A CRM performance measurement framework: Its development process and application

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ABSTRACT

We suggest a performance measurement framework called a customer relationship management (CRM) scorecard to diagnose and assess a firm's CRM practice. The CRM scorecard was developed through a rigorous and stepwise development process collaborated with a number of firms in a variety of industries. During the development process, we conducted an extensive literature review to build a theoretical causal map, in-depth interviews with practitioners to extract a hierarchical map from industrial perspectives, feasibility tests to check whether or not Key Performance Indicators (KPI) could be measured, and Analytic Hierarchy Process (AHP) analysis to prioritize the evaluation factors on the CRM scorecard. The CRM scorecard contains antecedent/ subsequent and objective/perceptual evaluation factors in four different perspectives to comprehensively measure corporate CRM capability and readiness. To illustrate the applicability of the proposed CRM scorecard, we apply the framework to a retail bank in Korea well-known for its exemplary CRM strategy.

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1. Introduction

Customer relationship management (CRM) has been increasingly adopted as a core business strategy and invested in heavily by corporations (Lindgreen, Palmer, Vanhamme, & Wouters, 2006; Rigby & Ledingham, 2004). However, according to IDC (International Data Corporation) and Gartner Group, the rate of successful CRM implementations is below 30% (Rigby, Reichheld, & Schefter, 2002), hardly justifying the cost of implementation (Lindgreen et al., 2006). As part of efforts to find the drivers of CRM success or failure, academics and practitioners may refer to previous studies of performance measurement, or success or failure models of information systems (ISs) (e.g., Doll & Torkzadeh, 1998; Ray, Muhanna, & Barney, 2005; Slevin, Stieman, & Boone, 1991). However, since CRM is an information technology (IT)-enabled business strategy rather than an IS, previous IS success models are insufficient to indicate whether a company's CRM initiatives have succeeded or failed and why. Efforts to identify CRM success factors have appeared in marketing literature as well. While some research has focused more on IT-related factors (Avlonitis & Panagopoulos, 2005; Roh, Ahn, & Han, 2005; Wilson, Daniel, & McDonald, 2002), others have emphasized organizational factors like human resources, organizational structure, and reward systems (Rigby et al., 2002), or business process-related factors (Campbell, 2003; Payne & Frow, 2004; Reinartz, Krafft, & Hoyer, 2004). Similarly, although such research presents managerial implications in terms of focal factors, they are not appropriate for

investigating the success or failure of CRM as a company-wide business strategy since they do not provide any integrative perspective. Therefore, rather than conducting impromptu post analysis of CRM successes or failures, firms are recommended to have an organizational evaluative mechanism to manage, control, and assess the effectiveness of CRM implementation and operational practices.

In this paper, our objective is to propose a framework of CRM performance measurement, called a CRM scorecard, which can diagnose and assess companies' CRM initiatives. Any framework for measuring performance should address both readiness and performance from implementation for the following two reasons: First, since a proper performance measurement framework is based on a causal model spanning antecedent to subsequent factors (Lebas, 1995), it naturally deals with readiness and performance. Second, since a business strategy like CRM evolves continuously according to internal conditions and external environments, diagnosing the current level of CRM strategy means not only the performance of up-to-date implementation but also readiness for future implementation. To do this, we first identify which factors are important and what relationships between the factors exist for executing a CRM strategy successfully. Based on this conceptual framework, we develop a CRM scorecard through a series of systematic building steps and evaluate it through a real-world CRM implementation.

2. Theoretical background

2.1. CRM performance measurement

While numerous studies relating to CRM frameworks, IT, implementation strategies, and cases have been conducted, there has been a definite lack of academic effort addressing the issue of CRM

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performance measurement. We could find only a few papers in the literature dealing with CRM performance measurement or related issues (e.g., Brewton & Schiemann, 2003; Jain, Jain, & Dhar, 2003; Kim, Suh, & Hwang, 2003; Lindgreen et al., 2006; Zablah, Bellenger, & Johnston, 2004). For the purpose of conceptualizing fundamental directions for developing a CRM assessment tool, Zablah et al. (2004) emphasized both the input and output of the CRM system for evaluation because of the ongoing nature of the CRM process. In their conceptual framework, CRM could be implemented successfully by linking a knowledge management process creating customer intelligence (internal process) with an interaction management process handling customer communications (external process). This implies that which CRM aspects should be focused on depends on the conceptualized perspective of the CRM system.

Conceptualizing CRM as a corporate core process rather than an IT system or a partial subfunction of marketing has allowed academics to involve more diverse measures into their measurement frameworks (e.g., Jain et al., 2003; Lindgreen et al., 2006). Lindgreen et al. (2006) suggest a CRM assessment tool consisting of ten evaluative elements categorized into three sets of elements: strategic elements such as customer and brand strategy; infrastructural elements such as culture and people; and process elements such as the relationship-management process. This study is meaningful in that they included infrastructural factors as well and went a step further beyond just building a conceptual framework by providing measurable instruments. Meanwhile, since a CRM strategy can hardly generate immediate organizational performance, it is also crucial to see CRM in the light of the behavioral dimension when assessing a corporate CRM strategy. Jain et al. (2003), deviating from traditional quantitative Key Performance Indicators (KPI), such as sales, acquisition and retention rates, cost reduction, and service time, suggested various behavioral elements such as attitude to serve, understanding of expectations, quality perceptions etc. Such behavioral factors are likely to fill the logical gap existing between firms' relationship-building efforts and their financial objectives, which would be the result of assessing CRM only with economic and objective measures.

Evaluative structure and methodology rather than evaluative subjects have been more emphasized from a practical perspective (e.g., Brewton & Schiemann, 2003; Kim et al., 2003). As a subset of the Balanced Scorecard (BSC), Kim et al. (2003) suggested a customer-centric BSC consisting of customer knowledge, customer interaction, customer satisfaction, and customer value perspectives, and stressed that the four distinct types should be systematically connected when evaluating the effectiveness of corporate CRM initiatives. Although they might need to expand the perspectives of innovation and learning by including other CRM-favorable infrastructural factors, it would be more feasible to keep track of the causes of the status quo when building a causal model as a CRM assessment tool as per Kim et al.'s (2003) suggestion. In the meantime, such interconnectivity could be achieved

not only between evaluative elements but also between strategic levels. Brewton and Schiemann (2003) stressed the importance of linkage between a firm's corporate business strategy and its CRM strategy by suggesting a hierarchical structure of the strategic business map. Focusing on evaluation methodology rather than evaluative elements, their study recommends a company should first define an appropriate CRM strategy matching its enterprise-wide business strategy, then select CRM measures to assess its CRM strategy, and finally cascade those through the organization. This more practical approach could help practitioners when they focus on the issue of "how" rather than "what", in application to other managerial practices.

Since one of our objectives is to build upon previous relevant studies, it is necessary to view those studies with the criteria that any performance measurement tool should possess. After reviewing research on strategy, operations, and productions, which are relatively matured in the subject of performance measurement, we can distill several critical points for building a performance measurement framework. First of all, any measurement system should involve customer perspective (e.g., Flapper, Fortuin, & Stoop, 1996; Ghalayini & Noble, 1996; Kaplan & Norton 1992; White, 1996). Since the ultimate object of any corporate strategy is the customer, evaluating in terms of the customer serves as a bridge between corporate strategy and organizational performance (Ghalayini & Noble, 1996; Kaplan & Norton, 1992). Also when companies build such a bridge, it should involve a causal model which is solid theoretically because the causal model can help trace the causes of the success or failure of a given strategy (Cross & Lynch, 1988; Flapper et al., 1996; Lebas, 1995). Another main direction to build a framework for measuring business performance is to have diverse evaluative perspectives (Flapper et al., 1996; Kaplan & Norton, 1992; Toni, Nassimbeni, & Tonchia, 1995; White, 1996). Since even a single situation could be interpreted differently according to perspective, a multiple viewpoint would provide a chain of evidence for corporate strategy (i.e., internal vs. external, financial vs. non-financial, and perceptual vs. objective). Speaking of characteristics of measures, there are several important points which should be considered when adopting such indicators. Although most practitioners have focused on measuring the final signals such as increased sales, reduced costs etc., it is becoming more important to measure antecedent or conditional factors like employee satisfaction and diversity of suppliers (Ghalayini & Noble, 1996; Kaplan & Norton, 1992; Lebas, 1995) because these kinds of measures allow managers attain greater depth of understanding. Loading such antecedent factors in their frameworks is analogous to inclusion of a causal model. In a cause and effect relationship, the cause could be considered as an antecedent factor for the effect. So if any antecedent or conditional factors are not appropriate, the framework would not present any proper explanation for the failure of the focal business strategy. Perceptual factors have also been considered important in recent literature on business performance measurement (e.g.,

