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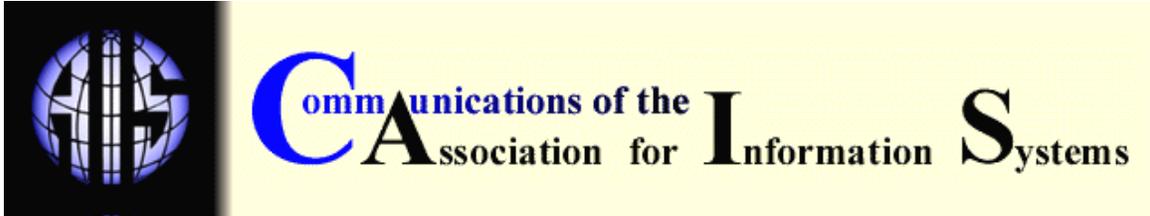
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THE IMPACT OF CRM ON FIRM- AND RELATIONSHIP-LEVEL PERFORMANCE IN DISTRIBUTION NETWORKS

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ABSTRACT

This paper develops and empirically tests a model to evaluate a manufacturer's strategy which provides customer relationship management (CRM) technology to its exclusive retailers. The impact of the strategy on manufacturer-retailer relationship quality is also examined. The research objectives are (1) to identify and test factors that promote active implementation of CRM technology among small retail organizations; (2) to determine whether our expanded concept of CRM implementation that integrates customer information management activities and relationship marketing activities explains CRM performance better; and (3) to investigate whether a manufacturer's support contributes to manufacturer-retailer relationship quality.

Statistical analysis shows that the model provides an adequate fit to the data. The retailer's perception of the importance of customer information, manufacturer support, and trade area competitiveness significantly impacts the intensity of CRM implementation by small retailers. CRM implementation intensity positively influences the performance outcomes of CRM, which in turn greatly improves the quality of the manufacturer-retailer relationship. Different from our expectation, supporting retailers with CRM technology did not directly impact the manufacturer-retailer relationship quality. The ease of use of the CRM system also did not influence CRM implementation intensity significantly. The implications of these results and their importance for successful CRM implementation are discussed.

Keywords: customer relationship management (CRM), CRM implementation intensity, customer information management, CRM performance, manufacturer-retailer relationship quality,

I. INTRODUCTION

Drucker [1954] long held that the sole purpose of business is to create and keep customers. This business philosophy is operationalized today through a firm's strategy of customer relationship management (CRM). Advances in information technology and the willingness of industry to adopt a customer-centric philosophy allow firms to focus on dealing with customers individually. Spending on CRM technology and activities is expected to exceed \$17.7 billion by 2006, growing at an average annual rate of 6.7 percent [Aberdeen Group, 2003]. Yet despite its increasing popularity as a marketing tool and the amount spent by industry, we still know little about the effectiveness of CRM and how CRM benefits channel stakeholders.

Research to date focuses on technology itself and its role in implementing CRM. The foci of our study are on (1) the post-adoption IT implementation issues, (2) the impact of CRM on organizational performance, and (3) the benefits of CRM on distribution network management. Specifically, the objectives of this study are:

1. To identify factors that promote successful CRM implementation among small retailers.

Even with the advances in CRM technology, most small- to medium-sized retailers (SMRs) usually do not possess the necessary managerial skills to implement advanced CRM technology [Cragg and King, 1993; Iacovou et al., 1995]. For CRM technology to improve SMR competitiveness, identifying factors that motivate or inhibit the retailers' implementation of CRM technology is important. For example, Wulf et al. [2001] suggest that adoption and implementation of CRM technology may differ between large store chains and small retailers. However, little empirical research deals with CRM in small organizations.

2. To examine the impact of an expanded concept of CRM implementation on organizational performance.

DeLone and McLean [1992, 2003] point out that the impacts or net benefits of information systems on organizational performance are not yet addressed adequately by research. In this study, we examine the impact of CRM on organizational performance as measured by the retailer's CRM performance. We propose CRM performance as a multi-dimensional construct that includes customer relationship strength¹, sales effectiveness, and marketing efficiency. In addition, we view CRM implementation intensity², an antecedent of CRM performance (Section III), as a multi-dimensional construct. In previous marketing literature, the influence of customer information utilization (e.g., direct and interpersonal communication, rewards, and preferential treatment) on CRM performance is well studied [Christy et al., 1996; Wulf et al., 2001]. However, Peppers et al. [1999a] suggest that customer information management (i.e., continuous customer information collection, maintenance, and analysis) must be combined with the use of such information for a firm's CRM effort to be successful.

3. To include the role of CRM technology on relationship-level performance.

In addition to firm-level performance, we expand our research model to investigate the benefits of the manufacturer-provided CRM technology on the relationship quality between the manufacturer and its retailers. Specifically we focus on small retailers who sell the manufacturer's brand

¹Customer relationship strength is defined as the amount of improvement in customer satisfaction, customer relationship quality, and loyalty achieved after implementing CRM.

²CRM implementation Intensity is defined in Section III as consisting of customer information management and customer information utilization. Customer information management measures the level of effort that retailers put into the acquisition, maintenance, and updating of their customer demographics, product possession, and life cycle information. Customer information utilization measures the level of effort that retailers put into the application of customer information in retailer's marketing activities to strengthen the customer relationship.

exclusively. Typically, these retailers are franchisees. Our study expands existing research, which focuses on firm-level application of CRM, by considering the role of CRM in distribution network management.

