term relationships were extracted as the two factors. The ninth factor generated by using EFA was frontline employee performance (FEP) with four items.

Table 4.5 Exploratory Factor Analysis

Label	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9
CIA1						0.632			
CIA2						0.731			
CIA3						0.626			
CKD1		0.531							
CKD2		0.535							
CKD3		0.535							
CKD4		0.777							
CKD5		0.724							
CKD6		0.729							
CKD7		0.570							
CKS1				0.611					
CKS2				0.639					
CKS3				0.786					
CKS4				0.771					
CKU1					0.700				
CKU2					0.686				
CKU3					0.514				
CKU4					0.689				
PSIM1							0.590		
PSIM2							0.571		
PSIM3							0.627		
PSIS1	0.793								
PSIS2	0.842								
PSIS3	0.867								
FEP1			0.826						
FEP2			0.884						
FEP3			0.875						
FEP4			0.813						
CS1								0.811	
CS2								0.773	
CS3								0.806	
CS4								0.830	
LTR1									0.814
LTR2									0.828
LTR3									0.826
LTR4									0.687

4.10 Hypothesis Testing

Multiple regression analysis is broadly applicable to hypotheses proposed as some form of relationship between one or more factors of interest (independent variable) and an outcome (dependent) variable by researchers in the behavioral sciences and business (Cohen *et al.* 2003). The conceptual model in this study was developed based on Jayachandran *et al.*'s (2005) research on customer information processes in CRM. In their study, multiple regressions were used as the data analysis method.

The model proposed in this study considered the intra-customer knowledge process as the antecedent of incremental innovation (product/service improvement) and employee performance (frontline employee performance) within an organization. This set of three variables was strongly expected to influence an organization's relationship performance with its customers. To understand the relationships among one independent variable, two mediating variables, and one dependent variable, it was decided to use the multiple linear regressions method to test hypotheses H_1-H_5.

4.11 Confidentially of Data

All survey and data used are strictly confidential. Survey information reported in this research was in aggregate form, allowing no individual's response to be identified. All the cases from the responding questionnaires in this study were used for academic purposes only.

Chapter 5 Analysis Results

Introduction

In this chapter, the results of the hypotheses testing analyzed by using the methodology stated in Chapter 4 are reported. This chapter starts with the information about the survey responses. Next, the descriptive statistics (number of items, means, and standard deviations) of survey data collected is presented. Lastly, the general steps which comprised performing multiple linear regressions analysis for each hypothesis are also described.

5.1 Survey Responses

5.1.1 Effective Survey Responses

A round of phone-calls was used to ensure the appropriateness of subjects for this research before all of the 2400 initial questionnaires (1200 Section A and 1200 Section B) were mailed out. After two weeks, a second round of phone-calls to remind all respondents was conducted. A total of 91 companies returned both sections of the questionnaire and 123 firms only replied with one of the two sections of the questionnaire after this round of reminders. In order to increase the response rate, a follow-up reminder message with the second copy of questionnaires was subsequently delivered to the companies in which only one respondent returned the questionnaire. Up to the close of the data collection, a total of 397 cases for 218 organizations, including 179 companies with two sections and 39 companies with

only one section, were returned. After dropping 4 cases out of 179 cases, which contained many missing values, the final usable instruments for this study numbered 175, or a 14.58% response rate.

5.1.2 Test of Non-response Bias

Non-response bias is a common concern in survey research. Since non-response bias may be generated, based on the assumption that the late reply respondents probably have no interest in participating in this survey and are expected to be similar to non-respondents, the estimation for identifying non-response bias was conducted in this study by comparing the answers of early respondents and late respondents (Armstrong and Overton 1977). The early 91 cases and 84 late cases were compared as two independent groups by performing t-test to determine if there was any significant difference across all of the variables, including the four control variables, i.e., ownership, city, firm size and industry; as well as the four key constructs, i.e., customer knowledge process, product/service improvement, frontline employee performance, and customer relationship performance. The results (Table 5.1) show that there was no significant difference at $p < .05$ significance level between early respondents and late respondents in the mean of all the variables.

Table 5.1 Test of Non-response Bias

	Early Responses	Late Responses	Significances
Ownership	2.99	3.12	.149
City	1.04	1.02	.144
Total number of employees	2.20	2.41	.952
Industry	5.33	5.26	.374
Customer Knowledge Process	5.29	5.39	.854
Product/Service Improvement	5.57	5.75	.311
Frontline Employee Performance	5.37	5.67	.196
Customer Relationship Performance	5.76	5.86	.593

Independent sample t-test, N=175.

5.2 Descriptive Statistics

The descriptive statistics are summarized in Table 5.2. The inter-correlation between all variables (four control variables, one independent variable, two mediating variables, and one dependent variable) is shown. It can be seen that significant correlations exist between all the variables.

5.2.1 Results of Mean Scores

As shown in Table 5.2, the mean value of ownership type is 3.051. Noting the statistical information of the enterprises in Table 4.2, it is shown that approximately 88% of the companies investigated in this study were privately operated enterprises, Chinese-foreign joint venture enterprises, and foreign capital enterprises. Only 12% of the companies were state owned. The mean value of city is 1.034 indicating that most of organizations were from Beijing. From the statistical results, the mean value of firm size and industry were 2.299 and 5.297 respectively. In particular, for the firm size aspect, 84.5% of the companies which participated in this study were

medium- and small-sized firms; only 15.4% of the organizations were large-sized firms. Regarding the business nature of the organizations investigated, only 8% of the enterprises were from the manufacturing sector and others, 92%, came from the service sector.

The mean score of the key construct variables, since 7-point Likert-type indicators were used (ranging from 1 = strongly disagree to 7 = strongly agree), all exceed 5.0 displaying a good mean performance of all variables. The highest mean score is 5.884 on the meaningfulness of product/service improvement after processing customer knowledge. Customer knowledge sharing, one of sub-processes of customer knowledge process, received the lowest mean score at 5.106.

Table 5.2 Descriptive Statistics and Correlation Matrix

		Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	**Ownership**	3.051	1.121	1.000															
2	**City**	1.034	0.182	0.019	1.000														
3	**Firm Size**	2.299	1.635	-0.141	0.062	1.000													
4	**Industry**	5.297	2.359	0.131	-0.091	-0.118	1.000												
5	**CKP**	5.338	0.820	-0.014	-0.145	0.139	0.028	1.000											
6	**CIA**	5.491	0.992	0.029	-0.051	0.109	-0.027	0.757***	1.000										
7	**CKD**	5.447	0.923	-0.015	-0.101	0.140	0.043	0.864***	0.532***	1.000									
8	**CKS**	5.106	1.081	-0.019	-0.179	0.059	0.050	0.820***	0.459***	0.637***	1.000								
9	**CKU**	5.306	1.011	-0.039	-0.135	0.152*	0.026	0.836***	0.497***	0.686***	0.559***	1.000							
10	**PSI**	5.656	0.844	-0.057	-0.002	0.187*	0.067	0.492***	0.332***	0.465***	0.423***	0.395***	1.000						
11	**PSIM**	5.884	0.850	-0.040	-0.011	0.157*	0.085	0.484***	0.331***	0.455***	0.409***	0.393***	0.884***	1.000					
12	**PSIS**	5.429	1.018	-0.061	0.006	0.178*	0.041	0.412***	0.274***	0.391***	0.360***	0.327***	0.921***	0.631***	1.000				
13	**FEP**	5.513	0.927	0.121	0.023	0.108	0.049	0.430***	0.289***	0.435***	0.360***	0.329***	0.552***	0.497***	0.501***	1.000			
14	**CRP**	5.809	0.779	-0.008	0.021	0.118	-0.062	0.541***	0.384***	0.494***	0.417***	0.481***	0.663***	0.625***	0.578***	0.508***	1.000		
15	**CS**	5.867	0.841	0.013	0.011	0.075	-0.062	0.505***	0.353***	0.471***	0.373***	0.462***	0.585***	0.560***	0.502***	0.461***	0.904***	1.000	
16	**LTR**	5.751	0.875	-0.026	0.027	0.137	-0.050	0.477***	0.343***	0.428***	0.384***	0.412***	0.619***	0.574***	0.547***	0.461***	0.912***	0.648***	1.000

N=175, * $p < .05$, ** $p < .01$, *** $p < .001$ (2-tailed).

Notes: CKP = Customer Knowledge Process; CIA = Customer Information; CKD = Customer Knowledge Development; CKS = Customer Knowledge Sharing; CKU = Customer Knowledge Use; PSI = Product/Service improvement; PSIM = Product/Service improvement Meaningfulness; PSIS = Product/Service Improvement Success; FEP = Frontline Employee Performance; CRP = Customer Relationship Performance; CS = Customer Satisfaction; LTR = Long-term Relationship.

5.3 Hypotheses Testing

The following equations use linear regression to test hypotheses $H_1 - H_5$:

Main effects:

1) $CRP = \beta_{01} + \beta_{11} Ownership + \beta_{21} City + \beta_{31} Firm\ Size + \beta_{41} Industry + \beta_{51} CKP + \varepsilon_{11}$,

2) $PSI = \beta_{02} + \beta_{12} Ownership + \beta_{22} City + \beta_{32} Firm\ Size + \beta_{42} Industry + \beta_{52} CKP + \varepsilon_{12}$,

3) $FEP = \beta_{03} + \beta_{13} Ownership + \beta_{23} City + \beta_{33} Firm\ Size + \beta_{43} Industry + \beta_{53} CKP + \varepsilon_{13}$,

Mediating effects:

4) $CRP = \beta_{04} + \beta_{14} Ownership + \beta_{24} City + \beta_{34} Firm\ Size + \beta_{44} Industry + \beta_{54} CKP + \beta_{64} PSI + \varepsilon_{14}$, and

5) $CRP = \beta_{05} + \beta_{15} Ownership + \beta_{25} City + \beta_{35} Firm\ Size + \beta_{45} Industry + \beta_{55} CKP + \beta_{74} FEP + \varepsilon_{15}$.

Where

CKP = customer knowledge process,

PSI = product/service improvement,

FEP = frontline employee performance, and

CRP = customer relationship performance.

We used an enter regression approach to test the five equations above.

5.3.1 Tests of the CKP – CRP Hypotheses

The correlation coefficient between customer knowledge process and customer relationship performance was examined to test the hypothesis that CKP is positively related to CRP. As shown in Table 5.2, the coefficient was .541 at $p < .001$ significance level, demonstrating that CKP is positively correlated with CRP.

Further exploration was conducted by employing linear regression to find how much the variance in customer relationship performance was explained by customer knowledge process. Two steps of the hierarchical linear regression model were employed as follows:

$$CRP = \text{Step 1: } \beta_0 + \beta_1 \text{Ownership} + \beta_2 \text{City} + \beta_3 \text{Firm Size} + \beta_4 \text{Industry} + \varepsilon_{01}, \text{ and}$$

$$\text{Step 2: } \beta_{01} + \beta_{11} \text{Ownership} + \beta_{21} \text{City} + \beta_{31} \text{Firm Size} + \beta_{41} \text{Industry} + \beta_{51} CKP + \varepsilon_{11}.$$

Table 5.3 shows the parameter estimates of regression models for CRP. Model 1 only includes the control variables. Model 2 adds the variable with respect to customer knowledge process. In model 1, as the results show in Table 5.3, none of the set of control variables (ownership, city, firm size and industry) produced a significant effect on customer relationship performance ($R^2 = .017$, $p = .564$). However, the estimated coefficient, as shown in Table 5.2, between customer knowledge use (CKU) and firm size displayed a positive correlation that is .152 ($p < .05$). In model 2, when the independent variable customer knowledge process was

added into the regression model, the R^2 increased significantly, where $\triangle R^2 = .287$, $p < .001$. The coefficient of CKP on CRP is .548 ($p < .001$) demonstrating that CKP has a statistically significant contribution to CRP. Thus, H_1 is significantly supported.

Table 5.3 Regression Results for CKP — CRP Relationship

Steps	Dependent Variables:	CRP	
		Model 1	**Model 2**
1	**Control Variables**		
	Ownership	.016	.012
	City	.010	.093
	Number of employees	.113	.029
	Industry	-.057	-.070
2	**Independent Variable**		
	Customer Knowledge Process (CKP)		0.548***
	N=175		
	df	4	5
	R^2	.017	.304***
	$\triangle R^2$	.017	.287***
	Adjusted R^2	.006	.284***
	F	.743	14.710***

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

5.3.2 Tests of the CKP – PSI Hypotheses

In Hypothesis 2, we predict that customer knowledge process is positively related to product/service improvement. The correlation coefficient between customer knowledge process and product/service improvement (PSI) was examined to test H_2. As shown in Table 5.2, the coefficient is .492 at $p < .001$ significant level, displaying that customer knowledge process is positively correlated with product/service improvement.