Table 1
Criteria of performance measurement framework

Previous studies on CRM performance measurement	Criteria for performance measurement tool				
	Customer perspective	Causal relationship	Manifold perspectives	Antecedent elements	Perceptual factors
	Flapper et al., 1996; Ghalayini and Noble, 1996; Kaplan and Norton, 1992; White, 1996	Flapper et al., 1996; Cross and Lynch, 1988; Lebas, 1995	Flapper et al., 1996; Kaplan and Norton, 1992; Toni et al., 1995; White, 1996	Lebas, 1995; Ghalayini and Noble, 1996; Kaplan and Norton, 1992	Ghalayini and Noble, 1996; White, 1996
Brewton and Schiemann (2003)	○	●	N.S	○	○
Jain et al. (2003)	●	N.S	N.S	○	●
Kim et al. (2003)	●	●	●	○	⊙
Lindgreen et al. (2006)	N.S	N.S	○	●	●
Zablah et al. (2004)	⊙	⊙	○	⊙	●

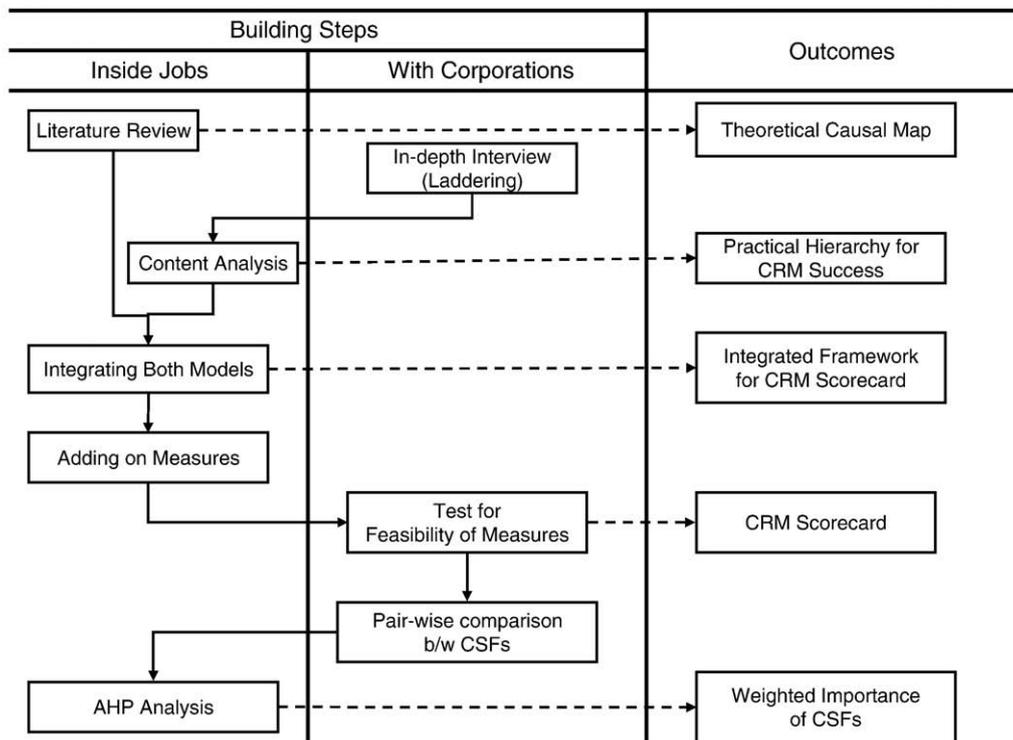●: fully satisfied; ⊙: satisfied; ○: weakly satisfied; N.S: not satisfied.

Fig. 1. Steps for developing a CRM scorecard.

Ghalayini & Noble, 1996; White, 1996). Companies should give more attention to perceptual factors like employee and customer satisfaction – which are difficult to measure in a quantitative manner – because these kinds of factors are actually at the core of successful business strategy. All the above implications could not only be fundamental guidelines for implementing a business performance framework, but also criteria for evaluating previous studies on CRM performance measurement. Table 1 shows how well previous studies have met the criteria of performance measurement framework. Thus, our study aims to extend the previous literature according to the necessary conditions, building an evaluative framework of CRM performance, which has multiple evaluative perspectives, including

a customer perspective, a causal model consisting of these perspectives, and multi-faceted factors comprising antecedent and perceptual measures.

2.2. Theoretical frameworks for measuring CRM performance

One of most relevant theoretical bases of the CRM performance measurement framework is the resource-based view, which has been applied to explain organizational capabilities in marketing and IT domains (e.g., Golfetto & Gibbert, 2006; Melville, Kraemer, & Gurbaxzni, 2004; Ray et al., 2005). In the context of performance measurement, three main underlying assertions have been discussed:
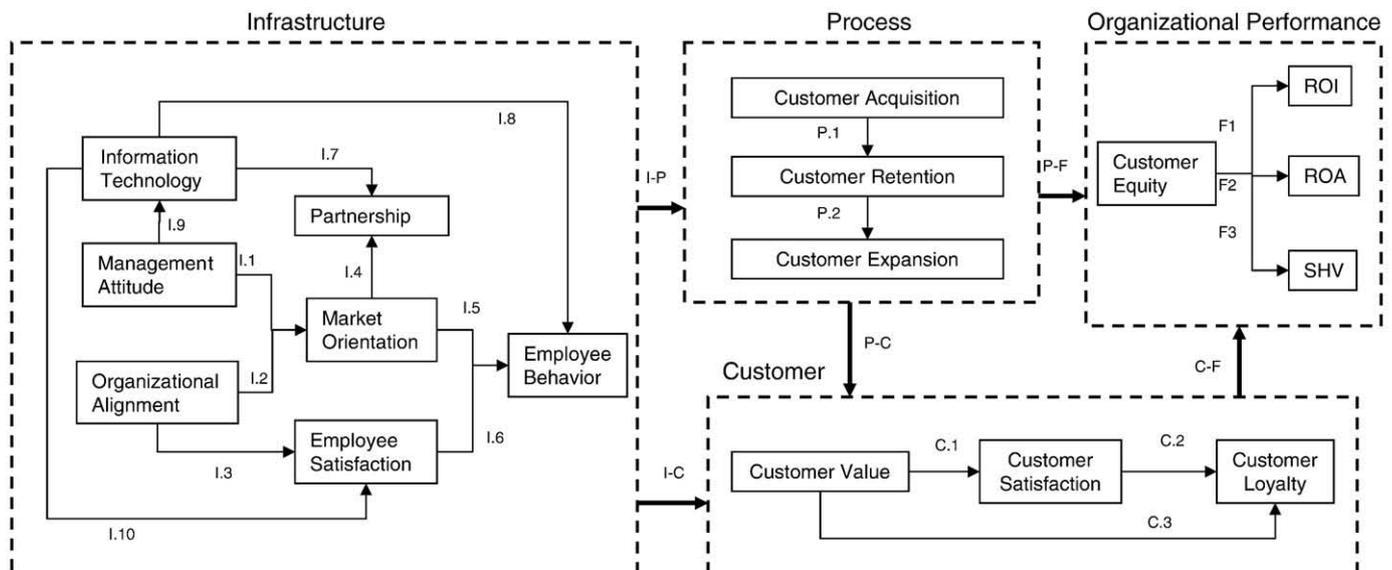

