

판매 프로세스 혁신의 성공모형에 대한 실증연구

An Empirical Study on Selling Process Reengineering Success Model

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요 약

본 연구는 영업조직에서 CRM 시스템에 대한 투자가 판매 프로세스 혁신이라는 성과를 이루기 위해서는 영업사원의 CRM 시스템 사용이 중요하다는 데 착안하여, CRM 시스템 사용에 영향을 미치는 조직 및 시스템 차원의 변수를 조사하였다. 또한 CRM 시스템 사용을 매개 변수로 보고 이들 변수와 판매프로세스 혁신과의 관계를 실증함으로써, 향후 기업들이 CRM 시스템 구축을 통해 판매 프로세스 혁신을 이루고자 할 때 그 목표를 더욱 효과적으로 달성할 수 있게 한다는 데 본 연구의 의의가 있다.

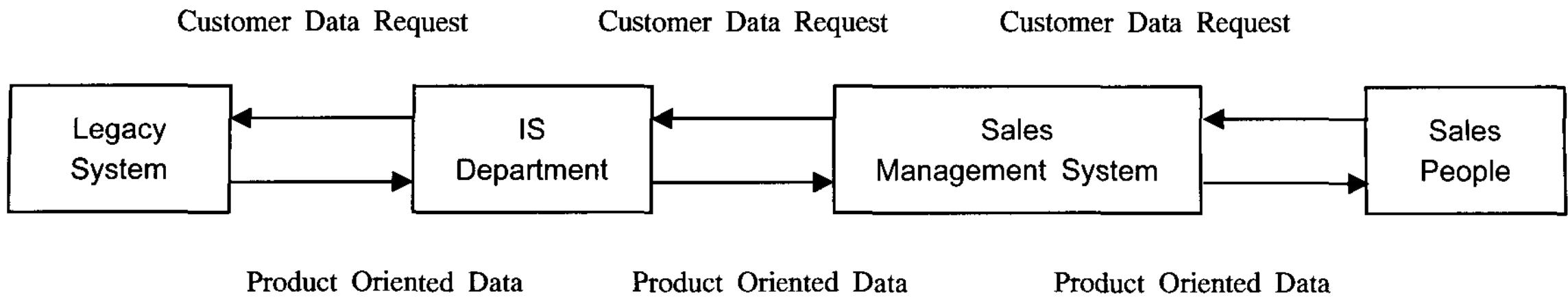
키워드 : 고객관계관리, 프로세스 혁신, 판매 프로세스, 자발적 시스템 사용

I. Introduction

Many businesses have adopted or are planning to adopt Customer Relationship Management (CRM) systems. CRM systems collect customer data from various customer contact points and analyze it to identify customer wants, needs and buying habits. The results of the analyses are used to provide customized services and products. One of the major applications of CRM systems is to integrate and automate selling processes (O'Brien, 2006). CRM systems provide sales people with tools and data sources they need to reengineer their selling processes.

However, a high percentage of CRM initiatives failed because employees were not prepared to use CRM systems (Kettinger *et al.*, 1997; Kim, 2002). In the Information Systems (IS) literature, research on CRM systems use by sales personnel is limited. This study attempts to understand how sales personnel adopt CRM systems and reengineer selling processes when system use is voluntary.

The selling process consists of a series of steps a salesperson may go through to sell products or services. The steps are: identifying potential customers, sales presentation and sales closing. Identifying potential customers involves



<Figure 1> Identifying Potential Customers Before Reengineering

“searching for and identifying potential buyers who have the need, willingness, ability and authority to buy and acquire information about the prospect’s name, address and telephone number” (Dubinsky, 1980). The next step, sales presentation includes the approach to the prospect, presentation of product offering and attempt to arouse the prospect’s desire for the product. The last step-closing-involves finalizing the details of the transaction and reporting the sales transaction to the company.