In order to find how much the variance in product/service improvement was explained by customer knowledge process, further analysis was conducted by performing linear regression. We used two steps of the hierarchical linear regression model to examine the main effect of organizational customer knowledge process on product/service improvement. The equations are shown as follows:

$$PSI = Step1: \beta_5 + \beta_6 Ownership + \beta_7 City + \beta_8 Firm\ Size + \beta_9 Industry + \varepsilon_{02,}\ and$$

$$Step2: \beta_{02} + \beta_{12} Ownership + \beta_{22} City + \beta_{32} Firm\ Size + \beta_{42} Industry + \beta_{52}$$

$$CKP + \varepsilon_{12}.$$

Table 5.4 shows the parameter estimates of regression models for PSI. In model 1, step 1 was computed by only involving the control variables. The variable with respect to customer knowledge process was added in model 2. In model 1, as the results show in Table 5.4, no significant effect of all the four control variables (ownership, city, firm size and industry) on product/service improvement was found ($R^2 = .043$, $p = .113$). In model 2 with the entry of step 2, the R^2 increased significantly, where $\triangle R^2 = .219$, $p < .001$. The coefficient of CKP on PSI is .478 ($p < .001$) indicating that CKP has a statistically significant contribution to PSI, thus H_2 is significantly supported.

In addition, note from Table 5.2 that product/service improvement (PSI) and its two dimensions including meaningfulness and success aspects are highly correlated with firm size. The correlation coefficients between PSI and firm size,

meaningfulness of product/service improvement and firm size, success of product/service improvement and firm size are .187 ($p < .05$), .157 ($p < .05$), and .178 ($p < .05$) respectively.

Table 5.4 Regression Results for CKP — PSI Relationship

Steps		PSI	
		Model 1	Model 2
1	**Control Variables**		
	Ownership	-.041	-.045
	City	-.004	.068
	Number of employees	.191	.119
	Industry	.086	.075
2	**Main Effect**		
	Customer Knowledge Process (CKP)		.478***
	N=175		
	df	4	5
	R^2	.043	.262***
	$\triangle R^2$	.043	.219***
	Adjusted R^2	.020	.240***
	F	1.889	11.903***

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

5.3.3 Tests of the CKP – FEP Hypotheses

The correlation coefficient between customer knowledge process (CKP) and frontline employee performance (FEP) was estimated to test the hypothesis that customer knowledge process is positively related to frontline employee performance. As shown in Table 5.2, the coefficient is .430 at $p < 0.001$ significant level, demonstrating that CKP is positively correlated with FEP.

A two-step hierarchical linear regression model was also conducted to find

how much the variance in frontline employee performance was explained by customer knowledge process.

$$\text{FEP} = \text{Step 1: } \beta_{10} + \beta_{16}\text{Ownership} + \beta_{17}\text{City} + \beta_{18}\text{Firm Size} + \beta_{19}\text{Industry} + \varepsilon_{03},$$

and

$$\text{Step 2: } \beta_{03} + \beta_{13}\text{Ownership} + \beta_{23}\text{City} + \beta_{33}\text{Firm Size} + \beta_{43}\text{Industry} +$$

$$\beta_{53}\text{CKP} + \varepsilon_{13.}$$

Table 5.5 shows the estimation results of regression for FEP. Model 1 includes only the control variables. Model 2 adds the variable with respect to customer knowledge process. In model 1, as the results indicate in Table 5.5, none of the set of control variables, i.e., ownership, city, firm size and industry, produced a significant effect on frontline employee performance ($R^2 = .033$, $p = .229$). In model 2, when the independent variable customer knowledge process was added into the regression model, the R^2 increased significantly, where $\triangle R^2 = .175$, $p < .001$. The coefficient of CKP on FEP is .428 ($p < .001$) revealing that CKP has a statistically significant contribution to FEP, thus, H_4 is supported.

Table 5.5 Regression Results for CKP — FEP Relationship

Steps		FEP	
		Model 1	Model 2
1	**Control Variables**		
	Ownership	.135	.132
	City	.017	.082
	Number of employees	.130	.065
	Industry	.040	.030
2	**Main Effect**		
	Customer Knowledge Process (CKP)		.428***
	N=175		
	df	4	5
	R^2	.033	.208***
	$\triangle R^2$	.033	.175***
	Adjusted R^2	.010	.184***
	F	1.421	8.822***

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

5.3.4 Tests of the PSI Mediator Hypotheses

Product/service improvement (PSI) was hypothesized as having a mediating effect on the relationship between customer knowledge process (CKP) and customer relationship performance (CRP) in this study. To identify this effect of PSI, the correlations between CKP, PSI and CRP should first be examined. As shown in Table 5.2, the association between CKP and PSI is significantly positive ($p < .001$). PSI was also significantly correlated with CRP ($p < .001$). Thus, the significant inter-correlation between CKP, PSI and CRP suggests that it is meaningful to conduct further regression analysis.

Secondly, to test whether the CKP and CRP relationship was mediated by PSI,

it was necessary to examine the mediating effect of PSI. In this study, multiple linear regressions analysis was run to test this mediating effect. As shown in Table 5.6, model 1 includes all control variables. Model 2 adds the independent variable with respect to customer knowledge process. Model 3 is the full model, consisting of control variables, the main effect from the antecedent variable, and product/service improvement. A three-step hierarchical linear regression model was employed to test the mediating effect of PSI as shown in the following equations:

$$CRP = \text{Step 1: } \beta_0 + \beta_1 \text{Ownership} + \beta_2 \text{City} + \beta_3 \text{Firm Size} + \beta_4 \text{Industry} + \varepsilon_{01},$$

$$\text{Step 2: } \beta_{01} + \beta_{11} \text{Ownership} + \beta_{21} \text{City} + \beta_{31} \text{Firm Size} + \beta_{41} \text{Industry} + \beta_{51}$$
$$CKP + \varepsilon_{11}, \text{ and}$$

$$\text{Step 3: } \beta_{04} + \beta_{14} \text{Ownership} + \beta_{24} \text{City} + \beta_{34} \text{Firm Size} + \beta_{44} \text{Industry} +$$
$$\beta_{54} CKP + \beta_{64} PSI + \varepsilon_{14}.$$

As indicated in Table 5.6, the first model only includes control variables with respect to ownership, city, firm size and industry. Approximately 8.2% of the variance can be explained by the control variables but this is not significant. In the second model, adding customer knowledge process, R^2 is increased by 28.7% ($p < .001$). In the third model, consisting of control variables, the main effect from the antecedent variable and PSI, R^2 is increased by 20.9% ($p < .001$). The coefficient of the CKP is decreased by 25.5% after considering the effect of PSI on CRP. Therefore, the partial mediating effect of PSI on the relationship between CKP and CRP is

confirmed and H_3 is well supported.

Table 5.6 Regression Results for PSI Mediating Effect

Steps	Dependent Variables:	CRP		
		Model 1	Model 2	Model 3
1	**Control Variables**			
	Ownership	.016	.012	.035
	City	.010	.093	.056
	Number of employees	.113	.029	-.034
	Industry	-.057	-.070	-.110
2	**Antecedent Variables**			
	Customer Knowledge Process (CKP)		.548***	.293***
3	**Mediating Variables**			
	Product/Service Improvement (PSI)			.532***
	N=173-175			
	df	4	5	6
	R^2	.017	.304***	.514***
	$\triangle R^2$	.020	.287***	.209***
	Adjusted R^2	.010	.284***	.496***
	F	.743	14.710***	29.418***

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

5.3.5 Test of the FEP Mediator Hypotheses

In this study, frontline employee performance (FEP) was also hypothesized to have a mediating effect on the association between customer knowledge process (CKP) and customer relationship performance (CRP). Firstly, the inter-correlations between CKP, FEP and CRP should be examined to identify the mediating effect of FEP. As shown in Table 5.2, the correlation between CKP and FEP is significantly positive ($p < .001$). FEP was also significantly correlated with CRP ($p < .001$).

Secondly, a three-step hierarchical linear regression model was also used to

test whether the CKP and CRP relationship was mediated by FEP. The equations used are shown as follows:

$$CRP = \text{Step 1: } \beta_0 + \beta_1 \text{Ownership} + \beta_2 \text{City} + \beta_3 \text{Firm Size} + \beta_4 \text{Industry} + \varepsilon_{01},$$

$$\text{Step 2: } \beta_{01} + \beta_{11}\text{Ownership} + \beta_{21} \text{City} + \beta_{31} \text{Firm Size} + \beta_{41} \text{Industry} + \beta_{51} \text{CKP} + \varepsilon_{11}, \text{ and}$$

$$\text{Step 3: } \beta_{05} + \beta_{15}\text{Ownership} + \beta_{25} \text{City} + \beta_{35} \text{Firm Size} + \beta_{45} \text{Industry} + \beta_{55} \text{CKP} + \beta_{74} \text{FEP} + \varepsilon_{15}.$$

As seen in Table 5.7, the first model only includes control variables with respect to ownership, city, firm size and industry that explain approximately 8.2% of the variance of customer relationship performance, but this is not significant. In the second model, the independent variable with respect to customer knowledge process was added, R^2 is increased by 28.7% ($p < .001$). Model 3 is the full model, consisting of control variables, the main effect from the antecedent variable and frontline employee performance. R^2 was increased approximately by 10% ($p < .001$) with the entry of step 3. The coefficient of the CKP was decreased by 14.5% after considering the effect of FEP on CRP. Therefore, the partial mediating effect of FEP on the relationship between CKP and CRP is confirmed and H_5 is supported.

Table 5.7 Regression Results for FEP Mediating Effect

Steps	Dependent Variables:	CRP		
		Model 1	**Model 2**	**Model 3**
1	**Control Variables**			
	Ownership	.016	.012	-.033
	City	.010	.093	.065
	Number of employees	.113	.029	.007
	Industry	-.057	-.070	-.080
2	**Antecedent Variables**			
	Customer Knowledge Process (CKP)		.548***	.403***
3	**Mediating Variables**			
	Frontline Employee Performance (FEP)			.338***
	N=173-175			
	df	4	5	6
	R^2	.017	.304***	.395***
	$\triangle R^2$	.020	.287***	.090***
	Adjusted R^2	.010	.284***	.373***
	F	.743	14.710***	18.158***

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

5.4 Summary

To conclude this chapter, the findings confirm the five connections among customer knowledge process, product/service improvement, frontline employee performance and customer relationship performance in the proposed conceptual model through the use of exploratory factory analysis and multiple regression technique. Table 5.8 summarizes the results of the hypothesis testing. All of the hypotheses are statistically supported by data.

Table 5.8 Summary of Hypotheses Results

Hypotheses	Results	Tables
H_1: Customer knowledge process has a positive effect on customer relationship performance.	Supported	Table 5.3
H_2: Customer knowledge process has a positive effect on product/service improvement.	Supported	Table 5.4
H_3: Product/service improvement has a positive effect on customer relationship performance.	Supported	Table 5.6
H_4: Customer knowledge process has a positive effect on sales employee capability.	Supported	Table 5.5
H_5: Frontline employee performance has a positive effect on customer relationship performance.	Supported	Table 5.7

Chapter 6 Discussion

Introduction

This chapter further discusses the results of the proposed hypotheses tests in Chapter 5. In particular, the findings on exploring the effects of customer knowledge process with its two organizational improvement outcomes — product/service and frontline employee performance — on customer relationship performance are discussed.

6.1 CKP – CRP Relationship

Although extant marketing and management literature has emphasized the importance of information process (Menon and Varadarajan 1992; Moorman 1995; Jayachandran *et al*. 2005), yet the knowledge competence relevant to customers in CRM has not received adequate attention. There is a lack of research about customer knowledge in empirical marketing research. To provide a basis for the development of the theoretical framework in this field, this study delineated the multi-stage in-house customer knowledge process (CKP) including customer information acquisition, customer knowledge development, sharing and use in organizations' CRM process in the enterprises of Mainland China.

Hypothesis One shows that customer knowledge process has a significantly positive impact on customer relationship performance ($R^2 = .304$, $p < .001$). This result is consistent with Jayachandran *et al*.'s (2005) work stating that customer

information process is positively relevant to customer relationship performance. Our findings also confirmed the previous marketing and management literature on the positive relationship between market information/knowledge use and organizational performance issues (Mithas, Krishnan, and Fornell 2005; Payne and Frow 2005). Further, Jayachandran, Hewett and Kaufman (2004) have suggested to marketers that customer knowledge process should be built to improve firm's customer response capability. Specifically, firms with a higher level of customer knowledge for managing customer relationship show their intention to possess customer knowledge expertise and can rapidly respond to their customers' needs. The findings therefore provide the guidelines that help firms develop customer knowledge process to improve their customer response capability which, in turn, will maintain long-term customer relationship.

In addition, the impacts of the four multi-stages of customer knowledge process on customer relationship performance were also tested respectively in this study. The results indicate that all four sub-processes including customer information acquisition (CIA), customer knowledge development (CKD), customer knowledge sharing (CKS) and customer knowledge use (CKU) have significant ($p < .001$) influences on customer knowledge relationship performance ($\beta = .745$, $\beta = .855$, $\beta = .815$ and $\beta = .827$ respectively). Thus, the findings provide evidence that timely collection and updating of customer information, systematic development of customer knowledge, sharing and using customer knowledge in actual market activities can all lead to enhanced customer relationship performance. When

product/service improvement and frontline employee performance were added respectively to examine the mediating effects between the four sub-processes and customer relationship performance, partial mediating effects were found, although weakly. The results show that firms aiming at building strong and sustainable customer relationship should process a multi-level and systematical customer knowledge base.

