An Exploration of the Relationship between CRM Effectiveness and the Customer Information Orientation of the Firm in Iran Markets

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Received: December 15, 2010 Accepted: January 10, 2011 doi:10.5539/ibr.v4n2p238

Abstract

The firm's customer relationship management (CRM) system is frequently a central element of the knowledge management function of the firm. It integrates information from internal and external sources to guide managers and field personnel in the development and presentation of the firm's value proposition. But despite the widespread adoption of CRM systems by firms operating in business-to-business markets, there is continued management skepticism concerning the effectiveness of these systems and their association with the firm's overall "customer information orientation." The present study seeks to shed light on these topics by evaluating the relationship between the customer relationship orientation of the firm and its use of CRM, as well as the association of CRM use with overall firm performance in B-to-B settings across a range of traditional business performance measures. The authors employ a multi-method approach to determine the key variables, including: database currency, internal database utilization, database accuracy and performance based reward systems utilized to operationalize the construct "the firm's customer information orientation" in order to develop statistical measures of the relationships of selected variables. The results of the study provide support for the finding that customer information orientation is indeed associated with CRM system implementation and that CRM use is associated with firm performance in B-to-B markets.

Keywords: Customer relationship management, Knowledge management function, Business-to-business markets

Introduction

Organizational knowledge management, often referred to in practice as "the learning organization," is an important topic in the organizational literature. Alavi and Leidner (2001) define knowledge management as "the knowledge-based perspective [on organizations]" which "postulates that the services rendered by tangible resources depend on how they are combined and applied, which is in turn a function of the firm's know-how" (p. 107). Sun, Li and Zhou (2006) define this process as "adaptive learning," the process of using the firm's information to derive market and competitive intelligence.

The customer relationship management (CRM) system is a key to this process of continuous adaptation to the firm's

environments, which is the monitoring of external changes and adapting internal cultures and processes in response to external challenges (Senge et al., 1999). As a result, the number of implemented CRM systems, generally in the form of IT databases and communications systems has grown markedly during the past ten years (DeSisto, 2005).

In a survey conducted in 2004, 60% of midsized companies indicated their intention to initiate or expand their CRM usage, while only 2% indicated they currently had no plans to implement a CRM system (Neuborne, 2005). More recently, such shared on-demand Internet services as NetSuite, RightNow Technologies, Salesforce.com and CRM OnDemand have given smaller firms an opportunity to develop CRM capabilities at significantly lower capital outlays (Myron, 2005). The resulting solutions have improved efficiency within the narrow confines of traditional sales management, providing firms with real-time sales planning, sales team development, pipeline reporting and project tracking capabilities.

The firm's CRM system should identify factors important to clients, promote a consumer-oriented philosophy, use customer-based measures, develop end-to-end customer management processes to serve customers, provide customer support (including handling complaints), and track all aspects of sales. In other words the system should create a holistic view of customers' sales and services information. Superior strategy development and implementation is "achieved through open-minded inquiry, synergistic information distribution, mutually informed interpretations, and accessible memories."

"Accessible memory" is important because, as Day (1994) states, "market-driven inquiry, distribution, and interpretation will not have a lasting effect unless what is learned is lodged in the collective memory. Organizations without practical mechanisms to remember what has worked and why will have to repeat their failures and rediscover their success formulas over and over again" (p. 44).

Critics have observed that the implementation of a CRM solution is not sufficient to create a true "learning organization." Rather, organizations need to think across organizational functions to truly benefit from CRM. This requires "thinking across departmental boundaries in order to concentrate on adding value to the customer… [there is] the need for marketing to act as an integrating function in coordinating the organization's interaction with the customer" (Wilson, Daniel, & McDonald, 2002, p. 194–5). If properly implemented, the organization's CRM system is uniquely well positioned as a knowledge management tool, defined by Szulanski and Winter (2000), as a resource which promotes that (1) only best available practices are copied, (2) everyone works from the same active best practice template, (3) best practices are copied as closely as possible, (4) adopted practices are tested and adapted only after good results are achieved, and (5) best practice templates are kept in mind after their adoption by the organization. Therefore, CRM must be able to serve as the value creating interface between the firm's functional units (including those linked by an ERP) and its customers. However, there is no existing research to support the value of CRM in the broader context of the organization's customer information orientation, and specifically in the business-to-business market space.

Along these lines, Day (2000) has proposed that successful customer relationship strategies are associated with three organizational characteristics: (1) an organizational relationship orientation, (2) developing and utilizing knowledge of the customer, and (3) effectively integrating and aligning internal and external processes.

The focus of the present research is the operationalization and testing of the Day (2000) hypothetical construct as it relates to "customer knowledge orientation," in the B-to-B space, and the link between CRM use and firm performance. For the purposes of the study, customer knowledge orientation will be operationalized as a set of data collection, data management and information dissemination functions rather than as the strictly sales support process traditionally associated with CRM solutions.