II. CUSTOMER RELATIONSHIP MANAGEMENT

As firms become more customer-centric in their business philosophy, the practice of managing customer relationships is an important marketing strategy. CRM is based on the premise of integrating people, processes, and technology throughout the value chain to understand and deliver customer value better. CRM focuses on maximizing customer satisfaction and retention through building long-term relationships. Yet, despite its popularity as a marketing practice, the effectiveness of CRM as a marketing tool is not well understood. One reason, which accounts for this lack of understanding, is the numerous conceptualizations that exist for CRM.

According to one school of thought, the practice and conceptualization of CRM is technology driven. While the objective is still to develop better relationships with customers, it is achieved through technically acquiring and managing customer information to serve that customer better. As a result, CRM for a number of firms means "a software tool that manages customer relationships" [Rigby et al., 2002]. Firms following this school of thought invest heavily in information systems, software, and call centers to implement their CRM initiatives. As technologies allow firms to gather more information about their customers, emphasis shifts to developing analytics appropriate for managing that customer information. Analysis of customer data sheds light on our insights about the value of a customer relationship [Reicheld and Sasser, 1990]. Yet despite this increased knowledge, we are not able to establish the link between CRM technology and the desired outcomes of maintaining customer relationships.

A second school of thought emphasizes the relationship aspect of CRM. CRM is conceived primarily as a business strategy that an organization employs to identify, select, acquire, develop, retain, and serve customers better [Berry, 1983; Bodenber, 2001]. Similarly, Kim et al. [2003] define CRM as "managerial efforts to manage business interactions with customers by combining business processes and technologies that seek to understand a company's customers."

A third school of thought [Rigby et al., 2002] views CRM as a mechanism for aligning a firm's business processes with its strategies to build customer loyalty and the firm's profits.

Despite several differences in terminology, all three conceptualizations focus on building customer relationships.

Bennett [1996] suggests that the key elements of CRM include

1. continuous interaction with customers,
2. use of knowledge about customers to better satisfy them,
3. lifetime customer value, and
4. mutual benefit and commitment.

Thus, CRM is more than a technology for managing customer information. It is a philosophy by which to guide managerial strategy. CRM as a customer-centric philosophy combines customer information management, channel responsibilities, and marketing programs as an integrative process to maximize value across the supply chain.

In the current study, we contend that CRM entails developing and maintaining mutually rewarding relationships with customers and channel members to achieve the total integration of a firm's business strategy in order to delight the customer and secure profitable, lasting business relationships.

III. A FRAMEWORK OF CRM PERFORMANCE FOR SMALL RETAIL ORGANIZATIONS

Our research framework is a two-stage process that identifies the antecedents of CRM implementation and CRM performance. Figure 1 illustrates how CRM technology influences the relationship quality between manufacturers and retailers. A manufacturer's support sets the stage for CRM technology that is implemented through a retailer network. In addition to the structural elements of manufacturer-provided CRM technology, a retailer's benefit perceptions act as determinants of the retailer's willingness and motivation to use manufacturer-suggested CRM initiative. Properly motivated, retailers implement CRM technology, leading to better overall performance. Through better CRM performance, retailers are better positioned to attain both the manufacturer's and their own goals, which in turn positively influences the quality of the relationship between retailers and manufacturers. The major constructs and relationships are explored in more detail in the following sections.