According to interviews with sales managers in insurance companies, identifying potential customers for new product offerings before the adoption of the CRM systems can be performed in the following way <Figure 1>: (1) sales people request sales management for a list of potential customers from the existing customer base; (2) sales management forwards the request to the IS department; (3) the IS department prints out the customer data from the legacy system; and, (4) the print-out is delivered to the sales management. Since the data in the print-out are organized by product offerings rather than by customers, the data have limited value in identifying potential customers. Although, this process might vary depending on firms, data-based customer analyses are rarely performed in the old process. During the stage

of the sales presentation in the old process, sales people did not have on-line access to customer and product information. Further, at the stage of the sales closing, there were many hand-offs: (1) sales people filled out paper forms to record customer information; (2) the paper forms were collected by sales department; (3) the collected paper forms were delivered to the IS department; and, (4) the information on the paper was entered into the legacy system.

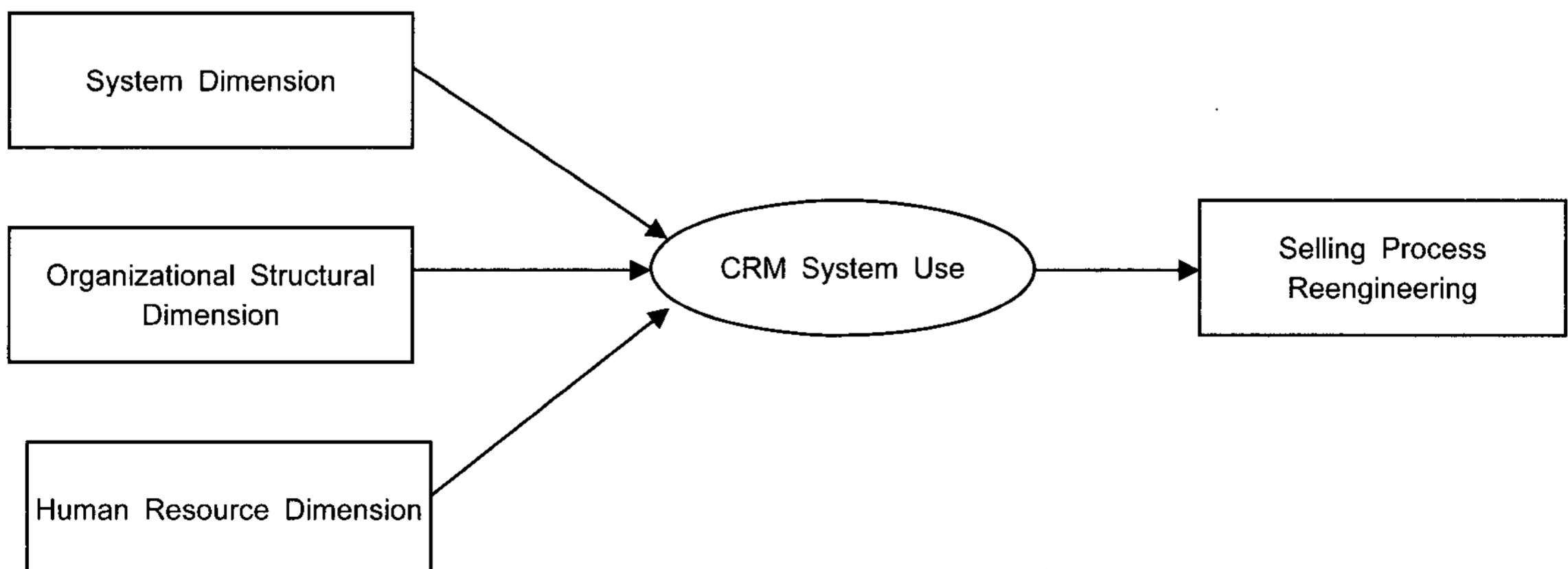
After the implementation of the CRM systems, the selling processes can be reengineered in the following manner: (1) equipped with PDA, notebook computers, web browsers and sales contact management software, sales people upload customer profiles, sales transaction data and customer complaints and suggestions during sales consultations; (2) using analytical tools, sales department segments collect customer data and develop appropriate sales strategies for each segment; (3) sales people utilize analyzed customer data for personalized sales and promotions. In addition, sales people can download appropriate information on products and services from the CRM systems. The ultimate benefits of SPR include selling time reductions, response time improvements and sales increases.