2. Background

2.1. The integrated CRM system as a knowledge resource

According to Lemon, White, and Winer (2002), "the trend in marketing toward building relationships with customers continues to grow, and marketers have become increasingly interested in retaining customers over the long run" (p. 1). The large number of CRM implementations over the past decade can be seen "as a contemporary response to the emerging climate of customer churn, waning brand loyalty and lower profitability" (Agrawal, 2003, p. 151). Furthermore, "CRM is central to the task of making an organization customercentric [and] is the surest symbol embracing information technology in business [and] the most certain way to increase value to the customers and profitability to the practicing organizations" (p. 151).

Research conducted by Deshponde, Webster and Farley (1993) supports the view that "firms with cultures that are relatively responsive ([to their] market) and flexible ([act as an] adhocracy) outperform more onsensual (clan[nish]) and internally oriented, bureaucratic (hierarchical) cultures" (p. 31). As the repository of the firms' sales history,

customer profiles and on-going promotions activities, a comprehensive and integrated CRM may be a crucial element of the firms' marketing strategy.

2.2. The structure and success factors of the dynamic CRM system

Integrated CRM, however, is more than the tool and symbol of the new relationship marketing. It is, in fact, an integrated strategy solution intended to maximize synergies across all of the firm's existing programs targeting relevant customer communities. For example, "it [can] more precisely measure the impact of a particular promotion on sales and profits" for the firm and its channel partners (Rigby & Ledingham, 2004, p. 121). A comprehensive and integrated CRM capability must therefore at minimum store customer, competitor and general market information; organize the information for multiple uses; retrieve the information when and where it is needed; and update this information in real time for key constituencies of the firm. Fig. 2 summarizes the integrated CRM framework.

Achrol and Kotler (1999) observe that "the classic hierarchical organization of the twentieth century is focused on the technologies of production. It is designed to economize on the bounded rationality of top management and minimize the governance costs of sequential adaptation to contingencies. But the challenge posed by knowledgerich and dynamic industries is to create organizations that are maximally open to their environments and can approach a state of more or less continuous adaptation to fluid environments. This calls for organizations that are "focused on processing information and creating knowledge" (Achrol & Kotler, 1999, p. 148). The answer is to develop continuous information exchanges between the firm and its constituencies, and in particular the major customer groups that define the "dynamic markets" so critical to the survival and growth of the firm.

2.3. CRM and customer knowledge orientation

Sun et al. (2006) define a primary purpose of CRM systems as "adaptive learning." This is the process of "[extracting] hidden predictive information from large databases to identify valuable customers, learn about their preferences, predict future behaviors, and estimate customer value" (p. 83). In this sense, the CRM system is an integral part of the "learning organization" as described by Senge et al. (1999). Learning organizations are continually adaptive to their environments, monitoring external changes and adapting their internal cultures and processes to the changes surrounding them. Firms that undertake this sort of "active learning" tend to approach the process in an entirely different way. Rather than utilizing a campaign-focused model of identifying customers with a potential need for the firm's "next solution," active learner firms seek to better understand customers' needs in their latent form in order to operationalize an optimal solution in the form of the firm's next value proposition (Edwards & Allenby, 2003). In order to serve this purpose, the CRM system must be more than a repository of transactional information. It must include in-depth account plans, customer survey results, customers' self-re ported consumption and applications information, and a detailed record of the firm's interactions with customer personnel (Rust & Verhoef, 2005).

Rather than taking a retrospective view of their customer markets, active learners utilize their CRM systems for modeling customers' selfperceived needs from direct and trace information stored in the data warehouse. Differences in the perceived needs of various customer clusters drive the development of a set of solutions for individual clusters, or groups of customers. By contrast, active learning organizations seek to find consistencies within individual accounts, providing specifically targeted solutions based on the firm's in-depth knowledge of these customers.

3. Conceptual framework and hypotheses

3.1. Conceptual framework

Based on the Day (2000) hypothetical construct and the literature on customer communities, we propose that (1) relationship orientation, knowledge orientation and aligned internal and external resources are related to the use of CRM systems in B-to-B markets; and (2) CRM implementation is related to the performance of the firm in the B-to-B market space. This model is shown in Fig. 3.

3.2. Research hypotheses

3.2.1. Customer knowledge orientation

Knowledge management is the primary function of the CRM system, so it follows that knowledge orientation is a key characteristic of firms that successfully implement integrated CRM solutions in B-to- B markets. Kohli and Jaworski (1990) assert that "market intelligence is a broader concept than customers' verbalized needs and preferences in that it includes an analysis of exogenous factors that influence those needs and preferences" (p.3). Environmental factors, including the state of technology and the cyclicality of the industry and the overall economy, must also be considered in evaluating the firm's strategic options. Moreover, an integrated CRM must provide more than customer preference data, since the customer frequently knows only what s/he has seen or used. Possibilities

outside the customer's existing conceptual framework are often difficult if not impossible for him/her to understand, much less communicate.