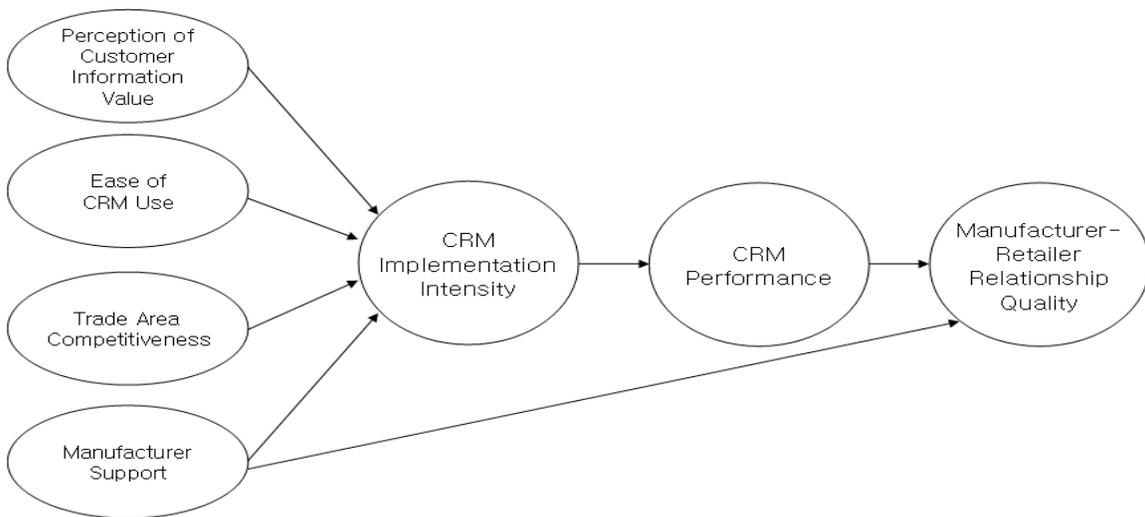


Figure 1. Proposed Framework of CRM Performance for Small Retail Organizations

CRM IMPLEMENTATION INTENSITY

Advanced information technology provides a powerful infrastructure for continuous collection and analysis of large amounts of customer information. Such capability is the basis for speedy and precise marketing responses to individual customer's needs. However, the technology itself is not the solution for which companies seek [Sisodia and Wolfe, 2000]. The intensity of utilization of the information technology, not the mere adoption of the technology, is what produces intended outcomes and drives business performance [Karahanna et al., 1999]. A mechanism required for CRM implementation is developing a consumer information system that allows "tracking the buying patterns and overall relationship of existing customers" [Berry, 1995]. Continuous updating of consumer information is important to cope better with constant changes in customer needs. Such information management activities provide the basis for personalized communications and customized offerings to individual customers [Bennett, 1996; Berry, 1995]. Effective customer information management requires "identifying, differentiating, interacting with, and customizing for customers" [Peppers and Rogers, 1999]. Retailers who implement these CRM components effectively will likely experience a better understanding of their customer base than those who do not. Consistent with the above insights, we propose that *CRM implementation intensity* is conceptualized as a multi-dimensional construct that consists of customer information management and customer information utilization.

CRM PERFORMANCE

Firms seek to improve their financial performance by increasing their customer retention rate [Bodenberg, 2001; Parvatiyar and Sheth, 2000]. Effectiveness is achieved by:

1. improving the customer relationship by meeting diverse customer needs and by increasing customer involvement and participation in the marketing process [Bhattacharya and Bolton, 2000; Sheth and Parvatiyar, 1995], and
2. enhancing business outcomes such as sales, profitability, repeat, cross-, and up-purchases [Christy et al., 1996].

Similarly, efficiency focuses on reducing wasteful marketing expenses embedded in mass marketing activities [Sheth and Parvatiyar, 1995].

A survey of firms implementing CRM technologies reports that the most widely used performance evaluation metrics include

1. customer satisfaction survey scores,
2. sales-related data such as new customer acquisition, sales quota fulfillment, sales cycle, and cross-selling volume, and
3. marketing efficiency data such as communication and administration costs, marketing collateral costs, and marketing campaign cycle time [Bodenberg, 2001].

There is no shortage of performance objectives, but there is lack of consensus about the key drivers.

Previous research, well accepted in the marketing literature, shows a number of factors which we believe determine a firm's performance. For example, consumers who develop a strong relationship with a firm and its offerings

- display a stronger sense of loyalty and intention to stay in the mutually beneficial relationship [Bolton, 1998; Reichheld and Sasser, 1990; Smith and Barclay, 1997; Wulf et al., 2001], and
- continue to purchase the same products or services [Henning-Thurau and Klee, 1997; Reichheld, 1996] and other related and/or more expensive offerings [Christy et al., 1996].

Improved customer retention and loyalty also reduces marketing expenses [Christy et al., 1996; Reichheld, 1993; Sheth and Parvatiyar, 1995] because it costs less to serve loyal customers [Reichheld, 1996; Reichheld and Sasser, 1990].

Based on such observations and the literature, we propose customer relationship strength, sales effectiveness, and marketing efficiency as relevant CRM performance evaluation metrics. We define CRM performance as the amount of improvement that retailers achieve in customer relationship strength, sales effectiveness, and marketing efficiency – achieved after implementing CRM technology.

MANUFACTURER-RETAILER RELATIONSHIP QUALITY

Relationship quality was used to evaluate relationship strength in a number of relationship settings including service relationships [e.g., Crosby, et al. 1990], membership relationships [e.g., Garbarino and Johnson 1999], supplier-reseller relationships [e.g., Kumar, et al. 1995], and consumer relationships [e.g., Wulf et al. 2001]. Relationship quality is conceptualized as a higher order construct consisting of several distinct, but related, dimensions such as satisfaction, trust, and commitment [e.g., Wulf et al. 2001]. In this research, we define the *manufacturer-retailer relationship quality* as the strength of perceived satisfaction, trust, and commitment between a manufacturer and its retailers.

IV. HYPOTHESIS DEVELOPMENT

RELATIONSHIP BETWEEN CRM IMPLEMENTATION INTENSITY AND CRM PERFORMANCE

To achieve better customer relationship quality and subsequent financial benefits such as marketing efficiency and sales effectiveness, organizations should develop an effective CRM system to support their marketing campaign programs [Peppers et al., 1999a]. The proper use of information and mass customization technology can facilitate the formation of a long-term customer-seller relationship for mutual benefit [Sheth, 1994]. Wulf et al. [2001] show empirically that relationship marketing activities lead to better relationship quality, more frequent purchases, and a higher share of the customer's wallet. Therefore,

H1: The more intense the CRM implementation activities, the higher the CRM performance.

ANTECEDENTS OF CRM IMPLEMENTATION INTENSITY

IT adoption and implementation patterns for SMRs differ from those of large retailers [Benbasat et al., 1993; Cragg and King, 1993; Massey, 1986]. Empirical findings on IT adoption and usage in small organizations suggest that internal factors, such as economic costs and lack of technical knowledge, hinder the adoption and integration of innovations [Cragg and King, 1993]. In addition, external factors, such as industry competitiveness and pressure from exchange partners (e.g., imposition of EDI by their trading partners), can also promote the adoption and implementation of information technology [Iacovou et al., 1995]. Anecdotal evidences suggest four factors influence the implementation of CRM technologies in SMR retail businesses:

1. level of competition in the retail trade area,
2. support from the manufacturer,
3. ease of CRM use, and
4. retail owner's recognition of customer information value.

Each of these components is now discussed in more detail.