Further, to ascertain whether CRM technology use can strengthen the customer relationship performance, H_1 (CKP – CRP relationship) was estimated again by controlling CRM IT adoption as the fifth control variable. The result is not significant ($p = .165$). This result is consistent with Reinartz, Krafft, and Hoyer's (2004) statement that CRM technology use is not necessarily linked to an organization's ability to improve financial performance through CRM process. However, Jayachandran *et al.'s* (2005) study demonstrated that CRM IT adoption has a positively moderating influence on the relationship between customer information processes and customer relationship performance. To explain this point, the Chinese perspective should be considered since the present study was conducted in the Mainland China context. Relationship, namely, 'Guan Xi' in Chinese enterprises is complex and influenced by many subjective factors. Especially, in the business to business market, the relationship between two organizations is decided mostly by the top management's 'Guan Xi' on both sides, although the quality of product/service is one important role in a competitive market. This finding therefore suggests that a Mainland Chinese firm pursuing long-term relationships with its customers should

not only rely on CRM technology use. Moreover, firms should consider carefully when they decide to invest in CRM software as an approach to manage customer relationship.

Lastly, the statistical information from the enterprises in the present study shows that approximately 85% of firms (Table 4.2) investigated in this study come from small- or medium-sized companies. Also 92% of companies participating in this survey are from the service industry. These two statistical data imply that the results of the proposed five hypotheses reflect the situation and development of CRM with customer knowledge issues in small- or medium-sized, as well as service, organizations in Mainland China. Since such companies normally lack enough tangible resources such as capital, equipment and human resources to confront today's rapidly-changing and competitive markets, one effective way to beat the competition for those small-sized firms is to use intangible assets (organizational knowledge) and existing resources. Generally, such companies are also customer-centred and customer relationship oriented. Thus, to survive in the current business world, the small or medium as well as service firms are inclined to implement a CRM project in order to retain existing customers to ensure their continuous business growth.

6.2 Mediating Effect of Product/Service Improvement

Innovation is one popular issue that has received extensive attention in marketing literature (Han, Kim and Srivastava 1998; Im and Workman Jr. 2004;

Alam 2005; Robertson, Eliashberg and Rymon 1995; Chan, Go and Pine 1998; Sood and Tellis 2005; Min, Kalwani and Robinson 2006; Marinova 2004; Joshi and Sharma 2004; Li and Calantone 1998). However, the relationship between customer knowledge and creativeness in the CRM area has not been examined empirically. Thus, investigating whether any innovation improvement followed the customer knowledge process is the second important focus of this study. The mediation effect of product/service improvement (PSI) on the association between customer knowledge process (CKP) and customer relationship performance (CRP) was therefore examined and analyzed.

The results showed that PSI has a significantly positive partial mediating effect on the relationship between customer knowledge process and customer relationship performance ($R^2 = .514$, $p < .001$). Firstly, in H_2, the estimation result of the impact of customer knowledge process (CKP) on product/service improvement (PSI) was statistically significant ($R^2 = .262$, $p < .001$). This finding showed the external validity on previous literature that reflected the positive impact of market knowledge on innovation in Western culture. Han, Kim and Srivastava (1998) initially pointed out that innovation is the linkage between market orientation and organizational performance. Marinova (2004) empirically revealed that market knowledge as one of core components of market orientation helps firms actualize better returns from innovation efforts. Moreover, Li and Calantone (1998) revealed that market knowledge competence enhances firms' new product advantage. In addition, customer knowledge development was identified as a key prerequisite for

new product success (Joshi and Sharma 2004). Our findings not only confirm the researchers' findings stated above but also show that, in the China context, organizations possessing a high level of customer knowledge are capable to better improve products or services.

Secondly, concerning H_3, the main effect of product/service improvement on customer relationship performance was also examined in this study. The estimation result indicated that improved products or services significantly influence customer relationship performance (R^2 = .450, p < .001). This finding is in line with many previous demonstrated studies that organizational innovation has a positive impact on business performance (Damanpour and Evan 1984; Damanpour, Szabat and Evan 1989; Han, Kim and Srivastava 1998). In particular, our findings display that product or service performance can be improved through organizational customer knowledge process. Such enhanced offerings can then better satisfy the customers and, in turn, benefit organizations to maintain long-term relationships with their customers.

In addition, as stated in Chapter 5, product/service improvement (PSI) and its two dimensions, meaningfulness and success aspects, were found to be highly correlated with firm size. The findings explain that large firms with the ability to use existing resources can better improve products or services. Since we use the number of employees to measure firm size, a large number of employees leads to better information sharing and an enhanced level of customer knowledge. Thus, the results reveal that large firms have more comprehensive ability to improve their products

and services than small firms in the Mainland China context.

6.3 Mediating Effect of Frontline Employee Performance

Employees, as one important competence of firms to produce business values, have been studied by many scholars in both marketing and management literature (Donavan, Brown and Mowen 2004; Schmit and Allscheid 1995; Schneider, White and Paul 1998; Schneider, Ehrhart, Mayer, Saltz and Niles-Jolly 2005; Chun and Davies 2006; Hartline, Maxham III and McKee 2000; Abbott 2003; Hartline and Forrell 1996). In relationship marketing, frontline employees, such as sales personnel and customer service staff, play a crucial role in representing firms to deliver products and services to customers. Therefore, the frontline employee as one important interface through goods delivery was also examined in this research aiming to study the customer knowledge process and CRM in depth.

The results, shown in Table 5.7 in Chapter 5, indicate that frontline employee performance has a partial mediating effect on the association between customer knowledge process and customer relationship performance (R^2 = .395, p < .001). This finding confirms the understanding of the position of sales personnel during the process of customer knowledge management (García-Murillo and Annabi 2002). A salesperson having customer knowledge is capable of better introducing firms' offerings and helping customers make correct purchase decisions, since the sales personal understands customers' needs and preferences. On the other hand, a frontline employee interacts with customers and collects customer information e.g.,

needs, complaints, demands and preferences. This information processed by the frontline employee can be generated to become new knowledge. Sharing and using the experiences and knowledge of different individuals improve the level of knowledge for the entire organization.

The result also signifies that frontline employee performance has a positive influence on customer relationship performance after learning customer knowledge. Employees owning a high level of customer knowledge help themselves to improve their capability in solving problems which happen while serving customers. They can respond more rapidly to customers' needs. High quality service influences the customers' perception and leads to customer satisfaction (Olorunniwo, Hsu and Udo 2006). Satisfied customers would have the intention to be loyal in continuing their business with the company. Thus, our findings provide evidence that frontline personnel equipped with a high degree of customer knowledge will positively support and directly benefit the organization-customer relationship.

6.4 Summary

The findings of this study reveal that, in Mainland Chinese enterprises, internal customer knowledge process has a significantly positive impact on customer relationship performance and this relationship is partially mediated by two important factors: product/service improvement and frontline employee performance. In contrast with previous studies, innovation and human resource issues were first examined from a CRM perspective in this study. The findings provide evidence that

both elements (product/service improvement and frontline employee performance) in

the CRM process create further value for CRM implementation, which undoubtedly

can enrich the relationship marketing literature streams. Theoretical and practical

implications are provided in the next chapter.

Chapter 7 Conclusions

Introduction

The final chapter proceeds as follows. First, the contributions of this study to relationship marketing are explained. Second, both theoretical implications and managerial implications are provided. Third, the limitations of this study are pointed out along with possible directions for future research. Finally, an overall conclusion is drawn.

7.1 Contributions

This study has made an initial attempt to explore the role played by in-house customer knowledge process in performing sustainable customer relationship and its impact on organizational capability improvement (i.e., product/service improvement and frontline employee performance) in Mainland Chinese organizations. Three broad contributions drawn from this study deserve consideration. Firstly, the study has confirmed the positive influence of multi-stage customer knowledge process on customer relationship performance in the enterprises of Mainland China. It therefore provides evidence that in-house customer knowledge and CRM are applicable not only to the Western business culture.

Secondly, CRM process is closely linked to product/service improvement, which brings a new dimension to the understanding of the potential ability of CRM. in the existing relationship marketing literature. The results from the present study

show that systematically processing customer knowledge improves the quality of organizations' products and services. This is unsurprising since customer knowledge collected, absorbed, shared and utilized among the entire organization rather than within a service unit (e.g., customer service department) will benefit the firm in comprehensively understanding their customers and customizing products or services for them. This study therefore adds to the wealth of relationship marketing literature. It is also expected to offer insights to practitioners.

Another significant finding relates to frontline employee performance. In contrast with previous studies, the data provides evidence that frontline employee performance has a positive mediating effect on the association between customer knowledge process and customer relationship performance. This result suggests that continuously updating frontline employees with the knowledge of customers should be a crucial organizational process, since their knowledge and capability as an intangible asset of firms can enhance customer loyalty and create boundless value for organizations. This finding also reminds researchers and practitioners on the important role of frontline employees play in managing customer relationship.

7.2 Implications of this Study

This section examines a variety of theoretical and managerial implications derived from the findings in this thesis.

7.2.1 Theoretical Implications

Several theoretical implications can be derived from the findings of the present study for academics.

Firstly, the present study delineates a multi-stage in-house customer knowledge process that guides organizations to build a systematical organizational learning system focusing on customer knowledge. This organizational knowledge process is expected to help firms sustain their bonds with their customers. To this end, this study extends Jayachandran *et al.'s* (2005) framework on customer information process to examine the internal customer knowledge-enabled process through CRM delivery. The model of the present study provides a new insight on building the knowledge-equipped customer information process in the CRM process. This empirical study also demonstrates the feasibility of knowledge-based customer relationship management. Moreover, the study confirms previous work on the value of customer knowledge (Li and Calantone 1998; Mithas, Krishnan and Fornell 2005; Rowley 2002a, 2002b; Jayachandran, Hewett and Kaufman 2004) that fulfils the establishment of the organizational knowledge base in the management area. Therefore, the illumination of the customer relational knowledge process in this study extends CRM long advocated by marketing academics and enriches both relationship marketing and organization management research streams.

Secondly, the model of the present study includes two important elements in the CRM process, i.e., product/service improvement and frontline employee performance, to advance a general perspective of both marketing and human

resource management. It directs marketing scholars to reconsider the importance of incremental innovation in a marketing programme that is of a lower risk and is more cost efficient, in contrast with previous marketing research focusing on breakthrough creativity on product or service. In addition to product/service improvement, this model emphasizes the role played by the frontline employee that is a crucial factor driving the firms' customer relationship performance and strengthening the power of CRM strategy for organizations. The present study provides a clear link for encouraging frontline employees to learn from customer knowledge process in order for them to act as an organizational knowledge carrier to produce great outcomes. Thus, this study suggests directions for future research and implementation on frontline employee behaviour and organizational reward mechanisms.

Thirdly, the existing published reports on CRM issues represent the development of CRM in Western countries. Comparing previous literature, this study describes the situation and development of CRM from the developing economy perspective. With the increasingly mature and competitive markets in China, customer relationship with its various strategic applications has gained much attention from Chinese practitioners. Studying CRM in the China context enlarges the scope of CRM research in the existing relationship marketing literature.

7.2.2 Managerial Implications

The findings of this study also indicate several possible interesting managerial directions for current practitioners.

Firstly, the finding of the present study clearly provides proof that in-house customer knowledge process leading to excellent customer relationship performance exists in Mainland Chinese organizations. From the results of this empirical study, it is hoped that research managers can gain the insight that the crucial factor determining successful customer relationship management is building a systematic customer knowledge platform rather than only focusing on accumulating mountains of customer-related data. A systematical knowledge base needs to be integrated with multi-level stages. In particular, an actual functional customer knowledge process requires a systematical process including not only information gathering but also absorbing, analyzing and appropriately using the customer information to form a front-to-back and top-to-bottom solution for firms. More specifically, this study implies that one effective customer knowledge process should consist of obtaining customer-related information, producing, distributing and applying customer knowledge among the internal departments within an organization. The aim of collecting, sharing and analyzing customer knowledge is to help organizations build sustainable business relationships with their customers focusing on the individual customers' needs and wants, and then for all customers together. This means that information is needed from the front desk to the furthest back office, for a micro customer-by-customer view up to a macro market view. Not only that, but information should come in through each level of the organization from employees such as the sales manager all the way to the salesclerk. Being able to share and deliver on customer needs, using capable and knowledgeable sales personnel to

interact with customers will make the firm's business stand out from the crowd.