Fig. 2. Theoretical causal map for CRM success (The reference lists about the factors and the relationships between those are available from the corresponding author).
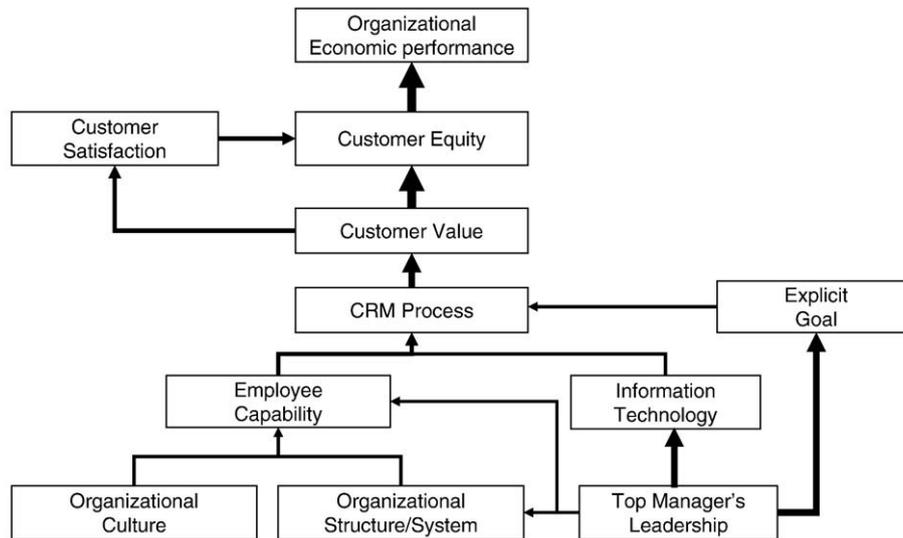
Fig. 3. Hierarchical map for CRM success in a practical perspective.

(1) resource heterogeneity (Barney, 1991; Grant, 1991); (2) resource immobility (Barney, 1991; Grant, 1991); and (3) resource bundling (Grant, 1991; Ray et al., 2005). Drawing on resource-based theory, Melville et al. (2004) provided a model of IT business value by integrating the various strands of research into a single framework. Their integrative model comprises three domains: (1) focal firm (company level); (2) competitive environment (industry level); and (3) macro environment (territory or country level). Within the firm level, various internal resources and capabilities are connected to efficient and effective business processes, the business processes resulting in business process performance, and the organizational performance reflecting the final outcomes.

Other theoretical approaches similar to the resource-based view include Service-Profit Chain (SPC) (Heskett, Jones, Loveman, Sasser, & Schlesinger, 1994), Structure-Conduct-Outcomes (SCO) (Molm, 1990), and BSC (Kaplan & Norton, 1992) approaches. Though these frameworks have their own distinguishing features, they have an identical approach in that they intend to not only assess final effects but also identify diverse organizational factors causing such effects in terms of their relational mechanisms. Nonetheless, the BSC framework provides the most integrative approach for measuring business performance, i.e., efficient and effective business processes are implemented by internal resources and capabilities; the business processes relate firstly to a customer perspective; and the customer perspective eventually leads to superior organizational performance. Therefore, we adopt the resource-based view as our theoretical approach and follow the BSC as the typological framework.

3. Developing a CRM scorecard

Since any assessment tool for measuring organizational performance deals with real-world problems, academics are encouraged to collaborate with practitioners in conducting such research. Hence, we prepared and followed a rigorous construction process consisting of several steps, some of which were collaborated on with firms in a variety of industries (Fig. 1).

3.1. Step 1: building a theoretical causal map

To find a complete set of CRM success factors and construct a causal model, we first reviewed a wide range of literature on marketing, business strategy, and IS, and then classified the significant factors into one of the four different perspectives (infrastructure, process,

customer, and organizational performance) drawn on the BSC. The success factors included in the infrastructure perspective are considered as necessary conditions for an efficient and effective CRM process (relationship code I-P in Fig. 2); the CRM process leads to the customer perspective (relationship code P-C); and finally the customer perspective impacts on organizational performance (relationship code C-F). Meanwhile, some academic research has also shown the existence of direct relationships such as infrastructure to customer (relationship code I-C) (Heskett et al., 1994; Langerak, 2001), and process to organizational performance (relationship code P-F) (Melville et al., 2004; Reinartz et al., 2004; Sharma & Yetton, 2003).

3.2. Step 2: extracting a hierarchical map for CRM success from a practical perspective

A practical perspective based on real experiences as well as theoretical studies is also important to build a framework for measuring CRM performance. With this purpose, we conducted in-depth interviews with 13 CRM or marketing managers in six different companies: a retail bank, department store, food retailer, dairy product manufacturer, consulting firm, and pharmaceutical company. The companies we selected either had been awarded in CRM conferences in Korea or had been recognized and benchmarked as one of the best practices of CRM in Korea. The Korea Database Marketing Association (KDMA) assisted us in contacting them. To maintain the purpose of the interview and to prevent digression from the main points, we developed and used a tool for the interview called *structural scenario for interview*,[2] which included questions about companies' specific CRM activities and the factors of their success or failure. To build a hierarchical map, we used the laddering methodology developed by Reynolds and Gutman (1988). Though most frequent application of laddering is to build a means-end chain model, often used in consumer behavior literature, it also could be a useful method to extract practitioners' in-depth views on CRM success to build a hierarchical map. Fig. 3 shows the hierarchical map constructed from the interviews.

Arrow thickness indicates the strength of a relationship according to its comparative frequency. Though the conceptual structure of this model is very similar to the previous theoretical one, it reveals another

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[2] In the structural scenario, the questions that the interviewees were given depended on their prior answers. When a specific concept occurred during the interview, a question to chase the cause having impact on the concept would be brought up.
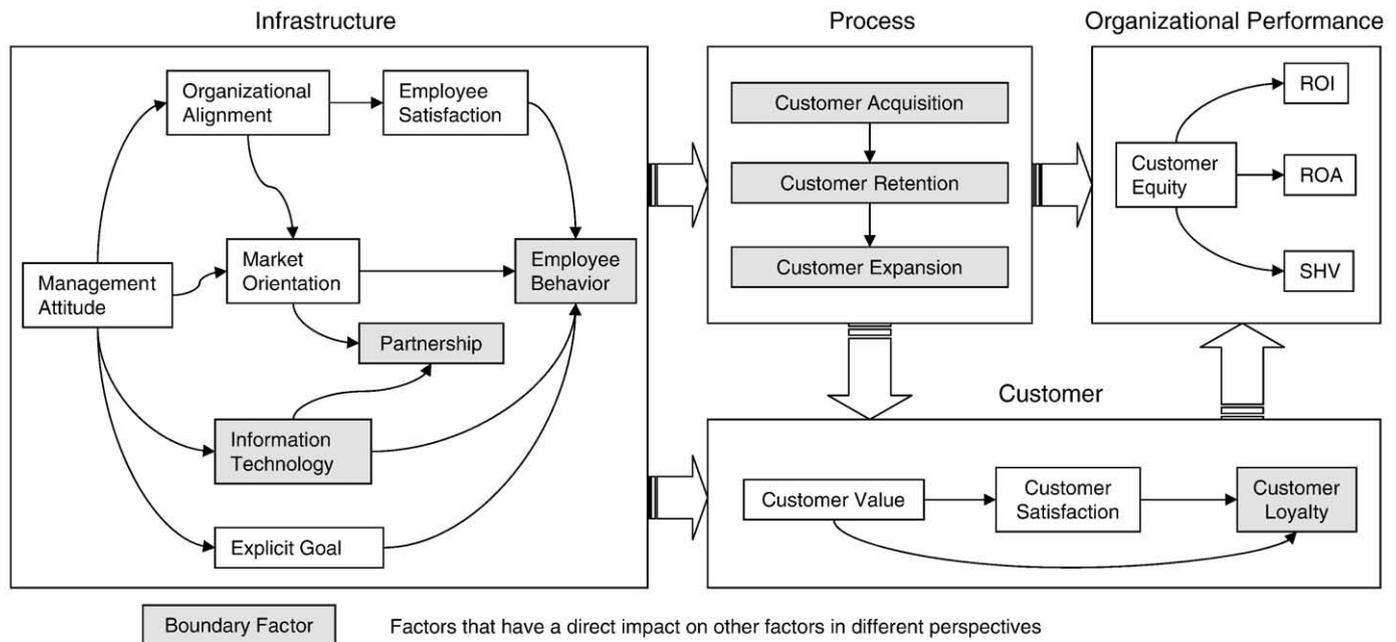
Fig. 4. Integrated model for CRM scorecard.

factor called ""explicit goal"", which was not found during Step 1. Many practitioners agree with the fact that a definite CRM goal has a positive impact on CRM success because it is likely to define a detailed set of CRM activities.