Perception of Customer Information Value: An organization's information processing characteristics are an important factor in explaining adoption behavior [Gatignon and Robertson, 1989]. Firms must recognize the value of new information, assimilate it, and apply it to commercial ends [Cohen and Levinthal, 1990]. The success of relationship marketing hinges on recognizing the importance of customer information [Berry, 1983; Gronroos, 1991; Piercy, 1995] and how it can support the development of more effective and/or efficient marketing programs [Peppers et al., 1999a]. These findings in the literature suggest that the attitude of CRM implementers toward customer information determines the eventual success of CRM implementation. Hence,

H2: As the perception of importance of customer information value increases, small retailing organizations (SROs) will implement CRM activities more intensively.

Ease of CRM Use: Previous studies show that the perceived ease of use influences the adoption and actual use of new IT systems [Davis, 1989; Venkatesh and Davis, 2000]. When new information technologies are too complex to use, small organizations face greater difficulty in implementing new technology [Frambach, 1993; Rogers, 1983]. For small organizations lacking computer sophistication and resources, the complexity of a new information management system can be a deterrent to the active implementation of such technology [Swatman and Swatman, 1991]. Based on the literature cited, we hypothesize that a CRM system that is easy to implement and use promotes more active application of CRM technology. Thus,

H3: As the ease by which retailers understand CRM system increases, the implementation of CRM activities by SROs increases.

Trade Area Competitiveness: An important environmental factor that influences the adoption of new technologies is competitive pressure [Iacovou et al., 1995, Robertson and Gatignon, 1986; Srinivasan et al., 2001]. For small retailers, competition is experienced in a particular geographic trade area. We define trade area competitiveness as the extent to which competitive pressure from other retailers in a trade area is present³. As the level of competitive pressure from large retailers intensifies, small retailers will pursue a strategy that enables them to maintain competitive advantages by differentiating themselves from much larger competitors. We hypothesize that by implementing CRM, SRO's can offer more customized services to their clients at a more personal level. Hence,

H4: As the intensity of competition in their trade area increases, SROs will implement CRM technology more intensively.

Manufacturer Support: Pressure from stakeholders such as channel partners and suppliers is shown to influence the adoption of innovative technologies [O'Callaghan et al., 1992; Srinivasna et al., 2001]. Past studies suggest that proper user training and adequate support for IT can facilitate system use [Lucas, 1978; Thompson et al., 1980]. These findings support the notion that the commitment and support of a manufacturer can have a positive effect on the adoption and successful implementation of new technologies, such as CRM, by its smaller channel partners. Hence,

H5: As the support from a manufacturer increases, SROs will implement CRM technology more intensively.

RELATIONSHIP BETWEEN CRM PERFORMANCE AND RELATIONSHIP QUALITY

Strong relationship quality (defined in Section III) enables channel partners to deliver value to one another. Entering into an exchange relationship, partners develop their own role in the relationship and agree on expected benefits that each has to produce for other channel members. The benefits of channel relationships are positively related to relationship quality in general [Kumar et al., 1995]. Specific dimensions of relationship quality include satisfaction [Anderson and Narus, 1990; Smith and Barclay 1997], trust [Anderson and Narus 1990], and commitment [Cannon and Homburg, 2001; Doney and Cannon, 1997; Morgan and Hunt, 1994].

If the proper implementation of CRM principles fails to generate the intended outcomes, retailers might blame the manufacturer who recommends and supports such a program for any investment costs associated with the adoption and implementation of CRM technology, leading to lower relationship satisfaction, trust, and commitment [Parvatiyar and Sheth, 2000]. However, in the reverse situation, retailers would be very appreciative of the manufacturer's effort and perceive better relationship quality [Shamdasani and Sheth, 1995]. Hence,

H6: The greater the CRM performance for SROs, the better the SROs perception of the relationship quality with the manufacturer.

RELATIONSHIP BETWEEN MANUFACTURER'S SUPPORT AND MANUFACTURER-RETAILER RELATIONSHIP QUALITY

Developing and supporting CRM technology for a retail network is a significant investment on the part of the manufacturer. The cost incurred cannot be recovered if its relationship with the retailers ceases. Due to the consumer privacy protection act, the manufacturer cannot mandate the transfer of customer information as a return for providing CRM support. The investment of relationship specific assets is shown to have a positive impact on relationship satisfaction [Smith

³ We measure the extent of competitive pressure by asking about the perception of the retail owner on the number of competitors in and the competitiveness of the owner's trade area. See Section V for measure development and Table 1 in Section IV for measurement items.

and Barclay, 1997] and trust [Ganesan, 1994], and eventually leads to stronger intention to stay within the relationship [Anderson and Weitz, 1992; Li and Dant, 1997; Morgan and Hunt, 1994]. Because it is almost impossible for them to match the manufacturer's investment, small retailers would feel obligated to return the manufacturer's support with positive affect, belief, and attitude toward the manufacturer, causing a higher perceived relationship quality. Thus,

H7: The greater the level of manufacturer support for the CRM technology, the more positive the retailer's perception of the relationship quality with the manufacturer.

V. METHODOLOGY

Data were collected in 2003 from the owners of small, exclusive retailers of the largest home appliance manufacturer operating in Korea. Of 814 exclusive retailers, 263 retailers implemented a CRM system supplied by the manufacturer and were the subject of our study. The manufacturer supplied a complete list of participating retailers with address and name of owners and a letter asking for cooperation. The initial mailing resulted 180 responses and the second mailing sent two weeks later produced 19 additional responses, resulting in a response rate of 76 percent. A comparison of responding and non-responding retailers showed no significant differences in sales, store size, or the number of years since implementing the CRM technology.