Secondly, from the Mainland China perspective, as stated in Chapter 6, the statistical data implies that the results of the proposed five hypotheses reflect the situation and development of CRM with customer knowledge issues in small- or medium-sized organizations in Mainland China. Thus, this conclusion provides insights for the managers in these types of Chinese firms that have the potential ability to practice CRM application successfully by strategically processing in-house customer knowledge. In addition, most of state-owned enterprises in Mainland China lack customer orientation to drive business objectives. Normally, both the organization structure and human resource structure in state-owned organizations in China are extremely complex. Shifting product- to market-orientation, and especially to customer-orientation, is more difficult for state-owned companies. A better way to change this situation is to enable the top management in Chinese state-owned organizations to understand the key role of the customer in the current fast-changing business world where business relies on long-term, high-value relationships with customers. The results of the present study not only direct the top management in Chinese state-owned enterprises to know the important value of the customer and customer-related knowledge in today's competitive business environment, but also provide them with a detailed map to construct an effective customer knowledge process facilitating a CRM strategy in order to build a shared future with their customers together.

Thirdly, many CRM projects are implemented in a fragmented way. The findings of this research help firms obtain the most crucial value from their customer knowledge by concentrating on building a systematical organizational knowledge base. Importantly, the in-house customer knowledge system needs to be continuously constructed. In-house knowledge sharing also implies to the managers that organizations should stimulate the synergy of collaboration from the CRM process.

Fourthly, this empirical study extends well beyond previous findings and theoretical frameworks on the CRM process. The discoveries of this research reveal a crucial outcome, i.e., product/service improvement, produced by customer knowledge during the CRM process. It suggests that firms should seek the potential capability of an organizational knowledge system. In particular, a knowledge equipped organization should use customer knowledge to assist in product innovation and improvements. Since the firm has a better understanding of the customer's expectations and needs, it could improve existing products or services to be more appropriate to customers' needs and preferences and thus achieve customer satisfaction and retention. This study intends to provide an effective approach for firms to satisfy their need to sustain long-term business relationships with customers.

Furthermore, the findings identify that the frontline employee has a crucial role during product and service delivery. Not only human resource managers but also marketing managers should pay attention to encourage employees' capability in the CRM process. The role played by front office employees has a significantly positive

mediating effect on the association between customer knowledge process and customer relationship performance. It offers managers the following four insightful aspects. Firstly, training frontline employees with IT ability is necessary, since IT-capable employees help firms to implement the CRM system successfully. Secondly, establishing a good organizational mechanism and learning atmosphere will aid in educating employees to have knowledge about their customers and help them better communicate with customers. Thirdly, sharing and distributing customer knowledge to every employee in different front offices ensures that they will know customers comprehensively. Last, but not least, building a rewards mechanism approves the achievements of those knowledgeable employees who contribute to customer-related efforts. It must encourage more employees to improve their capability in handling the tasks relevant to customers and to contribute their experiences and skills to retain customer relationships for organizations.

7.3 Limitations & Future Research

7.3.1 Limitations of this Study

Although this study produces interesting and meaningful findings, similar to many other research studies with survey methodology, the study has its limitations. Firstly, it examined a cross-section of subjects with a variety of understanding patterns of customer knowledge and relationship marketing. A longitudinal study can strengthen the findings and inferences, however, due to time and cost constraints, this cannot be employed. The developed conceptual model in this study would be

beneficial to perform a longitudinal design that tests the proposed relationships as they unfold over time.

Secondly, key informants' data are used, providing perceptual measures that may reflect partial reality. In addition, the data for measuring customer relationship performance was collected by subjective answers that may limit the results of the associations among the constructs in the model. Especially, the data for customer satisfaction monitoring customer relationship performance was captured from organization side rather than customer side, this one side data therefore may not reflect all information and may limit the results of the testing. In addition, obtaining objective performance data could have further ameliorated this potential problem. However, objective performance data, such as financial performance measures, used by previous works are not easily available from organizations.

Thirdly, although the data used in this study were collected across the industries in Mainland China, approximately 70% of the questionnaires were returned from organizations in Beijing. Since variance in economic development may exist across different districts, the findings may vary with cities. Thus, a further limitation is concerned with the generalizability of results. However, it is still essential to start with ground work that provides the platform for future research in this area, in particular, in Mainland China which is the fastest growing transitional economy in the world.

Fourthly, although all the questions are adopted from ready-made questions

in extant literature with appropriate modifications to fulfill the scenario of this study, self-developed questions in addition to adapted questions may reflect more information and increase the correction of the testing.

7.3.2 Future Research Directions

One meaningful contribution of this study is that customer knowledge, creative ability and employees' capability, as the three valuable resources owned by organizations, lead to sustainable long-term relationships with customers. To move beyond the development of CRM and find more potential value of CRM, the topic on resource management issues in the CRM context deserves further research attention. This study suggests the following three major directions. Firstly, further study should evaluate the objective performance of customer relationship such as market share and return on investment (ROI) of CRM technology implementation, in order to strengthen the support for effects of the customer knowledge process on long-term organization-customer relationships. Assessing both objective and subjective performance will provide more comprehensive measurement for customer relationship performance.

Secondly, this study did not constrain the selected sample to those firms which adopted CRM software. Reviewing an earlier study considering information technology use in the CRM process, there have been controversial explanations on whether technology adoption in CRM implementation enhances business performance. Reinartz, Krafft and Hoyer (2004) did not find support for the

moderating influence of CRM technology use on the relationship between the CRM process and financial performance. On the contrary, Jayachandran *et al.* (2005) demonstrated that CRM technology use can moderate the relationship between customer information processes and customer relationship performance. Thus, a follow-up study should consider CRM IT adoption as a moderator that may influence the association between customer knowledge process and customer relationship performance. In addition, to control the potential variance across business-to-consumer and business-to-business strategic business units (SBUs), future study may define it as a variable to further examine the relationship between customer knowledge process and customer relationship performance.

Thirdly, future research should make an effort to extend customer knowledge in-house to develop knowledge with external organizations such as the knowledge of competitors, the case of generating and sharing of knowledge among business partners of a supply chain, and more narrowly, the study of how knowledge is shared between partners of a strategic alliance. Such a study will no doubt enrich the relationship marketing literature stream.

Fourthly, due to the limited effective sample size collected, this study followed the Jayachandran *et al*. (2005)'s research using multiple regression method to test proposed model. Considering the two mediators in the model of this study, SEM as a hypotheses testing tool can be further examine the model in future research.

Fifthly, both the RBV and knowledge-based theory emphasize that the integration of knowledge to derive competitive advantages. Thus, future study should focus on the influences of customer knowledge process on other organization assets as well as how the antecedences to customer knowledge process are within an organization.

7.4 Conclusion

In conclusion, this study has built up a theoretical framework for the illumination of the customer knowledge process in a CRM process in the Mainland China context. Specifically, the study has made an initial attempt to explore the role played by customer knowledge process that will enhance customer relationship for firms. It fills the gap in the relationship marketing and knowledge management literature about the valuable outcomes produced by knowledge-equipped CRM in Chinese enterprises. In particular, the customer knowledge sharing process supports organizations to strengthen relationships with their customers, and leads to two direct consequences: innovation potential (i.e., product/service improvement) and human resource competence (i.e., frontline employee performance). Both aspects have not been well studied by relationship marketing academics and serve to advance the relationship marketing research stream. It is worthwhile to start with this ground work targeting the industries in Mainland China since it is the world's most rapidly-growing transitional economy.

REFERENCES

Abbott, Julie (2003), "Does Employee Satisfaction Matter? A Study to Determine Whether Low Employee Morale Affects Customer Satisfaction and Profits in the Business-to-Business Sector," *Journal of Communication Management*, 7 (4), 333-339.

Alam, Ian (2005), "Removing the Fuzziness from the Fuzzy Front-end of Service Innovations through customer interactions," *Industrial Marketing Management,* 35 (May), 468-480.

Anderson, Eugene W., and Mary W. Sullivan (1993), "The Antecedents and Consequences of Customer Satisfaction for Firms," *Marketing Science*, 12 (Spring), 125-143.

Anderson, Eugene W., Claes Fornell, and Sanal K. Mazvancheryl (2004), "Customer Satisfaction and Shareholder Value," *Journal of Marketing*, 68 (October), 172-185.

Argyris, Chris and Donald A. Schön (1978), *Organizational Learning*: A Theory of Action Perspective. Reading, MA: Addison-Wesley.

Armstrong, J. Scott and Terry S. Overton (1977), "Estimating Nonresponse Bias in Mail Surveys," *Journal of Marketing Research*, XIV (August), 396-402.

Barney, Jay. B. (1991). "Firm Resources and Sustained Competitive Advantage," *Journal of Management,* 17(1), 99-120.

Barney, Jay. B. (2001). "Is The Resource-Based "View" A Useful Perspective for Strategic Management Research? Yes." *Academy of Management Review,* 26(1), 41-56.

Bell, David G., Richard Giordano, and Peter Putz (2002), "Inter-firm Sharing of Process Knowledge: Exploring Knowledge Markets," *Knowledge and Process Management,* 9 (1), 12-22.

Bendapudi, Neeli and Robert P. Leone (2002), "Managing Business-to-Business Customer Relationships Following key Contact Employee Turnover in a Vendor Firm," *Journal of marketing*, 66 (April), 83-101.

Berry, Leonard L. (1995), "Relationship Marketing of Services — Growing Interest, Emerging Perspectives," *Journal of the Academy of Marketing Science,* 23 (Fall), 236-245.

Bhattacherjee, Anol (2001), "Understanding Information Systems Continuance: An Expectation-Confirmation Model," *MIS Quarterly*, 25 (3), 351-370.

Bickert, J. (1992), "The Database Revolution," *Target Marketing*, (May), 14-18.

Bose, Ranjit and Vijayan Sugumaran (2003), "Application of Knowledge Management Technology in Customer Relationship Management," *Knowledge and Process Management,* 10 (1), 3-17.

Boulding, William, Richard Staelin, Michael Ehret, and Wesley J. Johnston (2005),

"A Customer Relationship Management Roadmap: What Is Know, Potential Pitfalls, and Where to Go," *Journal of Marketing*, 69 (October), 155-166.

Brewerton, Paul and Lynne Millward (2001), *Organizational Research Methods*, London, Thousand Oaks, New Dehli: Sage Publications.

Brislin, Richard W. (1970), "Back-Translation for Cross-Cultural Research," *Journal of Cross-Cultural Psychology*, 1 (3), 185-216.

Brockman, Beverly K. and Robert M. Morgan (2006), "The Moderating Effect of Organizational Cohesiveness in Knowledge Use and New Product Development," *Journal of The Academy of Marketing Science*, 34 (3), 295-307.

Burke, Ronald, Jim Grahm, and Fran Simth (2005), "TQM Implementation Effects of reengineering on the employee satisfaction-customer satisfaction relationship," *The TQM Magazine*, 17 (4), 358-363.

Buttle, Francis A. (2001), "The CRM Value Chain," *Marketing Business*, (February), 52-55.

Campbell, Donald T. and Donald W. Fiske (1959), "Convergent and Discriminant Validation by the Multitrait-multimethod Matrix," *Psychological Bulletin*, 56 (2), 81-105.

Cao, Yong and Thomas S. Gruca (2005), "Reducing Adverse Selection Through Customer Relationship Management," *Journal of Marketing,* 69 (October), 219-229.

Chan, Andrew, Frank M. Go and Ray Pine (1998), "Service Innovation in Hong Kong: Attitudes and Practice," *The Service Industries Journal*, 18 (April), 112-124.

Chebat, Jean-Charles and Paul Kollias (2000), "The Impact of Empowerment on Customer Contact Employees' Roles in Service Organizations," *Journal of Service Research*, 3 (August), 66-81.

Child, P., R. J. Dennis, T. C. Gokey, T. I. McGuire, M. Sherman, and M. Singer (1995), "Can Marketing Regain the Personal Touch?" *The McKinsey Quarterly*, 112-124.

Chun, Rosa and Gary Davies (2006), "The Influence of Corporate Character on Customers and Employees: Exploring Similarities and Differences," *Journal of the Academy of Marketing Science*, 34 (2), 138-146.

Churchill, Gilbert A. Jr. (1979), "A Paradigm for Developing Better Measures of Marketing Constructs," *Journal of Marketing Research*, 16 (February), 64-73.

Cohen, Jacob (1988), *Statistical Power Analysis of the Behavioral Science*, 1st Ed. New York: Academic Press.

Cohen, Jacob, Patricia Cohen, Stephen G. West and Leona S. Aiken (2003), *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*, US: Lawrence Erlbaum Associates.

Cohen, Wesley M. and Daniel A. Levinthal (1990), "Absorptive capacity: a new

perspective on learning and innovation," *Administrative Science Quarterly*, 35 (1), 128-152.

Couldwell, Clive (1999), "Loyalty Bonuses," *Marketing Week*, (February 18), 14.

Damanpour, Fariborz and William M. Evan (1984), "Organizational Innovation and Performance: The Problem of 'Organizational Lag'," *Administrative Science Quarterly*, 29 (September), 392-409.

Damanpour, Fariborz, Kathryn A. Szabat, and William M. Evan (1989), "The Relationship Between Types of Innovation and Organizational Performance," *Journal of Management Studies*, 26 (November), 587-601.