The integrated CRM must therefore pick up patterns of use and recurring product/service/support issues that the customer may overlook or be unable to effectively communicate. This requires "organizational learning," defined by Slater and Narver (1995) as "the development of new knowledge or insights that have the potential to influence behavior" (p. 63). Adaptive learning is "the most basic form of learning [which] occurs within a set of recognized and unrecognized constraints (i.e., the learning boundary) that reflect the organization's assumptions about its environment and itself" (p. 63).

On the other hand, "generative learning occurs when the organization is willing to question long-held assumptions about its mission, customers, capabilities, or strategy. This requires a new way of looking at the world based on an understanding of the systems and relationships that link key issues and events" (p. 63). This continuous learning process is supported by "knowledge management" (Shoemaker, 2001, p. 178).

CRM supports the process of adaptive, or active, learning by helping the sales organization, management, customers, resellers and suppliers to better understand the impact of new implementation and use patterns of products and services supplied by the firm. An effective CRM must facilitate the development of a knowledge orientation in each of the firm's stakeholders. Organizational knowledge orientation means that (1) only best available practices are copied, (2) everyone works from the same active best practice template, (3) best practices are copied as closely as possible, (4) adopted practices are tested and adapted only after good results are achieved, and (5) best practice templates are kept in mind after their adoption by the organization (Szulanski & Winter, 2000).

H1. The relationship of „customer knowledge orientation to "CRM use" is positive in B-to-B markets.

3.2.2. CRM and firm performance

The final test of an integrated CRM, as for any major capital outlay or operating expense, is its contribution to the viability and growth of the organization. Key measures of CRM performance therefore include profitability, account sales and account gross margins. As Agrawal (2003) points out: "The key dimensions of CRM that were largely ignored in the past are customer loyalty and customer profitability" (p. 153). Research shows that an increase in customer loyalty by 5% could increase profits in telecom by over 50%, and a study by ICL for a UK Telco showed that a 10% churn in the top 10% of profitable customers would reduce profits by more than 25%. In presenting their model of customer value, Gupta, Lehmann, and Stuart (2004) observe that "Customer retention is one of the most critical variables that affect customers' lifetime profit" (p. 12).

Nemati, Barko, and Moosa (2003) support the view that "CRM has become a key process in strengthening of customer loyalty… customers no longer guarantee their loyal patronage, and this has resulted in organizations attempting to better understand them, predict their future needs, and to decrease response times in fulfilling their demands" (p. 74).

H2. The relationship of "CRM useto" "firm performance" is positive in B-to-B markets.

4. Study method

This study employs a multi-method approach, including small group in-depth interviews of organizational management teams and large sample CRM user and non-user surveys. The multi-method approach of this research incorporates a range of sources and data collection strategies to give depth and dimensionality to the research data. The group in-depth interviews serve as exploratory research in order to effectively frame the research problems. The user and nonuser surveys provide the scaled data to test the resulting hypotheses.

4.1. Sample characteristics

The survey sample was drawn from a broad range of industries with generally high CRM system development. Although these industries are at varying levels of sophistication and advancement with regard to CRM technology, each has participants with significant experience with CRM development and use in B-to-B markets (Yu, 2001). Respondents were selected based on their responsibilities in conjunction with their self-identified expertise concerning CRM usage and performance. In-depth group interviews were conducted within seven selected firms that volunteered to participate in the study (see Appendix). These interviews lasted between one and 3 h at the host firm's offices and/or over the telephone with a small number of managers (generally between three and five) from each firm.

Subsequently, e-mail messages were exchanged with these respondents for the clarification and amplification of their comments and responses. The interview guide that was employed for these discussions (see Exhibit B) was open-ended and designed to engender discussion to raise key issues for the large-scale user survey.

4.2. Sampling frame

Survey respondents that currently have CRM systems and those that do not currently have system implementations were sourced from the Vendor Compliance Federation (VCF), a Division of Trading Partners Collaboration, a not-for-profit organization dedicated to business-to-business customer relationship development. VCF membership is composed of middle and upper level managers in organizations involved in business-to-business strategy formulation and operations. The membership of VCF represents a wide range of industries and industry roles. Based on available descriptions, this membership appears to be highly representative of the general population of CRM users.