3.3. Step 3: integrating both models

From the theoretical causal map and the hierarchical model in the practical perspective, we derived an integrated model for a CRM scorecard (Fig. 4). To complete this step, we included all factors and relationships from both models. For example, although the explicit goal did not appear in the theoretical model, it was included in the integrated model because many practitioners agreed on its importance for the successful implementation of CRM (as shown in the hierarchical model). As an example of integration of relationships, the integrated model has four causal influences from management attitude, two influences in Model 1 (on market orientation and IT) and two influences in Model 2 (on explicit goal and organizational structure/system). In addition, when some factors have the same meaning but different names, we follow the theoretical names, as shown in Fig. 2. For instance, since "employee capability" addressed by practitioners in Step 2 means the same as "customer-oriented employee behavior", we termed it "employee behavior". Moreover, because the concept of organizational culture that practitioners expressed seemed likely to be broad with further redundant constructs, we itemized the component parts (i.e., market orientation, partnership, and explicit goal). The shaded factors in the integrated model (e.g., IT, partnership, and employee behavior) are ""boundary factors"", which have direct impact on other factors in different perspectives. We give a detailed explanation of all factors in each perspective in Section 4.

3.4. Step 4: developing measurement instruments

The conceptual model above should be embodied with measures that can indicate a company's present CRM initiatives. We tried to use validated survey items as perceptual measures for each factor from leading academic journals, and KPIs as objective measures from various sources including academic and practice journals, companies' internal archives, and consulting firms' knowledge and expertise. These efforts resulted in 103 survey items as perceptual and 45 KPIs as

objective measures. Table 3 shows the references from which we adapted the survey instruments and the objective measures by component. To check the reliability and construct validity of the survey items, we conducted pilot surveys with four companies, and consequently eliminated 13 items.[3]

For the objective measures, i.e., KPIs, we developed and used a different diagnostic sheet to test the feasibility, since some KPIs were likely to be inapplicable owing to lack of understanding of the concepts, data unavailability, or other political issues. From the feasibility test, we found that "Business referrals" and "Cost of each CRM process" from among 45 objective measures were almost impossible to measure and thus were rejected. All the measures included on the CRM scorecard were positioned impartially in four areas in a 2 × 2 matrix with two kinds of dimensions (i.e., perceptual versus objective and antecedent versus subsequent) (Fig. 5). This means that not only subsequent but also antecedent (conditional) factors of CRM could be assessed by objective and perceptual manners.

3.5. Step 5: prioritization of CRM success factors

To prioritize the factors of the CRM scorecard and provide a basis for the importance level of each factor, we conducted Analytic Hierarchy Process (AHP) analysis (Wind & Saaty, 1980). To evaluate each set of factors of the CRM scorecard in a pairwise fashion with respect to each perspective, 35 CRM experts including CRM or marketing managers from the companies that had participated in Step 2, CRM consultants, and several academics specializing in CRM participated in this step. Twenty-eight valid datasets out of 35 participants were gathered and analyzed. Table 2 shows the result of

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[3] Since each evaluative factor has its own relevant respondents, we used three different types of questionnaire, i.e., one for CRM managers and staff, one for customer-contact-point employees, and one for customers. Pilot surveys were conducted with 16 managers, 47 CRM staff members, 106 customer-contact-point employees, and 174 customers from four companies. As a reliability test, we calculated Cronbach's alpha reliability coefficients: Cronbach's alpha values for the constructs spanned from 0.794 to 0.948 with no item showing any problem in terms of item-total correlation. As a construct validity test, we conducted three independent confirmatory factor analyses for the three kinds of questionnaire. The results showed that we needed to reject 12 items from the process perspective and one item from the customer perspective, which had factor loading values below 0.5.

Objective	Response time (Wait time), complaints resolved on 1st call (%), Visits of web(#), Trouble tickets cleared, Prudent Contact Rate Human capital readiness (%), Job Efficiency (Time per Job, Calls handled per call center staff (Sales rep coverage)) Rate of satisfied serviced-customer Key employee turnover Vendor Diversity Frequency of Customer survey, Customer Knowledge Creation (#) Technological Capacity (#), Customer Info. Accuracy(%), Customer Info. Integration (%), System Stability Improvement in diversity profile, Training days/Employee	SHV, Tobin's q ROA, ROI Net sale($), Net sales/employee (%), Customer Equity CLV, Share of Wallet(%), Profit/customer RFM, Business referrals(%) Satisfied Customer Ratio (%) Customer Complaints (#) Leads per channel, Service Cost, Acquisition Cost Retention rate (%), Delivery time, Acquisition (#), Share of Wallet(%), Win-back (%), Profitability of new customer, Core Customer Ratio (%), , Response Rate, Cross/Up-Sell Rate, Customer Churn rate, Sales success rate (Hit ratio), Value per Order, Reject rate by delivery,

Perceptual	Perceived Efficiency of CRM Processes
	Perceived Effectiveness of CRM Processes
	Brand Image, Service level
	CRM Process Readiness
	Customer Oriented Attitude,
	Employee objectives linked to BSC
	3 Justices(Distributive ,Procedural, Interactional) for Customer
	Employee Satisfaction
	3 Justices for Employee
	Employee Satisfaction
	The level of Risk Aversion (-)
	CEO's Perception & Support for CRM
	Partnership with other companies, Market Orientation
	Sys/Info Quality, System Usability, User SAT, Ind. Influence
	Empowerment
	Training Procedure, Reward System, Organizational Structure, Organizational Flexibility
		Perceptual Performance
		Commitment,
		Perceived Loyalty
		Customer Satisfaction (ACSI)
		Customer Equity Driver
		  - Perceived Value
		  - Brand Equity
		  - Relationship

	Antecedent	**Subsequent**

Fig. 5. Characteristics of measures in the CRM scorecard.

this step. The importance level of each factor is an eigenvalue (λ) calculated from the matrix of pairwise comparison of objects (i.e., perspectives or measuring factors). A consistency ratio (I: consistency index as percentage of the appropriate random average consistency) of about 10% or less is considered reliable. The consistency index can be derived as follows:

$$C.I = (\lambda_{max}-N)/N-1 \qquad (1)$$
λ_{max}: the largest eigenvalue of the matrix

To begin with the perspectives, the CRM experts gave more weighting to relatively subsequent perspectives, i.e., customer ($\lambda = 0.472$) or organizational performance ($\lambda = 0.197$) perspectives, than antecedent perspectives, i.e., process ($\lambda = 0.172$) or infrastructure perspectives ($\lambda = 0.159$). They viewed infrastructure in particular as the least important perspective among the four different perspectives, reflecting lower recognition of its importance to successful CRM initiatives.

The result discloses that setting an explicit goal ($\lambda = 0.2$), expanding customer relationship ($\lambda = 0.486$), strengthening customer loyalty ($\lambda = 0.385$), and enhancing customer equity ($\lambda = 0.428$) are the most important factors in infrastructure, CRM process, customer, and organizational performance perspectives, respectively. Giving greater focus to customer expansion than customer retention, and to customer loyalty than customer satisfaction reflects that the current CRM strategy should be driven in terms of increasing a company's profitability. One of the interesting findings from this step is that a company's explicit CRM goal is the most important factor among the infrastructural factors. This is consistent with the assertion that a company's CRM initiatives should start from critical areas with

specific goals rather than try to transform the entire business (Rigby & Ledingham, 2004). Meanwhile, it is noteworthy that IT ($\lambda = 0.078$) was the least important factor in this study. A possible explanation is that skepticism about IT, arising from failed CRM implementation during the last decade in Korea, may still remain.