Day, George (1997), "Strategies for Surviving a Shakeout," *Harvard Business Review,* 75 (March/April), 92-104.

Day, George (2000), "Managing Market Relationships," *Journal of the Academy of Marketing Science*, 28 (1), 24-30.

Deshpandé, Rohit and Gerald Zaltman (1987), "A Comparison of Factors Affecting Use of Marketing Information in Consumer and Industrial Firms," *Journal of Marketing Research,* 24 (February), 114-118.

Dierickx, Ingemar and Karel Cool (1989) "Asset Stock Accumulation and Sustainability of Competitive Advantage," *Management Science*, 35 (12), 1504-1511.

Donavan, D. Todd, Tom J. Brown, and John C. Mowen (2004), "Internal Benefits of Service-Worker Customer Orientation: Job Satisfaction, Commitment, and Organizational Citizenship Behaviors," *Journal of Marketing,* 68 (January), 128-146.

Drucker, Peter F. (1954), *The Practice of Management*. New York: Harper and Row Publishers.

Dwyer, F. Rober, Paul H. Schurr and Sejo Oh (1987), "Developing Buyer-Seller Relationships," *Journal of Marketing*, 51 (April), 11-27.

Findlay, C. (2000), CRM. What's It All About? *IT Toolbox. Com.*

Fiol, C. Marlene and Marjorie A. Lyles (1985), "Organizational Learning," *Academy of Management Review*, 10 (October), 803-813.

Fornell, Claes, Michael D. Johnson, Eugene W. Anderson, Jaesung Cha, and Barbara Everitt Bryant (1996), "The American Customer Satisfaction Index: Nature, Purpose, and Findings," *Journal of Marketing*, 60 (October), 7-18.

Galvin, J., and T. Berg (2003), "CRM Business Transformation: More Than Just Technology," *Gartner Group Research Report R-20-1330*, Garter Group.

García-Murillo，M and H Annabi (2002), "Customer Knowledge Management," *Journal of Operational Research Society*, 53, 875-884.

Gibbert, Michael, Marius Leibold, and Gilbert Probst (2002), "Five Styles of Customer Knowledge Management, and How Smart Companies Use Them to Create

Value," *European Management Journal,* 20 (5), 459-469.

Glazer, Rashi (1991), "Marketing in an Information-Intensive Environment: Strategic Implications of Knowledge as an Asset," *Journal of Marketing*, 55 (October), 1-19.

Gosney, John W. (2000), *Customer Relationship Management Essentials*, Roseville, Calif: Prima Tech.

Gouthier, M., and Stefan Schmid (2003). "Customers and Customer Relationships in Service Firms: The Perspective of the Resource-Based View." *Marketing Theory,* **3**(1), 119-143.

Grönroos, Christian (1996), "Relationship Marekting: Strategic and Tactical Implications," *Management Decisions*, 34 (3), 5-14.

Gustafsson, Anders, Michael D. Johnson, and Inger Roos (2005), "The Effects of Customer Satisfaction, Relationship Commitment Dimensions, and Triggers on Customer Retention," *Journal of Marketing*, 69 (October), 210-218.

Hair, Joseph E., Rolph E. Anderson, Ronald L. Tatham and William C. Black (1998), *Multivariate Data Analysis*, 5th Ed., US: Prentice Hall.

Hamilton, D. P. (2001), "Making Sense of It All," *The Asian Wall Street Journal,* 21 (May), T4.

Han, Jin K., Namwoon Kim, and Rajendra K. Srivastava (1998), "Market

Orientation and Organizational Performance: Is Innovation a Missing Link?" *Journal of Marketing*, 62 (October), 30-45.

Harkness, Janet and Fons JR Van de Vijver and Peter Ph. Mohler (2003), *Cross-cultural Survey Methods*, Hoboken, NJ: John Wiley.

Harter, James K., Frank L. Schmidt, and Theodore L. Hayes (2002), "Business-Unit-Level Relationship Between Employee Satisfaction, Employee Engagement, and Business Outcomes: A Meta-Analysis," *Journal of Applied Psychology*, 87 (April), 268-279.

Hartline, Michael D. and O. C. Ferrell (1996), "The Management of Customer-Contact Service Employees: An Empirical Investigation," *Journal of Marketing*, 60 (October), 52-70.

Hartline, Michael D. James G. Maxham III and Daryl O. McKee (2000), "Corridors of Influence in the Dissemination of Customer-Oriented Strategy to Customer Contact Service Employees," *Journal of Marketing*, 64 (April), 35-50.

Henning-Thurau, Thorsten, Kevin P. Gwinner and Dwayne D. Gremler (2002), "Understanding Relationship Marketing Outcomes: An Integration of Relational Benefits and Relationship Quality," *Journal of Service Research*, 4 (3), 230-247.

Hobby, John (1999), "Looking After the One Who Matters," *Accountancy Age*, (October 28), 28-30.

Hoopes, David G. and Steven Postrel (1999), "Shared Knowledge, 'Glitches,' and Product Development Performance," *Strategic Management Journal,* 20, 837-865.

Huber, George P. (1991), "Organizational Learning: The Contributing Processes and the Literatures," *Organization Science*, 2 (February), 88-115.

Hurley, Robert F. and G. Tomas M. Hult (1998), "Innovation, Marketing Orientation, and Organizational Learning: An Integration and Empirical Examination," *Journal of Marketing,* 62 (July), 42-54.

Im, Subin and John P. Workman Jr. (2004), "Market Orientation, Creativity, and New Product Performance in High-Technology Firms," *Journal of Marketing*, 68 (April), 114-132.

Javalgi, Rajshekhar G., Charles L. Martin, and Robert B. Young (2006), "Marketing Research, Market Orientation and Customer Relationship Management: A Framework and Implications for Service Providers," *Journal of Service Marketing,* 20 (1), 12-23.

Jayachandran, Satish, Kelly Hewett and Peter Kaufman (2004), "Customer Response Capability in a Sense-and-Respond Era: The Role of Customer Knowledge Process," *Journal of the Academy of Marketing Science*, 32 (3), 219-233.

Jayachandran, Satish, Subhash Sharma, Peter Kaufman, and Pushkala Raman (2005), "The Role of Relational Information Processes and Technology Use in Customer

Relationship Management," *Journal of Marketing*, 69 (October), 177-192.

Johnson, Michael D. and Claes Fornell (1991), "A framework for comparing customer satisfaction across individuals and product categories," *Journal of Economic Psychology,* 12 (June), 267-286.

Johnson, Michael D. and Fred Selnes (2004), "Customer Portfolio Management: Toward a Dynamic Theory of Exchange Relationship," *Journal of Marketing*, 68 (April), 1-17.

Joshi, Ashwin W. and Sanjay Sharma (2004), "Customer Knowledge Development: Antecedents and Impact on New Product Performance," *Journal of Marketing*, 68 (October), 47-59.

Kamakura, Wagner A., Sridhar N. Ramaswami and Rajendra K. Srivastava (1991), "Applying Latent Trait Analysis in the Evaluation of Prospects for Cross-Selling of Financial Services," *International Journal of Research in Marketing*, 8 (4), 329-349.

Kerstetter, Jim (2001), "Software Highfliers," *Business Week*, (June 18), 108-109.

Khanna, Suil (2001), "Multi-Channel Customer Management Solutions: Making Sense of the Operational Issues and Development Alternatives," White paper, eLoyalty Corporation, Chicago.

Kogut, Bruce and Udo Zander (1992), "Knowledge of the Firm, Combinative Capabilities, and the Replication of Technology," *Organization Science*, 3 (3),

383-397.

Kohli, Ajay K. and Bernard J. Jaworski (1990), "Market Orientation: The Construct, Research Propositions, and Managerial Implications," *Journal of Marketing*, 54 (April), 1-18.

Kontoghiorghes, Constantine, Susan M. Awbrey and Pamela Feurig (2005), "Examining the Relationship Between Learning Organization Characteristics and Change Adaptation, Innovation, and Organizational Performance," *Human Resource Development Quarterly*, 16 (2), 185-211.

Kumar, Nirmalya, Lisa K. Scheer and Jan-Benedict E. M. Steenkamp (1995), "The Effects of Supplier Fairness on Vulnerable Resellers," *Journal of Marketing Research,* XXXII (February), 54-65.

Kutner, Steven and John Cripps (1997), "Managing the Customer Portfolio of Healthcare Enterprises," *The Healthcare Forum Journal*, 4 (September-October), 52-54.

Lewis, Michael (2005), "Incorporating Strategic Consumer Behavior into Customer Valuation," *Journal of Marketing,* 69 (October), 230-238.

Lewis-Beck, Michael S. (1994), *International Handbooks of Quantitative Applications in the Social Sciences: Basic Measurement*, Vol. 4, CA: Sage Publications and Toppan Publishing.

Li, Tiger and Roger J. Calantone (1998), "The Impact of Market Knowledge Competence on New Product Advantage: Conceptualization and Empirical Examination," *Journal of Marketing*, 62 (October), 13-29.

Liao, Hiu and Aichia Chuang (2004), "A Multilevel Investigation of Factors Influencing Employee Service Performance and Customer Outcomes," *Academy of Management Journal*, 47 (August), 47-58.

Lievens, Annouk and Rudy K. Moenaerk (2000), "New Service Teams as Information-Processing Systems – Reducing Innovative Uncertainty," *Journal of Service Research*, 3 (1), 46-65.

Loveman, Gary W. (1998), "Employee Satisfaction, Customer Loyalty, and Financial Performance," *Journal of Service Research*, 1 (August), 18-31.

MacNeil, Christina M. (2003), "Line Managers: Facilitations of Knowledge Sharing in Teams," *Employee Relations,* 25 (3), 294-307.

Madhavan, Ravindranath and Rajiv Grover (1998), "From Embedded Knowledge to Embodied Knowledge: New Product Development as Knowledge Management," *Journal of Marketing,* 62 (October), 1-12.

Marinova (2004), "Actualizing Innovation Effort: The Impact of Market Knowledge Diffusion in a Dynamic System of Competition," *Journal of Marketing*, 68 (July), 1-20.

Mata, F. J., William L. Fuerst, and Jay B. Barney (1995). "Information Technology and Sustained Competitive Advantage: A Resource-Based Analysis." *MIS Quarterly,* 19 (4), 487-505.

Menon, Anil and P. Rajan Varadarajan (1992), "A Model of Marketing Knowledge Use Within Firms," *Journal of Marketing*, 56 (October), 53-71.

Min, Sungwook, Manohar U. Kalmani, and William T. Robinson (2006), "Market Pioneer and Early Follower Survival Risks: A Contingency Analysis of Really New Versus Incrementally New Product-Markets," *Journal of Marketing*, 70 (January), 15-33.

Mithas, Sunil, M.S. Krishnan, and Claes Fornell (2005) "Who Do Customer Relationship Management Applications Affect Customer Satisfaction?" *Journal of Marketing*, 69 (October), 201-209.

Moorman, Christine (1995), "Organizational Market Information Process: Cultural Antecedents and New Product Outcomes," *Journal of Marketing Research*, 32 (August), 318-336.

Moorman, Christine and Anne S. Miner (1997), "The Impact of Organizational Memory on New Product Performance and Creativity," *Journal of Marketing Research,* XXXIV (February), 91-106.

Morgan, George A., Jeffrey A. Gliner and Robert J. Harmon (2001), "Measurement

Validity," *Journal of the American Academy of Child & Adolescent Psychiatry*, 40 (6), 729-731.

Morgan, Neil A., Eugene W. Anderson, and Vikas Mittal (2005), "Understanding Firm's Customer Satisfaction Information Usage," *Journal of Marketing*, 69 (July), 131-151.

Morgan, Robert M. and Shelby D. Hunt (1994), "The Commitment-Trust Theory of Relationship Marketing," *Journal of Marketing,* 58 (July), 20-38.

Netemeyer, Richard G., James G. Maxham III, and Chris Pullig (2005), "Conflicts in the Work-Family Interface: Links to Job Stress, Customer Service Employee Performance, and Customer Purchase Intent," *Journal of marketing*, 69 (April), 130-143.

Nonaka, Ikujiro (1991), "The knowledge-creating company", *Harvard Business Review,* Boston, MA, 96-104.

Nonaka, Ikujiro (1994), "A Dynamic Theory of Organizational Knowledge Creation," *Organization Science*, 5 (February), 14-37.

Oliver, Richard L. (1980), "A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions," *Journal of Marketing Research,* XVII (November), 460-469.

Olorunniwo, Festus, Maxwell K. Hsu and Godwin F. Udo (2006), "Service Quality,

Customer Satisfaction, and Behavioral Intentions in the Service Factory," *Journal of Services Marketing*, 20 (1), 59-72.

Parasuraman, A., Valarie A. Zeithaml, and Leonard L. Berry (1985), "A Conceptual Model of Service Quality and Its Implications for Future Research," *Journal of Marketing*, 49 (Autumn), 41-50.

Parvatiyar, Atul, and Jagdish N. Sheth (2001), "Customer Relationship Management: Emerging Practice, Process, and Discipline," *Journal of Economic and Social Research*, 3 (July), 1-34.