In the industry where sales are traditionally based on personal relationships and the use of the CRM systems is voluntary, the installation of technical solutions does not guarantee SPR. If sales people chose not to use analyzed customer data but to rely on relationship-based sales, then the ultimate benefits of the CRM systems could not be realized. If sales personnel chose not to enter sales transactions and customer data during sales, some of the “hands-off” in the old process would have to occur; delays in the process would be unavoidable. Usually, Business Process Reengineering (BPR) is performed using top-down approach with which process reengineering is mandatory and mandatory system use is required. On the contrary, selling process reengineering is optional and use of CRM systems by sales personnel is optional.

According to a study about the Korean insurance industry, many sales people do not use CRM systems for various reasons including a lack of IT skills by sales people and a lack of compensation for using the system (Kim, 2002).

Voluntary system use reflects user’s perception in relation to system implementation (Hartwick and Barki, 1994; Tillquist, 1996). When system conflicts with existing user’s perception, the employee becomes reluctant to use the system. Rai *et al.* (2002) note that multidimensional natures of individual’s perception require careful definition and measurement of each dimension of the model; and selection of dimensions and measures should be contingent on the context of the empirical investigation. Studies on voluntary system use have been done in various contexts that include Student Information Systems (Rai, Lang and Welker, 2002), Electronic Mail System (Malone, 1987) and Accounting Systems (Venkatesh *et al.*, 2003).

The objective of this study is to investigate (1) the factors that influence CRM use by sales personnel; and (2) the mediation effect of CRM system use on SPR success when system use and process reengineering are voluntary rather than institutional <Figure 2>. This study takes position that the use of CRM system is considered to be important in realizing SPR. This po-



<Figure 2> Research Framework for Selling Process Reengineering

sition is similar to the view of process reengineering community in that true value of Information Technology (IT) use is its impact on business processes (Davenport, 1993; Hammer and Champy, 1993; Venkatraman, 1994). First, previous studies on IS use and process reengineering were reviewed, from which 22 potential variables related to voluntary CRM system use were derived. The variables are organized into the following dimensions: system, organizational structure, and human resource <Figure 2>. Each dimension of the research framework in <Figure 2> will be discussed Research Framework section. The discussion includes definition and measures of each dimension.

The survey was conducted to assess the factors that affect voluntary CRM systems use. A sample of the managers of sales personnel were asked to rate each item on a five-point scale anchored on strongly disagree (1) and strongly agree (5). Factor analysis is used to identify underlying factors of voluntary CRM use. Then, the relationships among the identified factors and CRM systems use were investigated. Then, the mediation effects of CRM system use on SPR success were studied. Understanding the determinants of CRM system use and SPR success provide valuable guidance for managers. Managers can benefit from this study by focusing on improving the factors that affect CRM system use and SPR success.