Table 2
The result of AHP

Perspective	Measuring factors	Factor weights with respect to perspective	
Organizational performance (0.197)	Shareholder value	.202	I = 0.00
	Profitability	.369	
	Customer equity	.428	
Customer (0.472)	Customer loyalty	.385	
	Customer satisfaction	.303	I = 0.01
	Customer value	.312	
Process (0.172)	Customer acquisition	.223	
	Customer retention	.291	I = 0.00
	Customer expansion	.486	
Infrastructure (0.159)	Employee behavior	.120	
	Employee satisfaction	.098	I = 0.02
	Management attitude	.170	
	Partnership	.082	
	Market orientation	.155	
	Explicit goal	.200	
	IT	.078	
	Organizational alignment	.097	
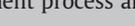
This AHP analysis aimed to distinguish conceptually the levels of importance between the factors and provide a conceptual threshold value for each factor which would be compared with real corporate CRM performance. For the latter purpose, it would seem to be a better idea, at present, to conduct individual AHP analysis for each company when applying the CRM scorecard in real practice. We believe a set of standard threshold values should be constructed through numerous experiential applications. Such threshold values may differ according to industry or business type.

4. CRM scorecard framework

Table 3 shows a holistic view of the CRM scorecard including the four perspectives, the components of each perspective, and measurement examples for each component-both perceptual (the provenances) and objective (KPIs).

4.1. Organizational performance perspective

The measures for organizational performance should be able to indicate whether or not a corporate CRM strategy contributes to bottom-line improvement. Therefore, it is preferable to measure the direct economic effect of CRM initiatives, the company's profitability, and the overall value of the company.

Customer equity is a composite performance indicator from CRM initiatives in that it is determined by customer equity drivers such as perceived value, brand equity, and company–customer relationship (Rust, Zeithaml, & Lemon, 2000). Moreover, it leads to enhanced corporate profitability (e.g., van Raaij, Vernooij, & van Triest, 2003) because the heart of the customer equity strategy is to maximize customers' financial contributions and reduce marketing costs (Rust, Zeithaml, & Lemon, 2004). And since profitability is a critical determinant for a firms' cash flow and overall value (Reinartz et al., 2004), this closely connects customer equity, profitability, and corporate value (e.g., shareholder value). Indeed, besides the evaluation of corporate assets, liabilities, and risk, there have been both academic and practical attempts to estimate corporate customer equity and relate it to corporate valuation (Gupta, Lehmann, & Stuart, 2001; Rust et al., 2004).

Meanwhile, due to the practical difficulty in dividing marketing expenses into the separate costs of customer acquisition, retention, and expansion, there might be companies that cannot estimate their customer equity directly. In such cases, they could use their own customer lifetime value (CLV) models or net profit per customer as a proxy for a customer equity model. The key point of organizational performance perspective is to evaluate all three different indicators, i.e., customers' financial contributions, corporate profitability, and shareholder value, and grasp the relationships between them.

4.2. Customer perspective

How customers view a firm is perhaps the most important issue for all top management (Kaplan & Norton, 1992). Customer value in terms of determinants for purchasing has been studied for years to find the answer (Zeithaml, 1988). Value has been defined as a "consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given" (Zeithaml, 1988). Meanwhile, other assertions have been made that different aspects such as brand equity (Netemeyer et al., 2004) or mutual relationship (Dwyer, Schurr, & Oh, 1987) are also contributory factors. For this perspective, Rust et al. (2004) provided an integrated framework for customer equity driven by perceived value, brand equity, and relationship equity. We, therefore, adopt customer equity drivers as the first diagnostic factor in customer perspective.

The second diagnostic factor in customer perspective is customer satisfaction. Customers are satisfied when their expectations of the value of a product or service, the company brand, and their relationship with the company are met. The positive relationship between customers' value and satisfaction has been studied in the marketing context (e.g., Heskett et al., 1994; Oliver, 1980). Because customer satisfaction positively influences customer retention and secures future revenue (Fornell, 1992), companies proceeding with a CRM strategy should measure satisfaction using a focal brand together with relative satisfaction by comparing to competitive brands.

Finally, satisfied customers bring strong customer loyalty to the focal company (Heskett et al., 1994). Customer loyalty has been defined as "an inclination to perform a diverse set of behaviors that signal a motivation to enhance an ongoing relationship with the service provider" (Agustin & Singh, 2005). As increased loyalty of existing customers means more

Table 3
CRM scorecard framework

Perspective	Component	Example of measures	
		Perceptual	Objective
Organizational performance	Shareholder value		SHV
	Profitability	Reinartz et al. (2004)	ROA, ROI, Net sale ($), Net sales/employee
	Customer equity		Customer equity, CLV, Profit/customer
Customer	Customer loyalty	Agustin and Singh (2005)	RFM
	Customer satisfaction	Fornell (1992)	Satisfied customer ratio (%)
	Customer value	Rust et al. (2004)	Customer complaints (#)
Process	Customer acquisition	Reinartz et al. (2004)	Leads per channel, acquisition (#), visits of web(#), win-back (%), profitability of new customer, response rate, sales success rate (hit ratio), prudent contact rate
	Customer retention	Reinartz et al. (2004)	Response time (wait time), complaints resolved on 1st call (%), retention rate (%), delivery time, customer churn rate, reject rate by delivery, trouble tickets cleared
	Customer expansion	Reinartz et al. (2004)	Share of wallet (%), core customer ratio (%), cross/up-sell rate, value per order
INFRA IT	CRM technology	Reinartz et al. (2004)	Technological capacity for 3 types of customer info.(#), IT sufficiency, customer info. accuracy (%), customer info. integration (%), system stability
Human capital	Employee behavior	Donovan et al. (2004)	Human capital readiness (%), job efficiency (time per job, calls handled per call center staff (Sales rep coverage)), profit per emp., rate of satisfied serviced-customer
	Employee satisfaction	Maxham III and Netemeyer (2003)	Key employee turnover
	Management attitude	Leonard-Barton and Deschamps (1988)	
Orga. alignment	Training	Reinartz et al. (2004)	Training days/employee
	Reward system		
	Organizational structure		Improvement in diversity profile
Culture	Partnership	Anderson and Narus (1990)	Vendor diversity
	Market orientation	Jaworski and Kohli (1993)	Frequency of customer survey, customer knowledge creation (#)
	Explicit goal	Pearson (1979)	

customers will repurchase in the future, customer loyalty has a significant effect on organizational profit and growth (Heskett et al., 1994).

4.3. Process perspective

Since any corporate business strategy should be implemented by a group of activities leading to desired business outcomes (Zablah et al., 2004), measuring corporate performance in the process perspective is regarded as imperative (Kaplan & Norton, 1992). In the CRM field as well, the process perspective is important in that buyer–seller relationships evolve over time (Dwyer et al., 1987), thus the process of a company's relationship marketing as a corporate response strategy should be redesigned in terms of maintaining and developing such relationships (Evans & Laskin, 1994). In this respect, the CRM process as a corporate strategy has recently been emphasized (e.g., Lindgreen et al., 2006; Park & Kim, 2003; Reinartz et al., 2004; Zablah et al., 2004). In this paper, we define the CRM process as a series of activities for acquiring, retaining, and expanding the relationship with customers (Park & Kim, 2003; Reinartz et al., 2004). With a CRM process, companies can contact customers prudently and manage the relationship differently in each distinct relationship phase (Dwyer et al., 1987), and such corporate relationship practices lead to augmenting buyers' trust and ultimately to cooperative relationships (Lancastre & Lages, 2006). Therefore, we argue that companies adopting CRM should prepare the process in terms of managing target relationships effectively at each stage.

4.4. Infrastructure perspective

Infrastructure includes ten diagnostic factors that are the most fundamental factors for CRM success categorized into four subperspectives, i.e., IT, human capital, strategic alignment, and organizational culture. Since IT is one of the key resources in organizations for sustainable competitive advantage (Bharadwaj, Varadarajan, & Fahy, 1993), it should be considered as a necessary condition for successful CRM initiatives (Lindgreen et al., 2006). When companies measure the level of IT, they need to assess whether or not their CRM technologies effectively support the three types of customer information for each CRM process, i.e., "of-the-customer information," "for-the-customer information," and "by-the-customer information" (Park & Kim, 2003). Sharing these customer information types cross-functionally in an organization would maximize the effect of CRM practices (Lin, Su, & Chien, 2006).