Payne, Adrian, and Pennie Frow (2005), "A Strategic Framework for Customer Relationship Management," *Journal of Marketing*, 69 (October) 167-176.

Peppers, Don and Martha Rogers (1993), *The One to One Future: Building Relationships One Customer at a Time,* New York: Doubleday.

Peppers, Don, Martha Rogers, and Bob Dorf (1999), "Is Your Company Ready for One-to-One Marketing?" *Harvard Business Review*, 11 (January-February), 151-160.

Priem, Richard L. and John E. Butler (2001), "Is The Resource-Based "View" A Useful Perspective for Strategic Management Research? " *Academy of Management Review,* 26(1), 22-40.

Priem, Richard L. and John E. Butler (2001), "Tautology in the Resource-Based View and the Implications of Externally Determined Resource Value: Further

Comments," *Academy of Management Review,* 26 (1), 57-68.

Ramaswami, Sridhar N. (1996), "Marketing Controls and Dysfunctional Employee Behaviors: A Test of Traditional and Contingency Theory Postulates," *Journal of marketing*, 60 (April), 105-120.

Real, Juan C., Antonio Leal, and José L. Roldán (2005), "Information technology as a determinant of organizational learning and technological distinctive competencies," *Industrial Marketing Management,* 35 (May), 505-521.

Reinartz, Werner J. and V. Kumar (2002), "The Mismanagement of Customer Loyalty," *Harvard Business Review*, 80 (July), 86-94.

Reinartz, Werner, Manfred Krafft, and Wayne D. Hoyer (2004) "The Customer Relationship Management Processes: Its Measurement and Impact on Performance," *Journal of Marketing Research*, XLI (August), 293-305.

Rigby, Darrell K., Frederick F. Reichheld, and Phil Schefter (2002), "Avoid the Four Perils of CRM," *Harvard Business Review,* 80 (February), 101-109.

Robertson, Thomas S., Jehoshua Eliashberg and Talia Rymon (1995), "New Product Announcement Signals and Incumbent Reactions," *Journal of Marketing*, 59 (July), 1-15.

Rogers, Martha (2005), "Customer Strategy: Observations from the Trenches," *Journal of Marketing,* 69 (October), 262-263.

Rowley, Jennifer (2002), "Eight Questions for Customer Knowledge Management in e-Business," *Journal of Knowledge Management*, 6 (5), 500-511.

Rowley, Jennifer (2002), "Reflections on Customer Knowledge Management in e-Business," *Qualitative Market Research*, 5 (4), 268-280.

Rust, Roland T., Katherine M. Lemon and Valarie A. Zeithaml (2004), "Return on Marketing: Using Customer Equity to Focus Marketing Strategy," *Journal of Marketing*, 68 (January), 109-127.

Rust, Roland T., Valarie A. Zeithaml and Katherine N. Lemon (2000), *Driving Customer Equity: How Customer Lifetime Value Is Reshaping Corporate Strategy*. New York: The Free Press.

Ryals, Lynette (2005), "Making Customer Relationship Management Work: The Measurement and Profitable Management of Customer Relationships," *Journal of Marketing*, 69 (October) 252-261.

Schmit, Mark J. and Stenven P. Allscheid (1995), "Employee Attitudes and Customer Satisfaction: Making Theoretical and Empirical Connections," *Personnel Psychology*, 48, 521-536.

Schneider, Benjarmin, Mark G. Ehrhart, David M. Mayer, Jessica L. Saltz and Kathryn Niles-Jolly (2005), "Understanding Organization-Customer Links in Service Settings," *Academy of Management Journal*, 48 (6), 1017-1032.

Schneider, Benjarmin, Susan S. White and Michelle C. Paul (1998), "Linking Service Climate and Customer Perceptions of Service Quality: Test of a Causal Model," *Journal of Applied Psychology*, 83 (2), 150-163.

Schulz, Martin (2001), "The Uncertain Relevance of Newness: Organizaitonal Learning and Knowledge Flows," *Academy of Management Journal*, 44 (August), 661-681.

Sheth, Jagdish N. and Atul Parvatiyar (1995), "Relationship Marketing in Consumer Markets: Antecedents and Consequences," *Journal of the Academy of Marketing Science*, 23 (Fall), 255-271.

Singh, Jagdip (2000), "Performance Productivity and Quality of Frontline Employees in Service Organizations," *Journal of marketing*, 64 (April), 15-34.

Sinkula, Jams M. (1994), "Market Information Processing and Organizational Learning," *Journal of Marketing*, 58 (January), 35-45.

Slater, Stanley F. and John C. Narver (1995), "Market Orientation and the Learning Organization," *Journal of Marketing*, 59 (July), 63-74.

Smith, Alan (2006), "CRM and Customer Service: Strategic Asset or Corporate Overhead?," *Handbook of Business Strategy,* 7 (1), 87-93.

Sood, Ashish and Gerard J. Tellis (2005), "Technological Evolution and Radical Innovation," *Journal of Marketing*, 69 (July), 152-168.

Speier, Cheri, and Viswanath Venkatesh (2002), "The Hidden Minefields in the Automation of Sales Force Automation Technologies," *Journal of Marketing,* 66, 98-111.

Spencer, Jennifer W. (2003), "Firms' Knowledge-Sharing Strategies In the Global Innovation System: Empirical Evidence From the Flat Panel Display Industry," *Strategic Management Journal*, 24, 217-233.

Srinivasan, Raji and Christine Moorman (2005), "Strategic Firm Commitments and Rewards for Customer Relationship Management in Online Retailing," *Journal of Marketing*, 69 (October), 193-200.

Srivastava, Rajendra K., Tasadduq A. Shervani, and Liam Fahey (1999), "Marketing, Business Processes, and Shareholder Value: An Organizationally Embedded View of Marketing Activities and the Discipline of Marketing," *Journal of Marketing*, 63 (Special Issue), 168-179.

Srivastava, Rajendra. K., Liam Fahey, and H. Kurt Christensen (2001). "The Resource-based View and Marketing: the Role of Market-based Assets in Gaining Competitive Advantage." *Journal of Management*, 27, 777-802.

Stevens, Greg, James Burley, and, Richard Divine (2003), "Creativity Business Discipline – Higher Profits Faster from New Product Development," *Journal of Product Innovation Management*, 16 (5), 455-468.

Stone, Merlin and Neil Woodcock (2001), "Defining CRM and Assessing Its Quality," in *Successful Customer Relationship Marketing*, Brian Foss and Merlin Stone, eds. London: Kogan, 3-20.

Sundaram, Suresh, Andrew Schwarz, Eli Jones and Wynne W. Chin (2007), "Technology use on the front line: how information technology enhances individual performance," *Journal of Academy Marketing Science*, 35 (September), 101-112.

Swift, Ronald S. (2000), *Accelerating Customer Relationships – Using CRM and Relationship Technologies*. Upper Saddle River, NJ: Prentice Hall.

Thetgyi, Olivia (2000), "Radical Makeovers," *Sales and Marketing Management*, 152 (4), 78-85.

Toften, Kjell and Svein Ottar Olsen (2003), "Export Market Information Use, Organizational Knowledge, and Firm Performance: A Conceptual Framework," *International Marketing Review,* 20 (1), 95-110.

Tsai, Wenpin (2001), "Knowledge Transfer in Intraorganizational networks: Effects of Network Position and Absorptive Capacity on Business Unit Innovation and Performance," *Academy of Management Journal*, 44 (October), 996-1004.

Vargo, Stephen L. and Rober R. Lusch (2004), "Evolving to a New Dominant Logic for Marketing," *Journal of Marketing*, 68 (January), 1-17.

Vavra, T. (1992), *Aftermarketing: How to Keep Customers for Life through*

Relationship Marketing, Homewood, IL: Richard D. Irwin, Inc.

Verhoef, Peter C. (2003), "Understanding the Effect of Customer Relationship Management Efforts on Customer Retention and Customer Share Development," *Journal of Marketing*, 67 (October), 30-45.

Vorhies, Douglas W. and Neil A. Morgan (2005), "Benchmarking Marketing Capabilities for Sustainable Competitive Advantage," *Journal of Marketing*, 69 (January), 80-94.

Wang, Yonggui, Hing Po Lo, Renyong Chi, and Yongheng Yang (2004), "An Integrated Framework for Customer Value and Customer Relationship Management Performance: A Customer-Based Perspective from China," *Managing Service Quality*, 14 (2/3), 169-182.

Wernerfelt, Birger (1984), "A Resource-based View of the Firm," *Strategic Management Journal,* 5 (2), 171-180.

Westbrook, Robert A. and Richard L. Oliver (1991), "The Dimensionality of Consumption Emotion Patterns and Consumer Satisfaction," *The Journal of Consumer Research*, 18 (January), 84-91.

Winer, Russell S. (2001), "A Framework for Customer Relationship Management," *California Management Review*, 43 (Summer), 89-106.

Wright, P. M. B. B. D., and Scott A. Snell (2001), "Human Resources and the

Resource Based View of the Firm," *Journal of Management,* 27, 701-721.

THE HONGKONG
POLYTECHNIC UNIVERSITY
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中国内地企业客户关系管理情况调查问卷

主办机构
香港理工大学管理及市场学系

首先，衷心希望您能参与此项有关中国内地企业客户关系管理[1]情况的问卷调查。此问卷由香港理工大学管理及市场学系设计，旨在调查研究中国内地企业客户信息与客户知识的管理对企业客户关系管理的影响，为企业改进客户关系管理提供依据。

我们诚恳地邀请您在百忙之中抽出 10-15 分钟填写以下问卷，您的填写对此次研究能否成功至关重要。请您回答所有问题并尽可能的选择您认为最恰当的答案。所有调查资料只用作科学研究并将会严格保密，答卷资料仅用于综合统计分析，研究结果只展现综合数据，不进行单独个案处理。请您将填好的问卷放入已付邮资的回邮信封中在两星期内回寄给我们。

阁下如希望进一步了解研究结果，或对此项研究有任何疑问和建议，请通过以下方式与我们联系。

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[1] 客户关系管理是一种企业关系管理策略，它是一种企业获取、保留客户的管理过程，以便更好满足客户的需求并创造客户价值，使得企业能够获得长期的利润增长（Parvitiyar & Sheth, 2001）。

Section A (请市场经理填写)

第一部分 企业客户关系意识

A 您认为贵公司以客户为中心的意识以及对客户关系的重视情况如何？我们用 1-7 分代表贵公司与下列各项描述的符合程度，1 分表示"完全不符合"，7 分表示"完全符合"，分值越大，符合程度越高。	完全不符合	相当不符合	有点不符合	无关	有点符合	相当符合	完全符合
1. 我们企业的商业目标主要是以客户满意度来驱动的。	1	2	3	4	5	6	7
2. 我们鼓励员工重视客户关系。	1	2	3	4	5	6	7
3. 在我们企业里，客户关系被认为是有价资产。	1	2	3	4	5	6	7
4. 我们的高层管理者强调客户关系的重要性。	1	2	3	4	5	6	7

第二部分 企业客户关系管理（CRM）[2]信息化程度情况

1. 贵公司是否已经对客户信息进行管理，例如，客户资料归档，交易信息记录等？ □是 □否
2. 贵公司是否已经投资并实施了客户关系管理软件或类似功能的信息管理系统？ □是 □否

[如果您回答'是'请继续回答第二部分剩余问题，如您回答'否'请直接跳至第三部分开始作答。]

A. 您认为贵公司在客户关系管理（CRM）信息技术上的投资情况如何？我们用 1-7 分代表您对下列各项描述的同意程度，1 分表示"完全不同意"，7 分表示"完全同意"，分值越大，同意程度越高。	完全不同意	不同意	有点不同意	中立	有点同意	同意	完全同意
1. 我们投资 CRM 技术来获得和管理"实时"的客户信息及反馈。	1	2	3	4	5	6	7
2. 我们投资 CRM 技术来开发大型客户信息库。	1	2	3	4	5	6	7
3. 我们投资 CRM 技术来加强客户支持的质量。	1	2	3	4	5	6	7

第三部分 企业客户知识[3]发展情况

3.1 客户信息获取

A. 您认为贵公司客户信息的获取情况如何？我们用 1-7 分代表贵公司与下列各项描述的符合程度，1 分表示"完全不符合"，7 分表示"完全符合"，分值越大，符合程度越高。	完全不符合	不符合	有点不符合	中立	有点符合	符合	完全符合
1. 我们持续地收集客户信息。	1	2	3	4	5	6	7

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[2] 本问卷中的'企业客户关系管理'指贵公司目前正在施行的客户关系管理方式，如 Microsoft 办公自动化软件（如 Word、Excel）、专门管理客户信息的信息系统、客户支持或销售系统、呼叫中心、以及专业的客户关系管理（CRM）软件，等等与客户管理相关的各种手段。

[3] 客户知识是对从各种来源获取到的客户信息进行筛选、分析和理解，从而形成的一种企业本领 （Joshi & Sharma, 2004）， 来指导企业进行市场预测、市场战略实施等活动。