II. Research Framework

2.1 IS Use

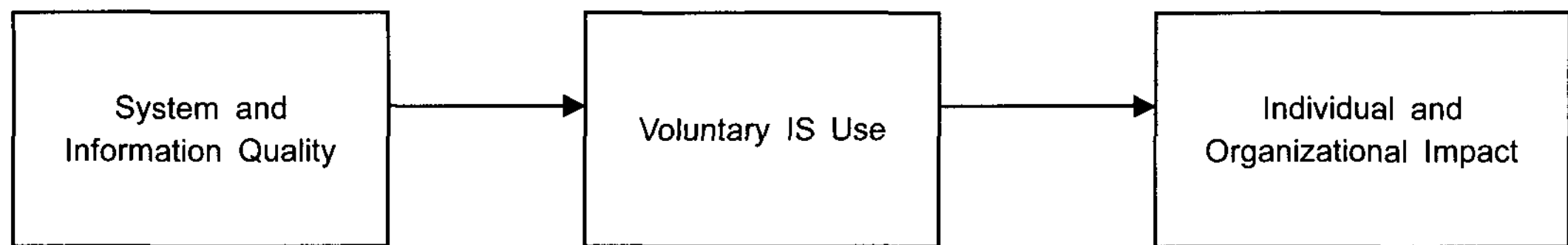
In the IS literature, IS use is discussed from two different perspectives. One is from adopt-

ers' perceptions of innovations; the second, from IS success literature. While one of the most often cited work in the first category is Technology Acceptance Model (TAM), representative work in the second category is McLean and DeLone's IS success Model.

Davis (1989) developed a Technology Acceptance Model (TAM), which provides an explanation of the determinants of computer acceptance by end-users. TAM theorizes that perceived usefulness and perceived ease of use determine the actual intention and usage behavior. During the past decade, researchers have applied the TAM to examine IT usage and have verified that user perceptions of both usefulness and ease-of-use are key determinants of individual technology adoption (Koufaris, 2002; Mathieson, 1991).

However, some research criticized TAM because it did not explicitly consider any social variables (Taylor and Todd, 1995). Legris and Ingham (2002) argued that it should be integrated into a broader model, which would include variables related to both human and social changes. Considering the diffusion of new end-user IT, Moore and Benbasat (1991) proposed some extended constructs such as visibility, voluntaries of use, result demonstrability, and image. Hsu and Lu (2007) used Moore and Benbasat's research model (1991) to examine the determining factors of Multimedia Messaging Service (MMS). Hsu and Lu (2004) also extended TAM to include the influences of on-line games in user behavior. Specifically, the work proposed additional variables, such as social influences and flow experience.

In McLean and DeLone's IS Success Model, IS use is considered to be an appropriate con-



〈Figure 3〉 IS Success Model

struct to measure IS success when IS use is voluntary <Figure 3>. When system use is voluntary, system use is essential to desired outcomes (D'Ambra and Rice, 2001; Doll and Torkzadeh, 1998; Palmer, 2002) and more use indicates the realization of more system benefits (DeLone and McLean, 2003). System and information quality are considered to be the determinants of IS use (Chang and King, 2005; DeLone and McLean, 1992; Nelson *et al.*, 2005).

While TAM views IS use from personal and social factors, the IS Success model investigates IS use from system and information factors. Since CRM systems are different from end-user computing technology considered in TAM studies, applying TAM to examine determinants of CRM system use may not be appropriate. As indicated in the case study on insurance companies, the use of CRM systems by sales people is affected by organizational attributes such as evaluation and compensation systems (Kim, 2002). Therefore, this study attempts to investigate the determinants of voluntary CRM system use from system and organizational perspectives.

CRM technology is considered to be a strategic choice to meet customer needs and improve customer services (Karimi, Somers and Gupta, 2001; Sweat, 1999). 'CRM system use' by employees including sales personnel to deliver goods and services is considered to be the or-

ganization's strategy to enhance firm's market competitiveness. Galbraith (2002) asserts that effective execution of the strategy is accompanied by the transformation of its organizational architecture, which involves new information systems, organizational structure, and human resource. Galbraith's framework is useful. With it, we can derive a set of organizational variables that could influence the use of CRM systems.

In the following section, the derived variables are organized into three dimensions: system, organizational structure, and human resource. While the system dimension deals with the quality of the CRM systems that leads to CRM system use, the structural dimensions of this study focuses on organizational structures that foster CRM system use. The human resource dimension deals with hiring qualified individuals with system knowledge and ensuring that the employees continuously have the knowledge and motivation to use CRM systems.