Employee behavior, employee satisfaction, and management attitude are categorized under human capital relevant to a CRM strategy (e.g., Lindgreen et al., 2006). Employee behavior indispensable to CRM is the behavior from customer orientation (Brown, Mowen, Donavan, & Licata, 2002). Customer orientation is defined as "employee's tendency or predisposition to meet customer needs in an on-the-job context" (Brown et al., 2002). From this point of view, several conventional indicators showing employee capability, such as "number of calls handled per hour" or "time spent on a job" could not be applied, in themselves, to measure employee performance. This is because overemphasizing job efficiency without considering customer service quality would violate procedural and interactional justices, consequently causing customer dissatisfaction (Ariely, 2007). Thus, those measures might be used as a supplementary indicator showing job efficiency on the assumption that customer orientation would play a major role in evaluating employee behavior. Employee satisfaction is also becoming a core issue in marketing literature (Bendapudi & Leone, 2002). If a key contact employee is no longer available, the customer relationship may become vulnerable (Bendapudi & Leone, 2002). This means that companies should satisfy their employees first as internal customers. The management attitude is another type of human capital for CRM success. Since management support is a critical factor for successful innovation (Sharma & Yetton, 2003), CRM as an organizational innovation also requires management's

strong impetus and support (Avlonitis & Panagopoulos, 2005; Buehrer, Senecal, & Bolman Pullins, 2005).

Strategic alignment refers to organizational structures or CRM-compatible schemes that are appropriate to the CRM strategy, including organizational structure (Lindgreen et al., 2006), reward systems, and employee training programs (Buehrer et al., 2005; Reinartz et al., 2004). Organizational structures facilitating better inter-functionality can adapt more readily to the needs of customers, resulting in positive effects on a company's profitability (Miller, 1996). Other critical determinants for CRM strategy are compensation and CRM training schemes (Reinartz et al., 2004). If a company structures its organization to facilitate CRM activities, rewards employees for engaging in CRM-related activities, and educates its employees in those CRM activities, the company can proceed with its CRM strategy more effectively.

Partnership, market orientation, and an explicit goal are included in the organizational culture perspective. Though a manufacturer may supply a good product, customers may be dissatisfied if it is accompanied by slack delivery, poor web services, or an unresponsive call center. Thus, organizations should coordinate their effort to satisfy customer needs (Anderson & Narus, 1990; Jüttner, Godsell, & Christopher, 2006). Meanwhile, market orientation is the ability of organization-wide market intelligence generation, dissemination, and responsiveness (Kohli & Jaworski, 1990). Market orientation is strongly related to business performance in a competitive and fast-changing market situation (Kohli & Jaworski, 1990; Tuominen, Rajala, & Moller, 2004), which can change the behaviors of salespersons and purchasers in the organization as regards engendering strong relationships with partners (Langerak, 2001; Sanzo, Santos, Vazquez, & Alvarez, 2003). Lastly, explicit corporate objectives are specific and unambiguous action initiators that form a system of communication, prompting, and guiding action throughout the corporate entity (Pearson, 1979). Clearly-specified goals result in higher performance than fuzzy or "do-best" goals (Linderman, Schroeder, Zaheer, & Choo, 2003). With this point of view, CRM tightly focused on a single area of critical strategic importance rather than a full range or broad approach is more likely to succeed (Rigby & Ledingham, 2004).

5. Proof of concept: a case study

In this section, we present a case study on a major retail bank in Korea, XYZ Bank, to show how the CRM scorecard could be applied as a framework for measuring CRM performance by answering following questions:

- Can a CRM scorecard identify the overall strengths and weaknesses of XYZ Bank's CRM strategy?
- Can a CRM scorecard indicate the causes of the success or failure of XYZ Bank's present CRM strategy?
- Can a CRM scorecard suggest future directions for improvement in XYZ Bank's CRM strategy?

XYZ Bank is among the top five banks in asset volume and the top in profitability per customer in Korea. Moreover, it has not only been well-known for years as the company with the best CRM strategy in Korea, but also awarded as the best private bank in Korea for two consecutive years by Euromoney. XYZ Bank had been operating a number of functional CRM systems such as XYZ Bank's SIS, ALIMI, and e-Brothers, which supported independent channels in silo style. It had implemented an integrated CRM system since 2003, which was the year it implemented an enterprise-wide data warehouse system called a customer information warehouse (CIW). XYZ Bank now manages all their customers using this integrated CRM system.

5.1. Case methodology

Since this case study tried to explain XYZ Bank's CRM strategy by examining multiple units of analysis including company, team,

employee, and customer, it is categorized as both an explanatory and type 2 case study (i.e., single case with embedded units of analysis) (Yin, 1994). Data for the case analysis was collected by multiple diagnostic methods from multiple sources. Lee (1989) and Yin (1994) recommend acquiring a chain of evidence for construct validity of the case study framework. Therefore, we adopt data and methodological triangulation as the main analytic strategy for this explanation-building case study (Benbasat, Goldstein, & Mead, 1987). We used both quantitative and qualitative techniques to diagnose and assess XYZ Bank's CRM strategy. We used in-depth interviews and secondary data analysis as qualitative diagnoses, and a survey, KPI feasibility test, pairwise comparison, and measurement of KPIs as quantitative diagnoses. The measures used in the survey and the measurement of KPIs are given in Table 4. Note that the objective measures to assess each component of a CRM scorecard might vary or be restricted according to the subject company. As addressed in Section 3.4, some KPIs may not be applicable owing to lack of understanding of the concepts, data unavailability, or other political issues. In the case of XYZ Bank, there had been no available objective measures to assess employee satisfaction, management attitude, or an explicit goal. In addition, we acknowledge that several objective measures used in this case did not reflect the relevant evaluative factors perfectly. Thus, we believe that multiple diagnostic methods would have been more appropriate to reach a chain of evidence.

As a supplementary analytic strategy, we follow the method for analyzing embedded units and pattern-matching for internal validity. Lastly, we build this case study in a linear-analytic structure as an illustrative structure for case study composition (Yin, 1994).

The research activities were conducted on the CRM manager, staff members, the employees working at customer contact point like tellers, private bankers, and the sales force, and XYZ Bank's customers from August through November 2005. To obtain a chain of evidence, we standardized the results of each diagnostic method by reevaluating them on a 7-point scale, and then computing the arithmetic means for each factor. Then we compared the results with the importance level of each factor derived through separate AHP analysis conducted on XYZ bank (see Fig. 6). All informants except customers participated in the AHP process.

5.2. Diagnosing XYZ Bank's CRM implementation status

This section describes the characteristics and managerial implications of XYZ Bank's CRM strategy in terms of the four different perspectives of the CRM scorecard by summarizing all the results from this case analysis. To grasp the points more clearly and logically, we describe them in the order of infrastructure, process, customer, and organizational performance perspectives. The bar chart in Fig. 6 illustrates the difference between each factor's present level and its importance calculated by AHP analysis, providing an overview of the status of XYZ Bank's CRM strategy.

5.2.1. Infrastructure

Among the infrastructural factors, management attitude and IT were highly evaluated. Since management support is a critical factor for successful innovation (Sharma & Yetton, 2003), CRM as an organizational innovation also requires management's strong impetus and support. At XYZ Bank, the initial impetus for the CRM implementation