MEASURE DEVELOPMENT

As shown in Table 1, later in this section, all constructs included multiple items. Measurements used a seven-point Likert scale. We adopted measures used previous research with proper modification. Items for latent constructs which were not previously researched are developed based on various sources.

Measures for manufacturer's support for CRM technology are adopted from previous research [Thompson et al., 1991]. Modifications were made to reflect our research setting. They include the level of general support for CRM system and incentive provided to retailers based on their utilization of CRM technology. Items for trade area competitiveness are based on suggestions from Gupta et al. [1986] and Kohli and Jaworski [1990]. These items capture the intensity of competition such as number of competitors and new entrants. We adopt the measures of "perceived ease of use" used in Venkatesh and Davis [1996] for ease of CRM use and include items that evaluate user-friendliness and general easiness of program design. Measures for the perception of customer information value reflect general usefulness, applicability to marketing campaign, and perceived value of customer information.

As proposed, CRM implementation intensity has two dimensions:

1. customer information management (the level of effort that retailers put into the acquisition, maintenance, and updating of their customer demographics, product possession, and life cycle information), and
2. customer information utilization (that is, the use of information in marketing to strengthen the customer relationship).

In total, six items measure customer information management. We group them into three dimensions of acquisition, maintenance, and updating, with two items each. The customer information utilization is adopted with modification from the items suggested by Peppers et al. [1999b].

For CRM performance, we developed measurement items based on suggestions from previous research [e.g., Berry, 1995; Bhattacharya and Bolton, 2000; Bodenber, 2001; Christy, et al., 1996; Peppers et al., 1999a]. CRM performance also has multiple dimensions:

1. sales effectiveness,
2. customer relationship strength, and
3. marketing efficiency.

Each dimension is measured with multiple measurement items. Sales effectiveness evaluates the improvement in sales, profitability, customer repurchase, purchase volume per store visit, cross-selling, and up-selling. Customer relationship strength assesses the improvement in customer satisfaction, customer relationship quality, and loyalty. Marketing efficiency measures the improvement in overall marketing productivity and promotion expense reduction.

Manufacturer-retailer relationship quality includes three dimensions. Measures of relationship satisfaction, trust, and commitment were adopted from distribution channel literature [e.g., Anderson and Narus, 1990; Ganesan, 1994; Morgan and Hunt, 1994].

Measurement items generated from previous research were subjected to a screening process by a panel of managers in the manufacturing firm and its exclusive retail-store owners. Items that do not reflect their relationship and/or current use of CRM technology were either dropped or reworded to represent the research setting better. The full list of final measurement items used to collect information and respective reliability are shown in Table 1. Table 2 provides an overview of construct means, standard deviations, and correlations.

Table 1. Summary of Measures

Latent Construct	Manifest Construct	Measurement Scale Items
CRM Performance ($\alpha = 0.8742$)	Sales effectiveness ($\alpha = 0.9195$)	<ol style="list-style-type: none"> 1. Sales at my store have increased. 2. Profitability of my store has improved. 3. Customer repurchase rate has increased. 4. More customers are buying other products in store. 5. More customers are buying more expensive products.
	Customer relationship strength ($\alpha = 0.8962$)	<ol style="list-style-type: none"> 1. Customer satisfaction has increased. 2. Customer relationship quality has improved. 3. Customer loyalty has increased.
	Marketing efficiency ($\alpha = 0.8097$)	<ol style="list-style-type: none"> 1. Marketing efficiency has improved. 2. Promotion expenses related to advertising and sales. 3. Promotion has decreased. 4. Marketing productivity has improved
Manufacturer-Retailer Relationship Quality ($\alpha = 0.8684$)	Satisfaction ($\alpha = 0.8595$)	<ol style="list-style-type: none"> 1. We have a favorable feeling toward the manufacturer. 2. So far, we are satisfied with the exchange relationship with the manufacturer. 3. We are satisfied with the volume and method of support from the manufacturer.
	Trust ($\alpha = 0.9100$)	<ol style="list-style-type: none"> 1. The manufacturer keeps its promises. 2. The information from the manufacturer is accurate. 3. When there are problems, the manufacturer notifies us promptly. 4. We believe that the manufacturer will keep supporting us even when there are abrupt changes in business environment. 5. The manufacturer is always considerate of us.

	Commitment ($\alpha = 0.9065$)	<ol style="list-style-type: none"> 1. It is very important for us to maintain a long-term relationship with the manufacturer. 2. We focus on long-term goals in the relationship with the manufacturer. 3. We do not want to terminate the relationship with the manufacturer. 4. We expect the relationship with the manufacturer is long-term. 5. We are willing to invest for the manufacturer's products.
Manufacturer Support		<ol style="list-style-type: none"> 1. The manufacturer is supporting us on the application of the CRM technology. 2. The manufacturer provides incentives for the active implementation of the CRM technology.
Trade Area Competitiveness ($\alpha = 0.9012$)		<ol style="list-style-type: none"> 1. The number of new competing retailers in our trade area is increasing. 2. There are many competing retailers in our trade area. 3. The competition level in our trade area is very high.
Ease of CRM Use		<ol style="list-style-type: none"> 1. The CRM system is designed for convenient application. 2. The CRM system provides customer information that is easy to understand.
Perception of Customer Information Value ($\alpha = 0.7207$)		<ol style="list-style-type: none"> 1. Customer information is very useful. 2. We can apply customer information for our retailing operation. 3. We think that customer information is very valuable.
CRM Implementation Intensity ($\alpha = 0.8875$)	Customer Information management ($\alpha = 0.9597$)	<ol style="list-style-type: none"> 1. We put lots of effort into collecting customer information. 2. We collect customer information through various means. 3. We have relatively more customer information compared to other dealers. 4. We have accumulated a huge amount of customer information. 5. We strive to regularly update customer information. 6. We enter the changes in customer information regularly.
	Customer Information utilization ($\alpha = 0.8999$)	<ol style="list-style-type: none"> 1. We actively utilize customer information to establish a close relationship with our customers. 2. We provide specialized marketing programs for most valuable customers selected using customer information. 3. We are implementing marketing activities to strengthen customer relationships based on customer information. 4. Our decisions regarding store marketing activities are based on customer information.