The request to the VCF membership yielded 206 usable survey questionnaires from CRM users and non-users. 107 of these respondents indicated that their organization does not currently have a CRM system; 99 respondents indicated that their organization currently has an operational CRM system. Respondents were directed to complete the survey using an Internet-based instrument. Telephone calls to selected respondents were made by VCF officers to encourage a high response rate of the membership. In addition, those who were contacted concerning the survey were asked to pass the URL to other possible respondents. This "snowballing" technique was intended to increase the sample population and to extend the diversity of respondents in order to more closely reflect the overall population of CRM system users.

A general consensus among in-depth group interview participants was observed in the areas of system description, customer and vendor relationships, CRM benefits and overall organizational performance.

This was the basis for the decision concerning the use of key informants for conclusive research. Minimum sample size was determined by the demands of each specified method and the selected data analysis technique.

4.3. Research design, questionnaire and scale development

Because validated scales are not available for the defined latent construct, customer knowledge orientation, it was necessary to develop a range of questions for pre-testing. These scale items were derived from a search of the existing literature on the topics of customer knowledge orientation and firm performance. Several peer reviewed articles have addressed these constructs one dimensionally, and have published scale items for each dimension. These questions were subjected to three rounds of questionnaire pre-testing by the management teams involved in the preliminary in-depth interviews.

Following each round of reviews, the proposed changes were presented to the original respondents from each team. At each round the questions were further refined and new questions were added based on these responses. Managers were asked to review the resulting questionnaire for (1) ambiguous wording, (2) doublebarreled questions, (3) loaded questions, and (4) questionnaire structural and visual issues. At each revision, an attempt was made to eliminate biases and to expand or contract the scope of the questions, as appropriate.

Respondents were asked questions in five major areas: (1) the characteristics of the organization; (2) the form and extent of the firm's CRM implementation; (3) the perceived success of CRM system implementation with regard to customer retention and a range of other firm performance criteria; (4) the existence and form of the firm's customer communities; and (5) the relationship of the firmwith its customers. Where appropriate, seven-point Likert-type scales were used (e.g., 1 = strongly disagree to 7 = strongly agree). Throughout the study, consistent with standard practice (Flora & Curran, 2004), ordinal data has been treated as continuous data in order to facilitate interpretation. The survey data was subjected to factor analysis to identify any new factors which should be considered in the study.

4.4. Reliability and validity

Cronbach's alpha was used to evaluate reliability. For the purposes of exploratory research a Cronbach's alpha of .7 or .8, and sometimes as low as .6, is generally deemed adequate (Peterson, 1994). A review of the literature did not identify existing validated scales directly associated with the latent construct, customer knowledge orientation.

However, several peer reviewed articles have addressed this construct one dimensionally (as individual scale items rather than as related items) and have suggested scale items for operationalizing "customer knowledge orientation" (Kohli & Jaworski, 1990; Shoemaker, 2001; Slater & Narver, 1995; Szulanski & Winter, 2000).

This research is reliant on nomological validity to the extent to which predictions from the accepted network of theory are borne out in the new measures developed in this study (Bagozzi, 1994). The newly measured constructs "behave" in expected ways in relation to other well understood constructs, and this contributes to confidence in the new measures. From the earliest stages of this research, nomological and face validity were also the basis for selection and testing of the appropriate variables. "Nomological validity is a form of construct validity. It is the

degree to which a construct behaves as it should within a system of related constructs called a nomological set" (Bagozzi,1980, p.182). Face validity "is concerned with howa measure or procedure appears. Does it seem like a reasonable way to gain the information the researchers are attempting to obtain? Does it seem well designed? Does it seem as though it will work reliably?" (Fink, 1995, p.261) Furthermore, we rely on face validity, as described by Anastazi (1998): "[Face validity] is not validity in the technical sense; it refers, not to what the test actually measures, but to what it appears superficially to measure. Face validity pertains to whether the test, looks valid" to the examinees who take it." (p.144).

Data analysis proceeded in three stages in order to develop a measurement model and a confirmatory model. Factor analysis was employed to identify latent variables and to determine the relationships of individual items to their posited, underlying structures (Hunter & Gerbing, 1982, Özsomer, Calantone, & Di Benedetto, 1997).

Principal factor analysis (PFA or factor analysis) is used to verify the one dimensionality of the measures. Convergent validity is inferred from the significance of coefficient loadings and their magnitudes.

This method is intended to assess and validate the descriptive and predictive value of the measurement model of CRM use and customer knowledge orientation. Item measures that pass the significance test but have a standardized factor loading of approximately less than 0.6 were eliminated from the model (Nunnally, 1978).

To the degree that the one dimensional latent variable identified in the literature is supported by the results of t-tests and analyses of variance (ANOVA), this research relied on a convergence of research findings to validate those findings. Differences of methodology and analytical schema have the effect of reducing the value of this approach, but it remains one factor in determining convergent validity.