2.2 System Dimension

The CRM system is an enterprise system that crosses the boundaries of traditional business functions in order to reengineer and improve vital business processes all across the enterprise (O'Brien, 2006). CRM systems have three components: IT infrastructure, applica-

tions and data access devices. IT infrastructure component is shared by functional units and includes network and firm-wide shared customer databases. Individual functional units and employees process and utilize customer data via applications and data access devices.

Many researchers possess the view that appropriate IT infrastructure consisting of communication networks and shared databases are key factors preceding the successful implementation of redesigned business processes (Broadbent *et al.*, 1999; Byrd and Turner, 2000). Sharing customer information and knowledge throughout redesigned selling process requires a high quality network that permits information be routed expeditiously and effortlessly as well as a high quality database that contains reliable and current customer data (Rockart *et al.*, 1996). In addition to infrastructure, quality of applications and data access devices that allow to access customer data can be preceding factor for successful implementation of business process. Thus, the quality of the IT infrastructure, application and data access devices associated is considered to be a key determinant of CRM system use for selling activities.

The quality of the CRM systems can be measured using accessibility and reliability constructs (DeLone and McLean, 1992). In this study, accessibility is defined as the degree to which a remote customer database can be accessed with relatively limited efforts (Nelson *et al.*, 2005). Provisions of firm-wide data network, data access devices and easy-to-use application interfaces are indicators for the accessibility of CRM systems (CherryTree, 1999, Nielsen, 1993). Reliability represents the user's assessment of assurance or certainty about net-

work and customer data in the database (Nelson *et al.*, 2005; DeLone and McLean, 1992). Provisions of uninterrupted data transfer and current and relevant database contents to support sales activity could be indicators for reliability of CRM systems. Since the motive for CRM adoption is to obtain up-to-date customer data, the currency of customer data could also be a critical aspect of IT infra quality.

Since firm-wide data network and data access devices are basic infrastructure of CRM system without much difference among firms, only following items were included in the survey to measure the quality of CRM systems: (1) provisions of ease-of-use data processing and analysis applications; (2) provisions of uninterrupted data transfers; (3) provisions of relevant database to support sales activities; and, (4) provisions of database with current customer data.

Some researchers considered a human infrastructure as another IT infrastructure component in addition to the technical IT infrastructure stated above (Byrd and Turner, 2000; Broadbent and Weill, 1997; Henderson and Venkatraman, 1994). While the technical infrastructure is related to the network, data and application configurations, the human infrastructure is related to the knowledge capabilities required to manage IT resources within the organizations, including technical advice and support services. Weill (1993) stated that two firms investing the same amount in technical IT infrastructure will most likely have different organizational results since the human infrastructure influenced the way technical infrastructure is converted into productive outputs.

Following items were included in the survey

to measure the quality of human IT infrastructure: (1) provisions of support services for installation, use and maintenance of the system; and (2) provisions of support services for utilizing data and various data analysis report.

2.3 Structural Dimension

A number of researchers have studied the relationships between organizational structure and communication effectiveness. When organizational structure is rigid, communicating corporate visions and values is less effective (Nonaka and Konno 1998; O'Dell and Grayson 1998). The horizontal structures with less rigid structures than the vertical structure facilitate communication among employees (Goffee and Jones 1996; Grant 1996). In this study, the organizational structure that promotes communication between central management and sales personnel would also facilitate communication about the importance of the CRM strategy, and thus, results in improved use of the CRM systems by sales personnel.