Table 3. Goodness-of-Fit Summary for the Second-Order Factor Models

MODEL	Df	χ^2	χ^2/df	p	GFI	CFI	RMR
CRM Implementation Intensity Model	13	35.93	2.76	0.0006	0.95	0.98	0.031
CRM Performance Model	51	111.24	2.18	0.00	0.92	0.97	0.035
Manufacturer-Retailer Relationship Quality Model	74	206.73	2.79	0.00	0.88	0.94	0.050

MEASUREMENT

The validity of measures for each construct is evaluated using confirmatory factor analysis. The adequacy of the measurement model is evaluated on the criteria of overall fit with the data, convergent validity, discriminant validity, and reliability. The overall fit of the measurement model is within acceptable levels as shown in Table 4. All measures loaded significantly on their intended latent construct as shown in Table 4 (all t-values are significant at $p < 0.001$), establishing convergent validity. Furthermore, the values of the average squared multiple correlation (SMC in Table 4) support convergent validity as a substantial amount of the variance in the measures is captured by the latent constructs. A conservative test of discriminant validity is performed. We compare the χ^2 values of models that either are free or constrain the correlation between two latent constructs (the phi value) to a value of 1 and test whether the constraint causes a significant decrease in fit. As shown in Table 5, such a constraint leads to a significant decline of model fit for all comparisons, demonstrating discriminant validity. In sum, the measurement models are clean, with evidence of overall model fitness, reliability, convergent validity, and discriminant validity.

Table 4. Fit of Measurement Models

	t- value (λ)		SMC
	Highest t-value	Lowest t-value	
Manufacturer Support (2)	11.39 (.80)	10.55 (.74)	0.62
Trade Area Competitiveness (3)	17.26 (.96)	13.64 (.82)	0.76
Easiness of CRM Use (2)	13.44 (.85)	12.76 (.82)	0.70
Perception of Customer Information Value (3)	13.60 (.83)	13.13 (.81)	0.68
CRM Implementation Intensity (2)	16.45 (.93)	14.63 (.83)	0.81
CRM Performance (3)	15.51 (.89)	12.48 (.77)	0.71
Manufacturer-Retailer Relationship Quality (3)	15.76 (.91)	12.72 (.79)	0.69

Goodness-of-Fit Summary for the Measurement Models

Model	Df	χ^2	χ^2/df	P	GFI	CFI	RMR
Overall Model Fits	114	212.01	1.86	0.00	0.89	0.95	0.040

Table 5. Discriminant Validity Evaluation Results

	Free Model		Constraint Model		$\Delta\chi^2$
	df	χ^2	df	χ^2	
MS – TAC	4	4.53	5	69.71	65.18
MS – ECU	1	0.68	2	50.00	49.32
MS – PCIV	4	11.09	5	65.63	54.54
MS – CII	1	0.59	2	38.27	37.68
MS – CP	4	5.59	5	52.91	47.32
MS – RQ	4	15.81	5	60.42	44.61
TAC – ECU	4	4.31	5	60.42	56.11
TAC – PCIV	8	17.68	9	279.84	262.16
TAC – CII	4	6.66	5	134.86	128.20
TAC – CP	8	6.57	9	296.64	290.07
TAC – RQ	8	18.67	9	283.32	264.65
ECU – PCIV	4	5.39	5	54.04	48.65
ECU – CII	1	0.00	2	69.45	69.45
ECU – CP	4	6.02	5	85.87	79.85
ECU – RQ	4	7.10	5	91.34	84.24
PCIV – CII	4	2.05	5	113.09	111.04
PCIV – CP	8	12.07	9	220.51	208.44
PCIV – RQ	8	11.62	9	243.87	232.25
CII – CP	4	11.98	5	115.94	103.96
CII – RQ	4	2.34	5	118.71	116.37
CP – RQ	8	25.40	9	205.06	179.66

MODEL TESTING

The hypothesized model was tested using LISREL 8.3 [Jöreskog and Sörbom, 1993] to validate the proposed theoretical structure of the hypothesized model. The overall fit of the model is significant ($\chi^2 = 30.02$, $df = 8$, $p < 0.001$). Model fit indices (GFI (0.96), CFI (0.95), and RMR (0.069)) are all in an acceptable range [Bentler, 1990], thus supporting the overall fit of the model to the data [Bagozzi and Yi, 1988; Bearden et al., 1982; Marsh et al., 1998]. Five of the seven hypothesized paths are significant at $p = 0.05$. The paths between ease of CRM use and CRM implementation intensity (H3) and between manufacturer's support and manufacturer-retailer relationship quality (H7) are not significant.