5. Study findings

Study findings were analyzed using factor analysis to determine the association of the scale items as a set of latent factors for all respondents and for only CRM users. This was followed by a set of independent-sample t-tests to determine the association of the reduced set of independent variables identified in the factor analysis, the scale items associated with customer knowledge orientation and the dependent variable "CRM use." Analyses of variance (ANOVA) were conducted to determine the relationship of CRM implementation with firm performance using a set of firm performance dimensions.

5.1. Data reduction

Factor analysis was employed to verify the one dimensionality of the scale measures derived through the questionnaire survey. An inference of convergent validity can be based on the significance of coefficient loadings and their magnitudes as a set of latent constructs.

The factor analysis of all 206 respondents, including both CRM users and non-users, employing Varimax rotation, of the scaled items yielded four factors, which may be defined as "customer knowledge orientation" (Factor 1), "customer relationship orientation" (Factor 2), "customers' community orientation" (Factor 3), and "internal and external organizational alignment" (Factor 4). See Table 1a. This result is suggestive of H1, "The relationship of customer knowledge orientation" to "CRM implementation" is positive." Only scale items with significant loadings are reported; items with loadings approximately below 0.6 have been eliminated according to common practice (Nunnally, 1978). The analysis of the proposed items yielded four factors, including "customer knowledge orientation" (Factor 1), "customer relationship orientation," (Factor 2), "customers' community orientation" (Factor 3), and "internal and external organizational alignment" (Factor 4). This is further suggestive of H1, "The relationship of „knowledge orientation" to „CRM implementation" is positive."

See Table 1b.

5.2. Customer knowledge orientation

Independent-samples t-tests of the variables associated with customer knowledge orientation support the finding of a relationship with CRM use (Table 2). A significant relationship between CRM use was found in the case of the scaled questions, "marketing databases are kept up-to-date," "managers utilize market information from internal databases," "the accuracy of information in the marketing databases is actively monitored" and "performance-based vendor and service

Moreover, a number of those interviewed concerning the organizational and market characteristics associated with successful CRM implementation identified customer knowledge orientation as critical for success. "Our CRM system is one of many tools we employ to better understand our customer needs and purchasing behavior. I can't tell you the specific role of our CRM system, but it is significant in tying it all together" (Vice President of Distribution for a major electronics components distributor). "Our organization collects an enormous amount of information

concerning our customers. That's what we do… we analyze our customers' buying patterns, expenditure levels and their stated interests" (Director of Marketing for a multi-media consumer merchandiser). "Our customers feel that they have a close relationship with us. They rely on us for solutions and… [our customers] give us as much help in developing the right solutions as they can" (Director of Sales for an information systems developer).

5.3. CRM use and firm performance

Independent-samples t-test of the year-over-year change in firm performance and CRM use supports a relationship between CRM use and firm performance, as defined by survey respondent reported yearover- year firm performance improvement in overall profitability, sales force productivity, customer retention, average account sales and average account gross margins. See Table 3. Therefore, H2, "The relationship of „CRM use" to „firm performance" is positive in B-to-B markets" is supported.

The relationship of CRM systems and organizational profitability was mentioned by managers in group interviews. "We could never be as profitable without our customer databases… We continuously upgrade our customer information systems because it's what drives our business" (Director of Marketing for a multi-media consumer merchandiser). "Our CRM system is the heart of our sales and marketing activities… We make all of our product line and customer care decisions after analyzing our CRM data…We would be a lot less successful without it" (Vice President of Distribution for a major electronics components distributor).

This finding is further confirmed by an analysis of variance (ANOVA) of the mean value of the scale items associated with customer knowledge orientation, which is found to be significant (f stat=2.97; deg. of freedom=15; sig. b.001).

5.4. Firm performance and CRM implementation level

A significant relationship has been established for CRM use and the year-over-year change in firm performance in terms of overall profitability, sales force productivity, customer retention, average account sales and average account gross margins. This is further confirmed by the reported association of the latent construct, customer knowledge orientation, with the mean of the year-overyear organizational performance variables, the scaled questions "overall profitability?" "sales force productivity?" "customer retention?" "average account sales?" and "average account gross margins?"

An extension of these analyses is the determination of whether the level of CRM implementation is associated with the firm's performance. To answer this question, an analysis of variance (ANOVA) was performed for the full set of scale items posited to have an association with customer knowledge orientation, along with the set of scaled CRM performance variables.

The results indicate a limited relationship between these organizational performance variables and the level of CRM integration, including these classifications, from lowest to highest level of system implementation: Level 1: "we have a system which performs primarily as a sales support system;" Level 2: "we have a CRM system which serves as an integrated account planning and account management system;" and Level 3: "we have a system which serves as an integrated account planning and account management system and as a management reporting system." See Table 4.

The results were significant for questions "overall profitability?" "average account sales?" "average account gross margins?" and "important external vendors and service providers are treated as members of the firm's organization." Higher level implementations of CRM systems, those with greater integration with the firm's strategic and resource planning functions, are therefore associated with the firm's sales productivity and profitability.