2. 我们从企业内部资源（例如，市场部、销售部、财务部，客户服务部，等）来获取客户信息。	1	2	3	4	5	6	7
3. 我们使用外部资源（例如，市场调查代理机构、企业联盟数据资源库、咨询公司，等）收集客户信息。	1	2	3	4	5	6	7
4. 我们通过各种与客户接触的机会（例如，邮件、电话、网站、传真、面对面沟通，等）来获取客户信息。	1	2	3	4	5	6	7

3.2 客户知识开发

B. 您认为贵公司客户知识的开发情况如何？我们用 1-7 分代表贵公司与下列各项描述的符合程度，1 分表示"完全不符合"，7 分表示"完全符合"，分值越大，符合程度越高。	完全不符合	不符合	有点不符合	中立	有点符合	符合	完全符合
1. 我们定期地与客户见面来了解他们目前以及潜在的需求。	1	2	3	4	5	6	7
2. 我们使用研究手段来整理客户信息，比如，个人访谈、小组讨论、市场调查，等。	1	2	3	4	5	6	7
3. 我们系统地处理和分析客户信息。	1	2	3	4	5	6	7
4. 我们了解我们客户的业务。	1	2	3	4	5	6	7
5. 我们利用客户信息来制作客户档案资料。	1	2	3	4	5	6	7
6. 我们使用客户信息/知识来识别潜在的和有价值的客户。	1	2	3	4	5	6	7
7. 我们分析客户信息知识来识别无利润的或低价值的客户。	1	2	3	4	5	6	7

3.3 客户知识共享

C. 您认为贵公司客户知识的共享情况如何？我们用 1-7 分代表贵公司与下列各项描述的符合程度，1 分表示"完全不符合"，7 分表示"完全符合"，分值越大，符合程度越高。	完全不符合	相当不符合	有点不符合	无关	有点符合	相当符合	完全符合
1. 在我们的企业里，相关员工较容易获取所需的客户信息/知识。	1	2	3	4	5	6	7
2. 在我们的企业里，我们经常开展部门间的会议来讨论市场趋势。	1	2	3	4	5	6	7
3. 在我们的企业里，营销员会花时间与其他部门讨论客户目前和将来的需求。	1	2	3	4	5	6	7
4. 在我们的企业里，相关的客户信息/知识被散布到企业的各个管理阶层。	1	2	3	4	5	6	7

3.4 客户知识应用

D.您认为贵公司客户知识的应用情况如何？我们用 1-7 分代表贵公司与下列各项描述的符合程度，1 分表示"完全不符合"，7 分表示"完全符合"，分值越大，符合程度越高。	完全不符合	相当不符合	有点不符合	无关	有点符合	相当符合	完全符合
1.我们使用客户信息/知识来划分市场。	1	2	3	4	5	6	7
2.我们使用客户信息/知识来为客户订制我们提供的产品/服务。	1	2	3	4	5	6	7
3.我们利用客户信息/知识，同那些有价值的客户间建立良好关系，从而进行交叉销售或主动销售。	1	2	3	4	5	6	7
4.我们用客户信息/知识来终止与那些低价值或问题客户的关系。	1	2	3	4	5	6	7

第四部分 企业客户关系管理成效

4.1 客户满意度

A. 根据来自各种渠道的信息反馈（如统计调查结果、客户或员工的反馈），您认为贵公司客户满意度情况如何？我们用 1-7 分代表贵公司与下列各项描述的符合程度，1 分表示"完全不符合"，7 分表示"完全符合"，分值越大，符合程度越高。	完全不符合	相当不符合	有点不符合	无关	有点符合	相当符合	完全符合
1.大多数客户对我们提供的产品/服务是满意的。	1	2	3	4	5	6	7
2.大多数客户满意在我们公司的购买经历。	1	2	3	4	5	6	7
3.我们为客户提供的产品/服务能够达到客户的期望。	1	2	3	4	5	6	7
4.总体来说，近年来我们的表现能够达到客户的满意。	1	2	3	4	5	6	7

4.2 企业-客户长期关系

B.您认为贵公司今后与客户之间的长期关系会如何？我们用 1-7 分代表贵公司与下列各项描述的符合程度，1 分表示"完全不符合"，7 分表示"完全符合"，分值越大，符合程度越高。	完全不符合	相当不符合	有点不符合	无关	有点符合	相当符合	完全符合
1.在我们企业里，现有客户与我们的关系是十分稳固的。	1	2	3	4	5	6	7
2.在我们企业里，越来越多的现有客户希望和我们的关系继续发展下去。	1	2	3	4	5	6	7
3.在我们企业里，越来越多的现有客户将愿意自动延续与我们的合同。	1	2	3	4	5	6	7
4.在我们企业里，我们总体的表现能够保留住现有的客户。	1	2	3	4	5	6	7

Section B（请销售经理填写）

客户关系管理已广泛为西方企业所应用，随着中国市场化经济不断深入，客户关系越来越被中国企业实践者所重视并加之战略管理。当前，全球经济知识化使关系管理学者开始探索客户知识在客户关系管理中的作用，以及客户知识对企业产品/服务创新，提升企业员工本领，和客户关系成效等方面产生的影响。请您思考贵公司在客户信息/知识的掌握及使用情况，就产品/服务创新和员工能力提升两方面回答以下各项问题。

第一部分 企业创新能力提升情况

1.1 产品/服务创新意图

A. 通过学习和应用客户信息/知识，您认为贵公司在产品/服务的改进意义何在？我们用 1-7 分代表贵公司与下列各项描述的符合程度，1 分表示"完全不符合"，7 分表示"完全符合"，分值越大，符合程度越高。	完全不符合	相当不符合	有点不符合	无关	有点符合	相当符合	完全符合
1. 我公司的产品/服务的改进与客户的需求和期望是息息相关的。	1	2	3	4	5	6	7
2. 我公司的产品/服务的改进是适合客户需要和期望的。	1	2	3	4	5	6	7
3. 我公司的产品/服务的改进对客户是有帮助的。	1	2	3	4	5	6	7

1.2 产品/服务创新成就

B. 相对您公司改进产品/服务的最初宗旨，通过学习和应用客户信息/知识，您认为贵公司的产品/服务的改进情况如何？我们用 1-7 分代表您对下列各项描述的同意程度，1 分表示"完全不同意"，7 分表示"完全同意"，分值越大，同意程度越高。	完全不同意	不同意	有点不同意	中立	有点同意	同意	完全同意
1.就销售，市场份额，回收投资，或赢利而言，我公司的产品/服务的改进是非常成功的。	1	2	3	4	5	6	7
2.就技术的提升而言，我公司的产品/服务的改进是非常成功的。	1	2	3	4	5	6	7
3.就总体表现而言，我公司的产品/服务的改进是非常成功的。	1	2	3	4	5	6	7

第二部分 营销人员工作业绩情况

A. 通过学习和应用客户信息/知识，您认为贵公司营销员工的工作业绩情况如何？我们用 1-7 分代表贵公司营销员工能力提升情况与下列各项描述的符合程度，1 分表示"完全不符合"，7 分表示"完全符合"，分值越大，符合程度越高。	完全不符合	相当不符合	有点不符合	无关	有点符合	相当符合	完全符合
1.营销人员提高了其处理与客户相关工作的工作效率。	1	2	3	4	5	6	7
2.营销人员加强其处理客户相关工作的效力。	1	2	3	4	5	6	7
3.营销人员提高了其管理客户关系的工作业绩。	1	2	3	4	5	6	7
4.总体上，营销人员在管理客户关系方面的能力得到了提升。	1	2	3	4	5	6	7

===== 企业信息 （请在最合适的一个选项上打勾"√"）=====

1．贵公司属于下列哪种所有制类型的企业？
☐ 国有企业　　　　　　　　　☐ 中外合资企业
☐ 外资企业　　　　　　　　　☐ 民营企业
☐ 其它（请注明）：＿＿＿＿＿＿＿＿＿

2．贵公司所在的城市/乡镇是：＿＿＿＿＿＿＿＿＿＿＿＿

3．贵公司现有员工总数为？
☐ 100 人以下　　　　　　　　☐ 100—200 人
☐ 201—500 人　　　　　　　　☐ 501—1000 人
☐ 1001—5000 人　　　　　　　☐ 5000 人以上

4．贵公司的主营业务属于下列哪个范畴？
☐ 制造业　　　　　　　　　　　　　☐ 房地产业［建筑］
☐ 金融、保险业［金融 银行 证券 保险］　☐ 批发和零售贸易［商业 外贸］
☐ 社会服务业［餐饮 旅游 其他］
☐ 交通运输、仓储业［交通运输 铁路 公路 水运 民航］
☐ 信息技术业［软件 电信/运营计算机硬件及外设 通讯产品制造］
☐ 传播与文化产业［有线电视 音像 电影 电子出版物 文化艺术 信息传播服务］
☐ 其它（请注明）：＿＿＿＿＿＿＿＿

===== 个人信息（请在最合适的一个选项上打勾"√"）=====

1．您在贵公司的职位：
☐ 主管企业市场策略负责人
☐ 主管企业销售服务负责人
☐ 主管企业客户关系管理负责人
☐ 主管企业产品开发/改进负责人
☐ 其它（请注明）：＿＿＿＿＿＿＿＿＿＿＿＿＿＿

2．**性别**：
☐ 男   ☐ 女

3．**您的教育程度**：
☐ 大专以下   ☐ 大专
☐ 大学本科   ☐ 硕士
☐ 博士
☐ 其它（请注明）：＿＿＿＿＿＿＿＿

4．**年龄**：
☐ 30 岁以下   ☐ 30—40 岁
☐ 41—50 岁   ☐ 50 岁以上

5．**您在本行业的年资**：
☐ 5 年以下   ☐ 5—10 年
☐ 11—15 年   ☐ 16—20 年
☐ 20 年以上

6．**您在管理层的工作经历**：
☐ 5 年以下   ☐ 5—10 年
☐ 11—15 年   ☐ 16—20 年
☐ 20 年以上

→ **您的通讯方式**：

姓名：＿＿＿＿＿＿＿＿＿＿   联络电话：＿＿＿＿＿＿＿＿＿＿＿＿

通讯地址：＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿

＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿

邮政编码：＿＿＿＿＿＿＿＿＿＿电子邮件：＿＿＿＿＿＿＿＿＿＿＿＿＿＿

阁下的意见：

非常感谢您的合作及支持！

THE HONGKONG
POLYTECHNIC UNIVERSITY
香港理工大學

Survey on The Development of Customer Relationship Management (CRM) of the Enterprises in China Mainland

Conducted by

**Department of Management & Marketing,
The Hong Kong Polytechnic University**

This is a research survey on **The Development of Customer Relationship Management (CRM)[1] of the Enterprises in China Mainland** conducted by the Department of Management and Marketing of The Hong Kong Polytechnic University. The aim of this survey is to explore the role of internal customer knowledge process in Chinese organizations. A key purpose of this study is to gain a better understanding of the factors that influence the implementation of CRM in China Mainland Enterprises. The findings would provide new and broader insights for Chinese marketing practitioners on implementing CRM.

Whether or not your organization implements CRM software, we would highly appreciate if you can use 10 to 15 minutes to complete this questionnaire. Your reply is very important to our study. Please answer all of the questions and choose the most appropriate answers. Please be assured that all information you provide will remain strictly confidential. Your responses will be used only for statistical analysis and you will benefit from summarized report from this survey. Please return this questionnaire in the provided pre-paid envelope within 2 weeks.

Should you have any questions about this survey and our research, please do not hesitate to contact us.

Again, thank you very much for your kind co-operation in advance!

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[1] Customer relationship management is defined as an organizational management strategy that is a managing process to capture and retain customers, in order to better satisfy customers' needs and create customer value, eventually improve the organization's sustainable profitability (Parvitiyar & Sheth, 2001).

Section A (For Marketing Manager)

Part I: Customer-Centric/Customer Relationship Orientation

Thinking about **the customer-centric/customer relationship orientation** in your organization, to what extent do you agree or disagree with each of the following statements? (We use 1-7 to describe the degree of agreement on the following statements, with 1 denoting "Strongly Disagree", and 7 denoting "Strongly Agree", the larger the number, the higher will be the degree of agreement.)

A. The following items are concerned with <u>customer-centric or customer relationship orientation</u> in your company. (Please circle one number for each item.)	Strongly Agree ←——→ Strongly Disagree Agree						
1. Our business objectives are driven primarily by customer satisfaction.	1	2	3	4	5	6	7
2. Our employees are encouraged to focus on customer relationships.	1	2	3	4	5	6	7
3. In our organization, customer relationships are considered to be a valuable asset.	1	2	3	4	5	6	7
4. Our senior management emphasizes the importance of customer relationships.	1	2	3	4	5	6	7

Part II: Customer Information Management[2] and CRM IT Adoption

1. In the most recent year, has your organization managed customer information, such as customer information record and transaction information record, etc.?

☐ Yes, we have already managed our customer information.

☐ No, we have never managed our customer information.

2. In the most recent year, has your organization invested and implemented CRM-related information management software?

☐ Yes, we have invested and implemented CRM-related information management software.