As expected, manufacturer's support for CRM technology (H5), competitive pressure (H4), and retailer's perception of customer information value (H2) influence the intensity level of customer information management and utilization significantly. The influence of ease of CRM use (H3) was not significant. How actively retailers manage customer information and use them in their marketing efforts did have strong impact on their performance improvement (H1). Retailers who experienced improvement in sales, cost reductions, and customer relationship express stronger relationship quality toward the manufacturer. However, different from expectations, the manufacturer's support for CRM technology did not directly impact relationship quality (H6), but did exhibit a strong indirect influence. These results suggest that providing and supporting retailers with CRM technology itself does not guarantee the improvement of relationship strength with small, exclusive retailers. What is important for improving the relationship quality is whether the act of support from the manufacturer generates intended outcomes. The results of model estimation are presented in Table 6 and visualized in Figure 2.

Table 6. Model Estimation Results

Path	Path Coef. (SD)	t value
CRM Implementation Intensity → CRM Performance (H1)	.65 (0.055)	11.91**
Perception of Customer Information Value → CRM Implementation Intensity (H2)	.43 (0.064)	6.78**
Ease of CRM Use → CRM Implementation Intensity (H3)	.10 (0.065)	1.58
Trade Area Competitiveness → CRM Implementation Intensity (H4)	.14 (0.050)	2.72*
Manufacturer Support → CRM Implementation Intensity (H5)	.31 (0.059)	5.59**
CRM Performance → Manufacturer-Retailer Relationship Quality (H6)	.54 (0.061)	8.77**
Manufacturer Support → Manufacturer-Retailer Relationship Quality (H7)	.11 (0.061)	1.71

Model Goodness-of-Fit Statistics

χ^2	30.02 (p = 0.00021) df = 8
χ^2/df	3.75
RMR	0.069
GFI	0.96
CFI	0.95

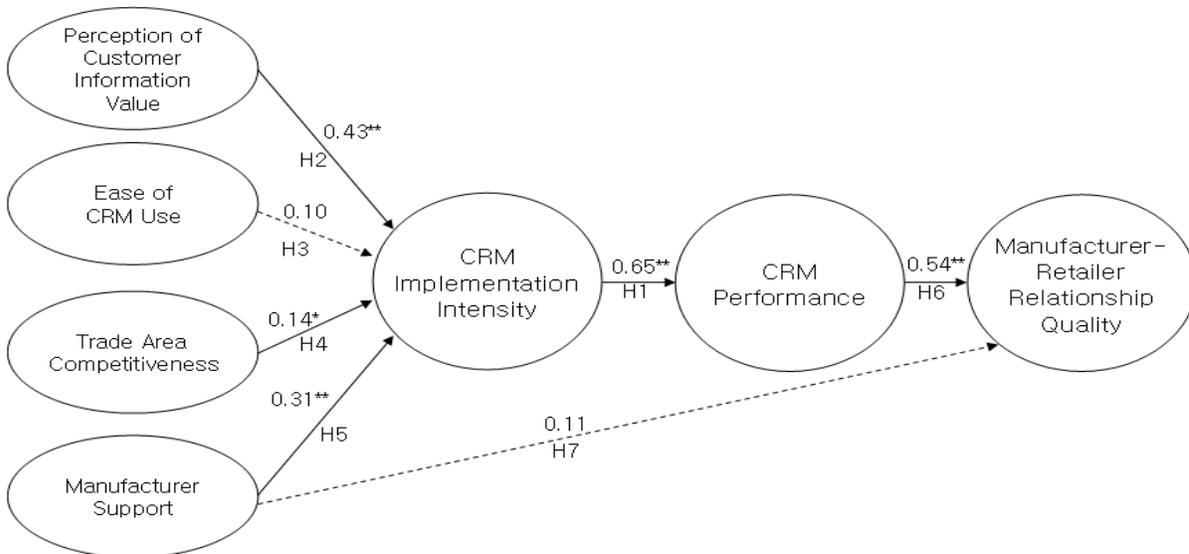
Model Goodness-of-Fit Statistics with Customer Information Utilization only

χ^2	43.09 (p = 0.00) df = 8
χ^2/df	5.39
RMR	0.087
GFI	0.95
CFI	0.92

** p < 0.01

* p < 0.05

Coef. = Coefficient



Note: ** p < 0.01; * p < 0.05

Figure 2. Result Framework of CRM Performance for Small Retail Organizations

VI. DISCUSSION AND IMPLICATIONS

An important goal of this study is to contribute to our understanding of CRM by focusing on three under-researched areas.

1. The use of CRM among small retail organizations, an important component in today's supply chain, was investigated. We identify and test four factors empirically that facilitate the successful implementation of CRM activities. The results illustrate that the retailer's perception of customer information value, manufacturer's support, and competitive pressure play a consistently positive role in influencing the effectiveness of CRM implementation.

2. Previous research validated the importance of CRM efforts [Berry, 1983; Gronroos, 1991; Gummesson, 1991], and the importance of customer insights for managing customer satisfaction [Piercy, 1995]. In the current study, the strength of the retailer's perception of the importance of managing customer information resulted in the strongest impact on their intensity of implementing CRM technology. Retailers' failure to recognize the importance of customer information limits manufacturers in learning about customers and applying acquired knowledge to serve them better. For CRM systems to be implemented successfully through a retailer network, manufacturers should feel confident that the retailers share a strong sense of customer orientation or are motivated to become customer-centric.