6. Discussion of managerial and research implications

The present study has proposed a set of organizational characteristics, as represented bya setof "customer information orientation" scale items, associatedwith the implementation of CRM systems in businessto- business settings. The preliminary findings are suggestive and do not identify clearly causal relationships of the construct, customer knowledge orientation, with the organizational use of CRMsystems. A number of factors make a clear determination of causation problematic, including the heterogeneity of firm organizations (and their CRM implementations) and the concomitant use of CRM and related resources for multiple organizational applications. Internal and external organizational environmental conditions further complicate a determination of causality in the factors leading to CRM use, as well as the resulting association of CRM with overall firm performance. As the in-depth exploratory interviews suggest, the concept of a "CRM system" in B-to-B applications may be interpreted differently by both systems users and non-users. To some executives, the CRM system is a logical extension of the sales management function, i.e., a better way to manage the sales organization. To other executives, CRM connotes a strategic marketing function, which is focused on the development of in-depth account plans and a team selling

approach.

The results of this research provide qualified support for a finding of a relationship of the latent construct "customer knowledge orientation" with CRM use in B-to-B markets. Although still vague, this construct, as operationalized in this and other studies, is identified in the proposed model as a characteristic of the organization.

A contribution of this study is in presenting this organizational characteristic as an identifiable, albeit less than perfectly measurable, construct. Study results clearly demonstrate that the operational variables may be applied jointly as predictors of CRM use. As many of the in-depth group interviewees made clear, the firm's customer-centeredness is closely associated with the breadth, depth and quality of customer information sought and collected by the firm.

There is no ambiguity concerning the potential value of a CRM system to the respondent population. There is clear support for the contention that CRM use, in B-to-B markets, is associated with firm performance improvement in overall profitability, sales force productivity, customer retention, average account sales and average account gross margins. Since these are the criteria most frequently emphasized by in-depth group interview participants, the survey results clearly present the value of CRM to the firm. Furthermore, this research clearly indicates the benefits of higher order CRM systems, those with integrated account planning, account management and management reporting capabilities. Firms employing higher order CRM capabilities had a statistically significant performance improvement over users with less evolved systems.

7. Research limitations and future research

The present research utilizes both in-depth interviews and a large sample questionnaire survey to improve understanding of CRM and its association with the firm's customer information orientation. As is the case with most empirical research, the present survey research has several limitations associated with the identification of latent constructs, the operationalization of those constructs and the collection of survey data for testing those operationalized constructs.

This may introduce some biases to the research. One way that future research may avoid some resulting biases is to undertake longitudinal studies with a sufficiently large and representative B-to-B sample population. By staggering the collection of data related to independent and dependent variables, it may be possible to more effectively link user and non-user behaviors with organizational outcomes (Duchon & Kaplan, 1988). Related to this time-lapse limitation, the present survey study utilizes a cross sectional design, which limits the extent to which causality can be inferred.

In order to address these various shortcomings, future research should employ varied CRM and organizational contexts and research designs to determine whether the model provides a satisfactory, consistent explanation for the determinants of business-to-business CRM use and related performance outcomes. Additional research would also help to determine the conditions under which the various performance factors may vary, and the extent to which these factors are independent of other organizational, industry and other environmental factors. A replication of the present study using other sample populations, definitions of CRM and organizational and performance criteria will serve to improve the external validity of the findings, and to validate the robustness of these relationships across different B-to- B CRM implementations and usage contexts.

References

Achrol, R. S. (1991). Evolution of the marketing organization: New forms for turbulent environments. *Journal of Marketing*, 55, 77−94.

Achrol, R. S. & Kotler, P. (1999). Marketing in the network economy.*Journal of Marketing,* 146−163 Special Issue 1999.

Agrawal, M. L. (2003). Customer relationship management (CRM) & corporate renaissance. *Journal of Services Research*, 3, 149−171.

Alavi, M., & Leidner, D. E. (2001). Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly*, 25, 107−136.

Crotts, J. C., Dickson, D. R., & Ford, R. C. (2005). Aligning organizational processes with mission: The case of service excellence. *Academy of Management Executive*, 19, 54−68.

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

Day, G. S. (2000). Managing market relationships. *Journal of the Academy of Marketing Science*, 28, 24−30.

Day, G. S. & Wenseley, R. (1988). Assessing advantage: A framework for diagnosing competitive superiority.

Journal of Marketing, 52, 1−20.

Deshponde, R., Webster, F. E., & Farley, J. U. (1993). Corporate culture, customer orientation, and innovativeness. *Journal of Marketing*, 57, 23−38.

Duchon, D., & Kaplan, B. (1988). Combining qualitative and quantitative methods in information system research: A case study. *MIS Quarterly*, 12, 571−585.