☐ No, we have never invested and implemented CRM-related information management software. [If Yes, please go to Part II — A.1; If No, please go directly to Part III.]

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[2] 'The organization customer information management' in this survey refers to the managing forms of customer relationship relevant to customer management methods in current companies, such as Microsoft Office Automation (e.g., Word, Excel), the Customer Information System, Customer Service Support or Sales Support, Call Center, and CRM Software, etc.

Thinking about **the intentions of CRM IT investment** in your organization, to what extent do you agree or disagree with each of the following statements? (We use 1-7 to describe the degree of agreement on the following statements, with 1 denoting "Strongly Disagree", and 7 denoting "Strongly Agree", the larger the number, the higher will be the degree of agreement.)

A. The following items are concerned with <u>the intentions of CRM IT investment</u> in your company. (Please circle one number for each item.)	Strongly Agree ⟵ ⟶ Strongly Disagree Agree						
1. We invest in CRM information technology to acquire and manage 'real time' customer information and feedback.	1	2	3	4	5	6	7
2. We invest in CRM information technology to develop a large installed base of customers.	1	2	3	4	5	6	7
3. We invest in CRM information technology to enhance the quality of customer support.	1	2	3	4	5	6	7

Part III: Customer Knowledge[3] Process

The following four tables list the four distinct levels of customer knowledge process, please think about **the situation of customer knowledge process** in your company to answer each question. (We use 1-7 to describe the degree of agreement on the following statements, with 1 denoting "Strongly Disagree", and 7 denoting "Strongly Agree", the larger the number, the higher will be the degree of agreement.)

3.1 Customer Information Acquisition

A. The following items are concerned with <u>customer information acquisition</u> in your company. (Please circle one number for each item.)	Strongly Agree ⟵ ⟶ Strongly Disagree Agree						
1. We collect customer information on an ongoing basis.	1	2	3	4	5	6	7
2. We capture customer information from internal sources within the organization.	1	2	3	4	5	6	7
3. We collect customer information using external sources (such as market research agencies, syndicated data sources, and consultants).	1	2	3	4	5	6	7
4. We gather customer information across customer contact points (e.g., mail, telephone, Web, fax, face-to-face).	1	2	3	4	5	6	7

[3] Customer knowledge can be treated as an organizational competence by screening, analyzing, and understanding customer information collected from various resources. This knowledge can guide organizations to predict market trends and implement market strategy, etc. (Joshi & Sharma, 2004).

3.2 Customer Knowledge Development

B. The following items are concerned with customer knowledge development in your company. (Please circle one number for each item.)	Strongly Agree ←——→ Strongly Disagree Agree						
1. We regularly meet customers to learn their current and potential needs.	1	2	3	4	5	6	7
2. We regularly use research procedures, e.g. personal interviews, focus groups, and surveys, to organize customer information.	1	2	3	4	5	6	7
3. We systematically process and analyze customer information.	1	2	3	4	5	6	7
4. We understand our customers' business.	1	2	3	4	5	6	7
5. We use customer information to develop customer profiles.	1	2	3	4	5	6	7
6. We use customer knowledge to identify potential and valuable customers.	1	2	3	4	5	6	7
7. We analyze customer information to identify non-profitable or lower-value customers.	1	2	3	4	5	6	7

3.3 Customer Knowledge Sharing

C. The following items are concerned with customer knowledge sharing in your company. (Please circle one number for each item.)	Strongly Agree ←——→ Strongly Disagree Agree						
1. In our organization, relevant employees find it easy to access required customer knowledge.	1	2	3	4	5	6	7
2. In our organization, we have frequent interdepartmental meetings to discuss market trends.	1	2	3	4	5	6	7
3. In our organization, marketing personnel spend time discussing customers' future needs with other departments.	1	2	3	4	5	6	7
4. In our organization, customer knowledge is disseminated across all levels within the organizations on a regular basis.	1	2	3	4	5	6	7

3.4 Customer Knowledge Use

D. The following items are concerned with customer knowledge use in your company. (Please circle one number for each item.)	Strongly Agree ←——→ Strongly Disagree Agree						
1. We use customer knowledge to segment markets.	1	2	3	4	5	6	7
2. We use customer knowledge to customize our offers.	1	2	3	4	5	6	7
3. We use customer knowledge to mature relationships with high-value customers in order to be able to cross-sell or up-sell.	1	2	3	4	5	6	7
4. We use customer knowledge to discontinue relationships with low-value or problem customers (e.g., canceling customer accounts).	1	2	3	4	5	6	7

Part IV: Customer Relationship Performance

4.1 Customer Satisfaction

Thinking about **the customer satisfaction** in your organization, to what extent do you agree or disagree with each of the following statements? (We use 1-7 to describe the degree of agreement on the following statements, with 1 denoting "Strongly Disagree", and 7 denoting "Strongly Agree", the larger the number, the higher will be the degree of agreement.)

A. According to the feedback from various channels (e.g., the result of statistics or the feedback of customers/employees),	Strongly Agree ⬅➡ Strongly Disagree Agree						
1. Most of our customers are satisfied with the offerings we provide.	1	2	3	4	5	6	7
2. Most of our customers are satisfied with the purchase experiences with our organizations.	1	2	3	4	5	6	7
3. The offerings we provide to customers can reach the customers' expectations.	1	2	3	4	5	6	7
4. Overall, in recent years, our performance can meet the customers' satisfactions.	1	2	3	4	5	6	7

4.2 Long-term Relationship

Thinking about **the long-term relationship with the customers** of your organization, to what extent do you agree or disagree with each of the following statements? (We use 1-7 to describe the degree of agreement on the following statements, with 1 denoting "Strongly Disagree", and 7 denoting "Strongly Agree", the larger the number, the higher will be the degree of agreement.)

B. Concerning with the long-term relationship with the customers of your company,	Strongly Agree ⬅➡ Strongly Disagree Agree						
1. In our organization, the relationships with our existing customers are very strong.	1	2	3	4	5	6	7
2. In our organization, more and more existing customers expect the relationships with our organization to continue for a long time.	1	2	3	4	5	6	7
3. In our organization, more and more existing customers are going to renew the contracts with us automatically.	1	2	3	4	5	6	7
4. In our organization, the overall performance can keep the existing customers.	1	2	3	4	5	6	7

Section B (For Sales Manager)

Customer relationship management has been extensively used by Western companies. With the reform of market economy undergone increasingly in China, customer relationship with its various strategic applications has been gained much attention by Chinese practitioners. Currently, with the emphasis on knowledge in global economy, relationship marketing academics have started to explore the function of organizational customer knowledge in CRM process as well as the influences of in-house customer knowledge on new product or service, employees' capability, and customer relationship performance.

Please think about the customer information or the knowledge of customer possessed by your company, and answer each of the following questions, concerning product or service improvement and frontline employees' capability enhancement.

Part I: Product/Service Improvement

1.1 Product/Service Improvement Meaningfulness

(Please circle one number for each item — Strongly Disagree = 1 to Strongly Agree = 7.)

A. Through learning and applying customer knowledge, the product/service improvement:	Strongly Agree ⟷ Strongly Disagree Agree						
1. is relevant to customers' needs and expectations;	1	2	3	4	5	6	7
2. is appropriate for customers' needs and expectations; and	1	2	3	4	5	6	7
3. is useful for customers.	1	2	3	4	5	6	7

1.2 Product/Service Improvement Success

(Please circle one number for each item — Strongly Disagree = 1 to Strongly Agree = 7.)

B. Relative to your firm's original objectives for improving product/service, through learning and applying customer knowledge, products/services improved:	Strongly Agree ⟷ Strongly Disagree Agree						
1. is very successful in terms of sales, market share, return on investment, or profits.	1	2	3	4	5	6	7
2. is very successful in terms of technological advancement.	1	2	3	4	5	6	7
3. is very successful in terms of overall performance.	1	2	3	4	5	6	7

Part II: Frontline Employee Performance

(Please circle one number for each item — Strongly Disagree = 1 to Strongly Agree = 7.)

A. Through learning and applying customer knowledge, frontline employees?	Strongly Agree ⟵⟶ Strongly Disagree Agree						
1. Increases their productivity in managing customer relationships.	1	2	3	4	5	6	7
2. Enhance their effectiveness in handling customer-related jobs.	1	2	3	4	5	6	7
3. Improve their performance in managing customer relationships.	1	2	3	4	5	6	7
4. Overall, get usefulness and benefits in managing customer relationship.	1	2	3	4	5	6	7

===== Organization Background =====

(Please tick appropriate options.)

1. What is the type of ownership of your company?
☐ State-owned enterprise   ☐ Chinese-foreign joint venture enterprise
☐ Foreign capital enterprise   ☐ Privately operated enterprise
☐ Other (please specify) _____

2. The city/town/village where your company located is: _____

3. Number of employees in business:
☐ Under 100   ☐ 100—200
☐ 201—500   ☐ 501—1000
☐ 1001—5000   ☐ Above 5000

4. What is the primary business of your company?
☐ Manufacturer   ☐ Real estate
☐ Finance, Insurance   ☐ Retailing, Trade
☐ Social service   ☐ Transportation
☐ Information technology   ☐ Media
☐ Other (please specify) _____

===== Personal Information =====

(Please tick appropriate options.)

1. Your position in the company:
☐ Manager in charge of marketing strategy
☐ Manager in charge of sales/services

☐ Manager in charge of customer relationship management
☐ Manager in charge of products/services development/improvement
☐ Other (please specify)_____

2. Gender:
☐ Male   ☐ Female

3. Education:
☐ Below post-secondary   ☐ Post-secondary
☐ Under-graduate   ☐ Master degree
☐ Doctorate degree
☐ Other (please specify)：_____

4. Age (in yrs):
☐ Under 30   ☐ 30—40
☐ 41—50   ☐ Above 50

5. Industry experiences (in yrs):
☐ Under 5   ☐ 5—10
☐ 11—15   ☐ 16—20
☐ Above 20

6. Managerial experience (in yrs):
☐ Under 5   ☐ 5—10
☐ 11—15   ☐ 16—20
☐ Above 20

→ **Your Contact Information：**

Name：_____   Phone Number：_____

Address：_____

_____

Zip Code：_____   E-mail Address: _____

Comments

Thank you very much for your corporation & support!

THE HONGKONG
POLYTECHNIC UNIVERSITY
香港理工大學

尊敬的先生/女士，

我们大约于三周前寄给您一份题目为***"中国内地企业客户关系管理***

情况的调查问卷"。我们诚恳地希望您能在百忙之中抽出几分钟时间填写

该问卷，因为您的回复对此项学术研究具有重要意义。

期盼着阁下的支持与合作！

联系人：石小姐

香港理工大学管理及市场学系

香港九龙红磡

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2007 年 3 月 19 日

THE HONGKONG
POLYTECHNIC UNIVERSITY
香港理工大學

19th March, 2007
Dear Sir/Madam,

We have sent you a questionnaire with the topic of "**Survey on the Development of Customer Relationship Management (CRM) of the Enterprises in China Mainland**" about three weeks ago. Since your reply is very important for this research, we would be grateful if you could now spend a few minutes to fill in the questionnaire and return it to us as soon as possible.

Looking forward to your support!

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THE HONGKONG
POLYTECHNIC UNIVERSITY
香港理工大學

尊敬的先生/女士，

在过去的一个半月内，我们曾先后两次以书面及电话形式恳请您参加题目为**"中国内地企业客户关系管理情况的调查问卷"。**我们相信您的参与必定对此项研究结论的准确性起到积极作用，因此我们再次诚恳地希望您能在百忙之中抽出时间填写该问卷。请您将填写好的问卷在四月三十日前回寄给我们，谢谢！

期盼着阁下的支持与合作！

联系人：石小姐

香港理工大学管理及市场学系

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2007 年 4 月 9 日

THE HONGKONG
POLYTECHNIC UNIVERSITY
香港理工大學

9th April, 2007
Dear Sir/Madam,

During the last 6 weeks we have sent you a questionnaire as well as a phone-call reminder, respectively, for inviting you to participate in an important survey on **the Development of Customer Relationship Management (CRM) of the Enterprises in China Mainland**. Since your reply is very important for the accuracy of the study results, we are sending you this final contact and hope you could fill in the questionnaire and return it to us before 30 April 2007.

Looking forward to your support!

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THE HONGKONG
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尊敬的先生/女士，

阁下于一个月前参与的有关**"中国内地企业客户关系管理情况"的**
问卷调查我们已经收到，对您的积极参与，我们表示衷心的感谢！

阁下如希望进一步了解研究结果，请通过以下方式与我们联系:

联系人：石小姐

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再次感谢您的支持与合作！

香港理工大学管理及市场学系

2007 年 5 月 7 日

THE HONGKONG
POLYTECHNIC UNIVERSITY
香港理工大學

7th May, 2007
Dear Sir/Madam,

We have received your reply for the survey on **the Development of Customer Relationship Management (CRM) of the Enterprises in China Mainland** that you participated in about one month ago.

Thank you very much for your kind cooperation!

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