Support from a manufacturer provides a strong positive effect on the intensity of CRM implementation by the retailer. The results of our study demonstrate a crucial role of the manufacturer in promoting successful application of CRM technology to its retailer network. Providing a diversity of education programs (how to use CRM software packages) and support mechanisms (promotional programs) are proven mechanisms for successful CRM implementation. To ensure the success of CRM implementation, manufacturers should continuously identify and support the necessary resources and skills in which its exclusive retailers most need to improve.

Competitiveness in the retailer's trade area is also significant in influencing the implementation of CRM technology. Threats from strong competition do provide a strong motivation to develop and implement a competitive strategy. Retailers under severe competitive pressure in their trade area are more likely to be the first adopters and the more-active implementers of CRM systems, and thus are better targets for manufacturer's support.

Contrary to previous research, the ease of CRM use did not significantly affect how retailers implement CRM technology [Iacovou et al., 1995; Venkatesh and Davis, 1996]. One possible explanation for this result is that ease of use plays an important role in the adoption phase, but is less important during the implementation because of the accumulated user experience [Karahanna et al., 1999] and the presence of manufacturer support. The impact of retailers' uneasiness with CRM is mitigated by active and effective support from the manufacturer. Alternatively, the manufacturer's CRM system with user-friendly and easy-to-use features, considers the lack of technological capability of its small, exclusive retailers so that they do not face any particular difficulties in system use.

Previously, researchers in the marketing discipline mainly proposed and examined the role of relationship marketing activities (i.e., tangible reward, preferential treatment, and direct and interactive communication [Wulf et al., 2001]) on shaping customers' affect, belief, and attitude toward marketers and their offerings. However, successful CRM implementation entails continuous customer information management [see Peppers et al., 1999a], suggesting the importance of the interactive and iterative process of doing, observing, and analyzing. We expand the previous conceptualizations of CRM implementation to include customer information management activities. By including the customer information management aspect of CRM implementation, we shed light on the importance of what we consider an important performance enhancer that was neglected until now.

The significant positive relationship between CRM implementation intensity and CRM performance supports the inclusion of customer information management activities as an important element of CRM implementation activities⁵. Rather than focusing only on what benefits sellers can offer to customers, organizations should also place strong emphasis on what they learn about customers by actively collecting, maintaining, and updating relevant customer information and profiles.

Our research is the first attempt to investigate the role of CRM in improving manufacturer-retailer relationship quality. Our results show that the investment of transaction-specific assets does not guarantee the improvement in relationship quality with exchange partners as shown in previous research [Ganesan, 1994; Morgan and Hunt, 1994; Smith and Barclay, 1997]. The critical point is the improvement of firm-level performance that such investments bring to retailers. As more large retail chain organizations start to carry their own branded products, the relative competitiveness of small retailers in their own trade areas deteriorates. In such a situation, the mere act of providing a new initiative to small exclusive retailers may not impress them enough to improve their perception of the relationship quality with their suppliers. What they need would be strategic options that generate much needed outputs such as renewed competitiveness, better revenue, and profitability. The manufacturer's continuous support for proper implementation of CRM technology that helps retailers to achieve those goals would be much more appreciated as an act of fulfillment of the promises. As Gronroos [1990] proposed, keeping promises, not making them, is the key to maintaining and enhancing exchange relationships.

VII. LIMITATIONS AND FUTURE RESEARCH

Although the current study represents one of the first empirical studies that examine manufacturer-provided CRM programs and retailer performance,

several limitations of our study should be addressed in future research.

1. We believe the results of this research can be applied to any channel relationship where there is a strong leader such as a franchiser-franchisee relationship. However, generalization of the research results to different settings should be approached cautiously. Whether providing CRM technology to support independent retailers with multiple lines of brands would have the same influence on buyer-seller relationship should be studied further. In addition, the factors that influence the adoption and implementation of CRM technology might be different if the supplier of CRM technology is a third-party developer. For organizations in a different channel relationship structure, size, or industry, a different combination of factors should be selected and tested.

2. We propose customer information management and utilization as representing the intensity of CRM implementation. Change management, a critical aspect for the success of CRM, is not explicitly considered. We suggest that corporate goals, culture, and employee attitudes should be changed to accommodate a customer-centric philosophy of CRM principle [Boldenberg, 2001; Peppers and Rogers, 1999]. The results of structural equation estimation suggest that there might be a potentially strong relationship between perception of customer information value and CRM performance. This finding implies the internal attitude toward the customer is important for achieving CRM performance and CRM implementation. In future research, we need to examine

⁵ As shown in Table 6, an estimation of the model with CRM implementation intensity without customer information management dimension shows an increase in the chi-square statistics, indicating less accurate representation of the model for the data. Other indices also indicate less fit. Further, the examination of individual path statistics between CRM implementation intensity and performance shows that the variance explained (r^2) decreases to 0.36 from 0.42 of the model with customer information management. These results support our contention that the inclusion of the customer information management dimension in measuring CRM implementation intensity provides a better understanding on what leads to better relationship marketing outcomes.

whether expanding the concept of CRM implementation to include change management activities would better explain its impact on CRM performance.

3. Our measurement items for customer information management ask retailers about their information management efforts based on customer demographics, product possession, and life cycle information. In future research, customer information such as attitude, past purchase patterns, future behavioral intentions, and other information needs to be included to evaluate the relative importance of different types of customer information on CRM performance.

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