Table 4
Measures used in the XYZ Bank case

| Perspective		Evaluative factor	Selected measures			
			Perceptual		Objective	
			Construct (# of item)	Adapted from	KPI	Operational definition
Organizational performance		Shareholder value Profitability Customer equity	Perceptual performance (4)	Reinartz et al. (2004)	SHV ROE Net profit per customer	Current stock price Return on equity Net profit/# of customer
Customer		Customer loyalty	Customer loyalty (4)	Agustin and Singh (2005)	RFM	Recency, frequency, monetary
		Customer satisfaction	Customer satisfaction (2)	Fornell (1992)	Satisfied customer ratio (%)	# satisfied customer/total # of customer
		Customer value	Customer equity drivers (15)	Rust et al. (2004)	Customer complaints (#)	Average # of complaints per month
Process		Customer acquisition	Acquisition process (7)	Reinartz et al. (2004)	Acquisition rate	New customer/total customer (of the year)
		Customer retention	Retention process (11)	Reinartz et al. (2004)	Retention rate	(# of cust. at the end of the year − # of new cust. of the year)/# of cust. at the beginning of year)
					Churning rate	# of churned cust./total # of cust.
		Customer expansion	Expansion process (10)	Reinartz et al. (2004)	Cross/up sell rate Value per order	Cross/up sales revenue/total sales revenue Average monetary/# of accounts per cust.
INFRA	IT	CRM technology	CRM technology (4)	Reinartz et al. (2004)	IT sufficiency	Current # of CRM-supporting functions/ Necessary # of CRM functions
					System stability	(Total operated hours − total halted hours)/total operated hours
	Human capital	Employee behavior	Customer-oriented behavior (5)	Donovan et al. (2004)	Profit per employee	Net profit/# of employees
		Employee satisfaction	Employee justice (6)	Maxham III and Netemeyer (2003)	N/A	Immeasurable
		Management attitude	Management support and attitude (4)	Leonard-Barton and Deschamps (1988)	N/A	Immeasurable
	Orga. alignment	Training Reward system Organizational structure	CRM-compatible alignment (4)	Reinartz et al. (2004)	Training day per employee	Training/education hours/# of employee
	Culture	Partnership	Partnership (4)	Anderson and Narus (1990)	Vendor diversity	# of cooperative companies by category
		Market orientation	Market orientation (6)	Jaworski and Kohli (1993)	Frequency of customer survey	Total # of customer surveys per year
					Customer knowledge creation	# of registered customer knowledge by customer-facing employees
		Explicit goal	Goal-setting (4)	Pearson (1979)	N/A	Immeasurable
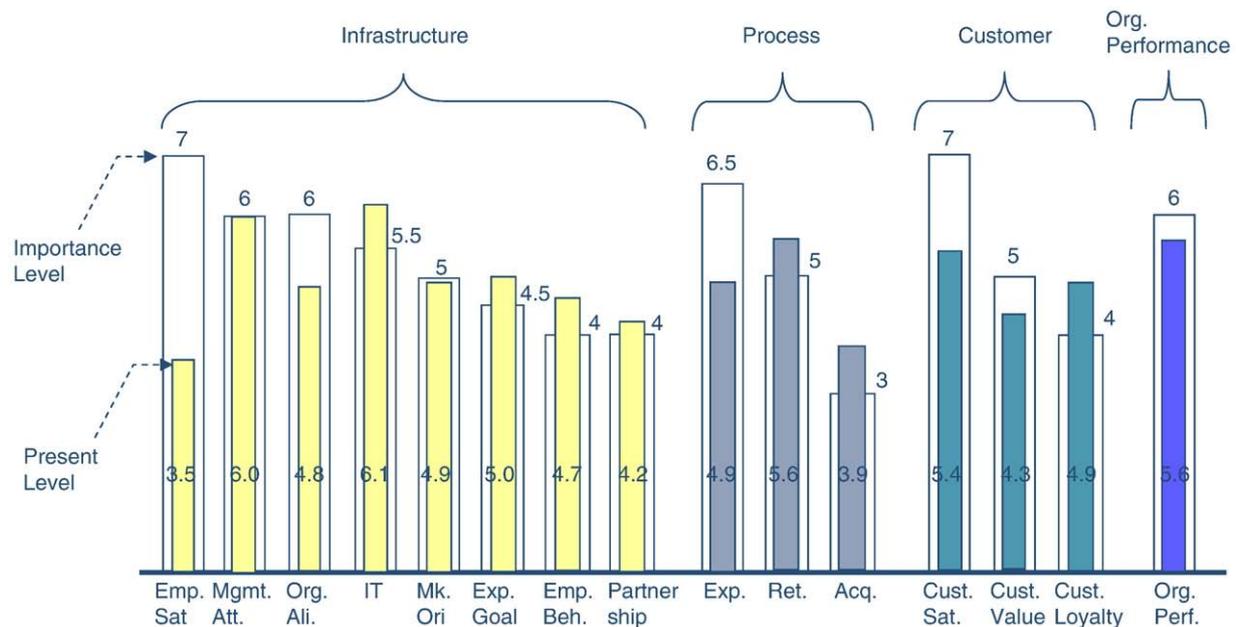
Fig. 6. The diagnosis of XYZ Bank's CRM.

project came from business strategy driven and strongly supported by top management Moreover, visible advancement in the level of IT triggered by the CRM implementation project could be considered as a critical success factor (CSF) in that IT is one of the key resources in organizations for sustainable competitive advantage (Bharadwaj et al., 1993).

Nevertheless, our investigation revealed that some infrastructural factors needed to be improved. The most unfavorable aspect came from the level of employee satisfaction, even though XYZ Bank understood its importance for CRM initiatives. The company–customer relationship suffers when a key contact employee is no longer available (Bendapudi & Leone, 2002), companies should endeavor to satisfy their employees first as internal customers. Our case evidence showed three main administrative issues as the cause of low employee satisfaction. First, there was an operational conflict with a related department when clerks were executing CRM initiatives. The CRM team urged employees to identify customer needs by making every customer feel like he/she is the only customer, while the customer satisfaction (CS) team asked them to reduce the average queuing time of customers. Such contrary directions applied pressure on the employees lowering job satisfaction. Second, voluntary internalization of CRM was hindered as the top-down approach was sometimes regarded as high-handed and demanding. A middle-up-down approach rather than a top-down or bottom-up approach is more suitable for promoting a knowledge-driven strategy like CRM in business organization (Nonaka, 1994),. Finally, no compensation or reward was provided to the employees for the new paradigm of doing business. Although the ""CR–Do"", used to measure the degree of employees' CRM activity in XYZ Bank, could be regarded as an additional incentive, it did not change the fundamental criteria for measuring employees' job performance. Thus, employees could not help continuing to follow the evaluation criteria of the legacy system, which were mostly contrary to the CRM philosophy.

In short, top-down direction, an unfledged organizational structure, and a strong educational/training program without any compensation system led to employee dissatisfaction and lack of incentive to undertake CRM activities, countering the positive effects from the favorable factors such as positive top management attitude and IT infrastructure support. Thus, activation of any CRM process that needed employees' additional efforts at the point of customer contact was hindered at XYZ Bank.

5.2.2. CRM process

Among the three different CRM processes, the diagnosis showed that XYZ Bank's CRM initiatives were successful regarding customer retention. XYZ Bank's CRM system, based on knowledge about the customer, enabled the company to recognize customers individually, to prepare differentiated responses for them, and to execute effective communications with them through an automated event-based marketing system. These activities could be regarded as efforts for retaining customers in that the customized and consistent responses to customers' requests would bring about customer satisfaction and inclined customers to continue their relationship with the company.

On the other hand, XYZ Bank was relatively unsuccessful in its customer acquisition and expansion processes. This could be because these processes require employees to devote additional efforts to their daily jobs, which was unforthcoming owing to employee dissatisfaction as illustrated above. Our diagnosis suggests that XYZ Bank should address how to engender employee satisfaction to improve customer acquisition and expansion processes, i.e., to turn its CRM strategy into a profit-creating strategy, to derive financial performance directly.

5.2.3. Customer perspective

As illustrated above, XYZ Bank's proactive customer retention process explains why the level of customer satisfaction was higher than the perceived value or customer loyalty. Similarly, it became clear that the comparatively low perceived value and customer loyalty were caused by lack of customer acquisition and expansion process activity. Since perceived value is formed through the customers' overall assessment of the utility of a product based on the perception of what is received and given prior to purchase, it plays an important role in whether or not a relationship is initiated with the company (Zeithaml, 1988). Therefore, the process of customer acquisition, which is to initiate a relationship with customers by providing them the products or services suited to their needs, is deeply related to the perceived value.

Moreover, although satisfaction is a necessary step in developing loyalty, there may be disparity between the pursuits of satisfaction versus loyalty because the two concepts are intrinsically different from each other (Oliver, 1999). This means that loyalty cannot be achieved by only customer retention activities pursuing mainly customer satisfaction. In other words, since pursuing loyalty is the process of deepening the commercial commitment through repurchasing the companies'

products or services in the near future, recommendation to neighbors, and increasing the share of the wallet (Sirdeshmukh, Singh, & Sabol, 2002), the level of customer loyalty would be increased if customer expansion initiatives which strive to create economic values were actualized.