Journal of Marketing Research, 40, 321−334.

Flora, D. B., & Curran, P. J. (2004). An evaluation of alternative methods for confirmatory factor analysis with ordinal data. *Psychological Methods*, 9, 466−491.

Gupta, S., Lehmann, D. R., & Stuart, J. A. (2004). Valuing customers. *Journal of Marketing Research*, 41, 7−18.

Kohli, A. K., & Jaworski, B. J. (1990). Market orientation: The construct, research propositions, and managerial implications. *Journal of Marketing*, 54, 1−18.

Lemon, K. N., White, T. B., & Winer, R. (2002). Dynamic customer relationship management: Incorporating future considerations into the service retention decision. *Journal of Marketing*, 66, 1−14.

Myron, D. (2005). Back to double-digit growth. *CRM Magazine*, 9, 31.

Nemati, H. R., Barko, C. D., & Moosa, A. (2003). "E-CRM analytics: The role of data integration. *International Journal of Electronic Commerce in Organizations*, 1, 73−89.

Peterson, R. A. (1994). A meta-analysis of Cronbach's coefficient alpha. *The Journal of Consumer Research*, 21, 381−391.

Rigby, D. K., & Ledingham, D. (2004). CRM done right. *Harvard Business Review*, 82, 118−129.

Rust, R. T. & Verhoef, P. C. (2005). Optimizing the marketing interventions mix in intermediate-term CRM. *Marketing Science*, 24, 477−489.

Simmons, L. C., & Munch, J. M. (1996). Is relationship marketing culturally bound? A look at guanxi in China. *Advances in Consumer Research*, 23, 92−96.

Slater, S. E., & Narver, J. C. (1994). Market orientation, customer value, and superior performance. *Business Horizons*, 37, 22−28.

Slater, S. E. & Narver, J. C. (1995). Market orientation and the learning organization. *Journal of Marketing,* 59, 63−74.

Sun, B., Li, S. & Zhou, C. (2006). "Adaptive" learning and "proactive" customer relationship management. *Journal of Interactive Marketing*, 20, 82−96.

Szulanski, G. & Winter, S. (2000). Getting it right the second time. *Harvard Business Review*, 80, 62−69.

Wyner, G. A. (1999). Customer relationship management. *Marketing Research*, 11, 39−41.

Yu, L. (2001). Successful customer-relationship management. *MIT Sloan Management Review*, 42, 18−19.

Zack, M. H. (1999). Developing a knowledge strategy. *California Management Review*, 41, 125−146.

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Table 1a. Factor analysis: CRM users and non-users using varimax rotation

	Factor 1	Factor 2	Factor 3	Factor 4
Q8e: The development of detailed account plans is a high priority.		.872		
Q8f: Marketing databases are kept up-to-date	.745			
Q8g Sharing information with customers is considered important		.624		
Q8h: Important external vendors and service providers are treated as members of your firm's organization				.784
Q8i: Customers have a significant level of input to the firm's marketing strategy.		.591		
Q8j: Managers utilize marketing information from internal databases	.743			
Q8p: There are methods for resolving differences between your firm and its verdors and service providers				.773
Q8q: The accuracy of information in the marketing databases is actively monitored.	.723			
Q8r: Performance-based vendor and service provider reward systems are unilized	.660			
Q9h: Your firm's customers are willing to share sensitive operational information with the firm				.613
Q10a: Your firm's customers regularly keep in contact with one another			.883	
Q10b: Your firm's customers share purchase(price,availability, retailer,etc) information with other customers			.887	
Q10c: Your firm's customers advise each other concerning the use of your firm's product.			.826	