5.2.4. Organizational performance

After probing several indexes showing XYZ Bank's organizational performance, it was clear that the company was yielding a favorable outcome, albeit not significantly. From the viewpoint of the CRM scorecard, such favorable performance could be interpreted as the result of its high customer satisfaction in the customer perspective, derived from the proactive customer retention process. However, this also implies that the bank was not fully exploiting the whole potential of its CRM strategy. This is because the relatively low levels of customer value and loyalty were more directly related to financial performance than customer satisfaction. As illustrated above, such comparatively inferior customer value and loyalty were probably caused by lack of activation of customer acquisition and expansion process activities. Several objective indexes supported our assertions. Apart from this case analysis, we gathered data of the customer acquisition, defection, cross-selling, and penetration rates from 2003, the year of XYZ's enterprise-wide CRM implementation, through 2005, and examined the changes in those data. We found that the customer defection rate had been decreasing significantly since 2003. Although customer acquisition and penetration rates, and the cross-selling index had been increasing, this had minimal impact. XYZ Bank's organizational performance would surely have gone on increasing by continuing its current CRM strategy, the root of improvement lying mainly in the significant decrease in customer defection. This implies that if XYZ Bank could activate the customer acquisition and expansion processes, there would be ample room for improved organizational performance.

To sum up, in spite of XYZ Bank's strengths in top management attitude, IT, and many educational and training programs, such a strong CRM initiative without suitable compensation systems seems to have led to XYZ employees feeling that the CRM strategy was high-handed and demanding, thus lowering employee satisfaction and motivation to apply CRM initiatives actively. Moreover, while acquiring new customers and strengthening existing customer relationships are considered peripheral, XYZ's CRM initiatives merely concentrated on satisfying customers through customer retention activities such as offering points or thank-you gifts based on volume of trade, solving customer complaints, and sending messages of congratulation or information. Therefore, in terms of organizational performance, it is reasonable to conclude that XYZ Bank's present CRM strategy needs to be strengthened to make a significantly positive impact on its profitability. As a way to ensure the construct validity of this study, we held a project review with managers and staff involved in XYZ Bank's CRM to outline our findings. They agreed with our interpretations and permitted us to publish this case only with a pseudo bank name. This case result was presented formally to the president of XYZ bank at the end of the year.

6. Discussion and conclusion

6.1. Summary of this study

Measuring CRM performance has become an important topic for both academics and practitioners in recent years. To measure a company's CRM performance, the company must first understand what factors are important for performing CRM strategy and what interrelationships between those factors are the core relational mechanisms in the CRM performance measurement framework. Thus, a framework for measuring CRM performance should be regarded not only as a tool for diagnosing and assessing the present CRM initiatives but also as an organizational strategic guideline for future implementation of CRM strategies. With respect to this motivation, we suggested a

CRM assessment framework called a CRM scorecard and showed its feasibility by introducing a case study.

We firstly conducted an extensive literature review iteratively to extract a theoretical causal map, which would become the basis of the CRM scorecard. Then, a series of in-depth interviews with CRM practitioners were performed to derive a hierarchical map, a practical version of the causal map for the CRM scorecard. An integrated model was developed by combining the theoretical causal model with the hierarchical one in a practical perspective. Then we added perceptual and objective instruments to the CRM scorecard framework to measure corporate CRM capability and readiness. In this step, we eliminated irrational instruments through KPI feasibility tests with companies. Additionally, we conducted AHP analysis to prioritize evaluative factors in the CRM scorecard. To see whether the CRM scorecard would be suitable for measuring performance of CRM initiatives, we presented a case study with XYZ Bank, a major retail bank in Korea. In this case study, we tried to acquire a chain of evidence for explaining XYZ Bank's CRM strategy by applying scientific case study methodology. From this case study, we showed that the CRM scorecard framework provides effective diagnostic perspectives and factors to identify the strengths and weaknesses of a company's CRM strategy that could be applicable to real situations.

6.2. Academic and managerial implications

We believe our study provides several academic and managerial contributions. First of all, the CRM scorecard includes both academic and practical perspectives. One-sided research might fall into one of two pitfalls: too theoretical to be applicable to real cases; or too field-based to be cognizant of theoretical basis. Second, we provide a systematic development process for building managerial tools. Since any business administrative device such as a CRM scorecard is encouraged to be developed through a stepwise and collaborative design methodology, the development process we suggested could be applied in other research and practice. Third, this study covers a wide range of CRM success factors addressed both in the literature and field which have been adjusted to the BSC framework to provide a causal model. Though the holistic causal model should be validated empirically in the future, we can infer the whole from the parts, partial causalities having been found through relevant literature and in-depth interviews with many practitioners. Finally, our study expands on previous relevant studies through various efforts to satisfy the requirements of a business evaluative framework. We place great emphasis that any performance measurement framework should have causality, multiple evaluative perspectives including a customer perspective, and antecedent and perceptual factors as its critical features.

We believe our study presents several practical contributions as well. First of all, practitioners will glean ways of implementing their CRM strategies successfully from this study. Top management should recognize first that, unless they establish a CRM-ready infrastructure and customer-oriented business processes, they cannot enhance organizational performance by simply introducing a CRM system. The people in charge of driving CRM initiatives should also identify what area(s) they need to give more attention to, through determining the CRM characteristics, strengths, and/or weaknesses. This would help build a future CRM master plan and strengthen their current CRM initiatives. Second, by understanding the core model in the CRM scorecard, companies can ascertain the origin of their CRM successes or failures. In most cases of assessing CRM in terms of short-term outcomes, it has been common to attribute failure to the CRM de-partment, resulting in downsizing or dropping CRM functions. However, our study highlights the need to integrate various enterprise resources to perform CRM successfully. In other words, just organizing an independent CRM team or introducing CRM technology does not guarantee positive outcome of a CRM strategy. Finally, companies can track several important perceptual factors, e.g., top management attitude, explicit goal, and so on, which are critical but have been

ignored because they could not be covered only by objective measures. In so doing, a more exact diagnosis of CRM performance can be secured. Companies might reinforce the explanatory power of their CRM capabilities and performance by adopting such measures as evaluative factors in their organizational dashboards.

6.3. Limitations and future study

We acknowledge that this study is no more a first step toward a theoretically and practically sound CRM assessment tool. To accomplish our ultimate objective, we have to overcome several critical limitations, which should be addressed in future studies. First, the number of samples used in our AHP analysis was relatively small to utilize the weights as a generalized guideline even though some AHP literature (e.g., Wind & Saaty, 1980) states that the sample size is not critical in AHP analysis if the representativeness of the sample is secured. Although we collected the data from reliable CRM experts, more inputs are necessary to create a more generalizable result, such as establishing a set of factor weights specialized for each industry or business type. Second, since ours was a single case study, the external validity of the CRM scorecard could not be ascertained, thus just the lowest feasibility and applicability are demonstrated. To verify the external validity of a CRM scorecard, it is, therefore, necessary to repeat a single case study such as this or conduct multiple cases. Third, this case study did not consider any changes over time. Since there must be a time gap between causes and effects, it would be meaningful to diagnose a corporate CRM strategy longitudinally to examine more accurate causal relationships. Finally, though we strived to pursue a chain of evidence through methodological triangulation, it was impossible to exclude researchers' subjectivities completely owing to the intrinsic attributes of the case study. For instance, during the process of transforming qualitative outcomes from in-depth interviews to quantitative scores, scoring under individual raters' subjective judgments might have influenced the reliability of the results despite the fact that we tried to maintain objectivity using a content analysis technique and clarifying scoring criteria. Therefore, to minimize rater bias, when conducting such an analytical process, it is recommended to involve as many raters as possible and check the reliability based on the value of the inter-rater reliability (R_{wg}).

Besides the research limitations above, we suggest three future research projects. (1) To arrive at empirical generalizations of the causal model in the CRM scorecard, additional research should validate empirically the relationships between the key constructs in the four diagnostic perspectives (infrastructure, process, customer, and organizational performance). (2) Moreover, as experimental knowledge of an organization as absorptive capacity is becoming more important to successful implementation of CRM strategy, it is necessary to include factors to measure CRM-related experimental knowledge such as the company's and people's depth of experience with CRM implementation (e.g., Hart, Hogg, & Banerjee, 2004). (3) Finally, we need to establish a systematic and standardized procedure for diagnosing corporate CRM strategy with a CRM scorecard, which would make possible more efficient evaluation of CRM and allow more objective comparison with other CRM systems.

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