Table 1b. Factor analysis: CRM users only using varimax rotation

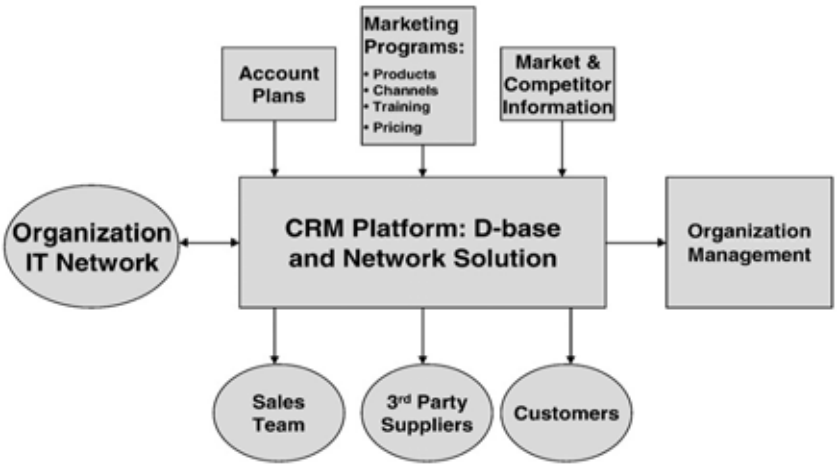
	Factor 1	Factor 2	Factor 3	Factor 4
Q8e: The development of detailed account plans is a high priority.		.850		
Q8f: Marketing databases are kept up-to-date	.753			
Q8h: Important external vendors and service providers are treated as members of your firm's organization				.682
Q8i: Customers have a significant level of input to the firm's marketing strategy.		.651		
Q8j: Managers utilize marketing information from internal databases	.684			
Q8l: Customer satisfaction is a high priority		.741		
Q8o: Customer retention is a high priority		.662		
Q8p: There are methods for resolving differences between your firm and its verdors and service providers				.751
Q8q: The accuracy of information in the marketing databases is actively monitored.	.658			
Q8r: Performance-based vendor and service provider reward systems are unilized	.668			
Q9b: Your firm's customers are an important source of planning information for your firm		.653		.
Q10a: Your firm's customers regularly keep in contact with one another			.785	
Q10b: Your firm's customers share purchase(price,availability, retailer,etc) information with other customers			.868	
Q10c: Your firm's customers advise each other concerning the use of your firm's product.			.775	

Table 2. *T*-test of "customer knowledge orientation" variables

	N	Mean	*T*-stat	Sig. (2-tailed)
Q8f: Marketing databases are kept up to date				
CRM No	101	3.67	5.39	.000
CRM Yes	95	4.72		
Q8j: Managers utilize market information from internal databases.				
CRM No	104	3.85	5.11	.000
CRM Yes	97	4.77		
Q8q: The accurary of information in the marketing databases is actively monitored				
CRM No	103	3.73	5.02	.000
CRM Yes	97	4.73		
Q8r: Performance-based verndor and service provider reward systems are utilized.				
CRM No	75	3.39	1.92	.056
CRM Yes	76	3.89		

Table 3. *T*-test of "firm performance" variables with "CRM use"

	N	Mean	*T*-stat	Sig. (2-tailed)
Q6a: Overall profitability?				
CRM No	46	4.15	2.28	.024
CRM Yes	95	4.49		
Q6b: Sales force productivity?				
CRM No	45	3.98	3.23	.002
CRM Yes	92	4.48		
Q6c: Customer retention?				
CRM No	45	3.67	4.25	.000
CRM Yes	92	4.40		
Q6d: Average account sales?				
CRM No	45	4.02	2.46	.015
CRM Yes	93	4.41		
Q6e: Average account gross margins				
CRM No	46	3.87	3.51	.001
CRM Yes	95	4.41		



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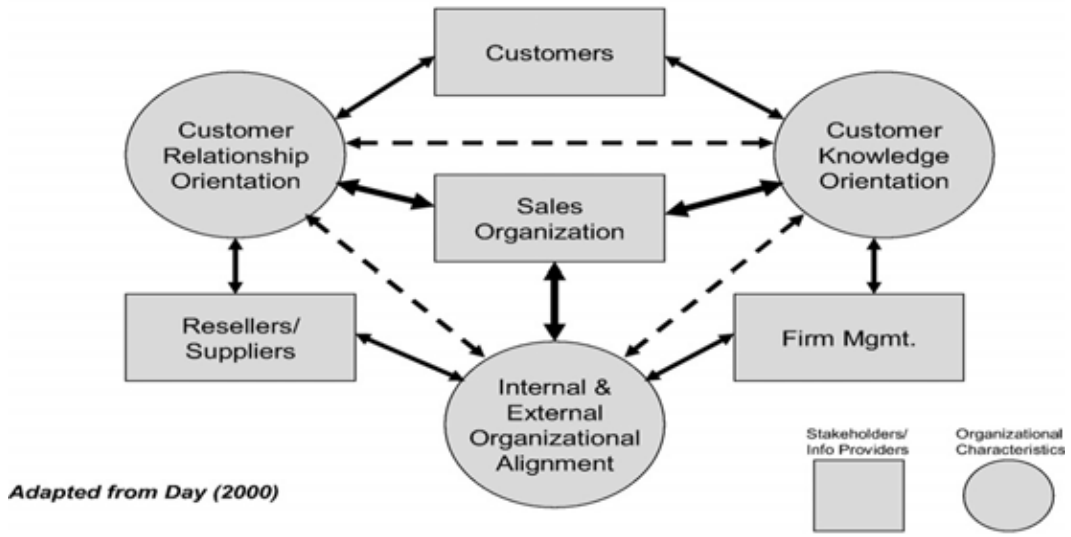

Figure 2. Major CRM integration elements.

Figure 3. Conceptual model: CRM implementation and customer community effect on customer relationships