According to Michael *et al.* (2000), customer serving tasks are complicated and require adaptive responses to customer concerns and needs. Thus, a rigid organizational structure governed by rigid rules and standard policies and procedures is less likely lead to the use of a customer-focused strategy. Contrary to the rigid organization, organization with flexible structure is characterized by encouraging employees to generate ideas and delegating authority and autonomy to the employees to exercise control over job-related situations (Conger and Kanungo, 1988), Studies found that the delegation of authority and autonomy with appropriate perform-

ance appraiser is the essential factors affecting employee's innovative behavior (Kelloway and Barling 2000; Malone 1997; Nonaka 1994; Scott and Bruce, 1994). In this study, a more flexible organizational structure is considered to have a positive impact on use of customer-focused strategy and thus use of CRM systems.

The following items in organizational structures were asked in the survey: (1) the degree of ease in communication between central management and sales personnel; (2) the degree to which working relationships being governed by rigid rules; (3) sales people being encouraged to generate creative ideas; and (4) sales people with autonomy.

2.4 Human Resource (HR) Dimension

In their empirical study, Pfeffer and Sutton (2000) found that high performance organizations emphasize rigorous employee selection and extensive training. Hiring highly qualified individuals with CRM system knowledge is the most direct way to have sales people use CRM systems (Davenport, 2000, Davenport and Prusak, 2000; Kelloway and Barling, 2000). Alternatively, organizations can make extensive ongoing investments in employee training that ensure sales people to have CRM system knowledge. The following items on employee selection and training were included in the survey: (1) emphasis on sales people selection with IS knowledge; (2) emphasis on sales people training about CRM; and, (3) emphasis on sales people training regarding the use of CRM systems.

In addition to training, learning communities formed by common interests has positive im-

pacts on both individual and organizational performances (Kelloway and Barling 2000). Social interactions occurring in the communities often generate new knowledge within firms. The members of the learning communities usually communicate to share expertise and solve problems together. The community also allows members to capture improvement opportunities and address training needs (Van *et al.*, 1994). The community is also considered to improve self-efficacy of the members that is defined as the judgment of what one can do with whatever skills one possesses (Foote and Whyte, 1984). Therefore, corporate support for the IS learning community and emphasis on participation of IS learning community, could influence the use of CRM systems. The following items on learning communities were included in the survey: (1) the extent of corporate support of the IS learning community; and (2) the extent of sales people participation in IS learning community.

According to Kim (2002), voluntary use of CRM systems by sales personnel in the insurance company is affected by compensation and reward. Several researchers argue that the employees' intellectual capital should not be considered in the firm's assets (Davenport, 1999; Stewart, 1998; Pfeffer and Sutton, 2000). Rather employees are investors of their intellectual capital and choose to invest their knowledge when the reward meets at acceptable levels (Kelloway and Barling 2000; Markus 2001). Sales people are likely to enter their customer knowledge into CRM systems to the extent of reward for knowledge contribution. Similarly, sales people will use CRM systems if evaluation of their performance is based on the quality of their relationships with customers rather

than a number of contracts with new customers. In this regard, voluntary use of CRM systems by sales people is affected by how their performance is evaluated and rewarded. The following items on evaluation and reward were included in the survey: (1) sales people being evaluating based on quality of their relationships with the customer; and (2) sales people being rewarded based on the degree of their contribution to the collection of customer data.

2.5 Success of Selling Process Re-engineering

The ultimate benefits of the CRM system use are to respond to customer concerns and requirements faster, better and more customized ways through SPR. The success of SPR is measured by selling-time reductions, response-time improvements and increases in sales. The proposed model for SPR success is shown in <Figure 2>.

III. Research Methodology

Expert interviews and survey instruments were used in this study. Interviews with the manager of sales personnel were performed to verify the questionnaire items. The final questionnaire consists of 17 items. Participants responded to 5-point Likert scale where the end labeled "strongly disagree" was assigned in value of 1 and "strongly agree" was assigned in value of 5. The survey was given to the managers of sales people who have knowledge of the sales people using CRM systems. The survey was done through e-mail, personal visit and phone over two week periods (from June

9, 2006 to June 23, 2006). Of the 170 survey instruments distributed, 61 were returned and usable. Response rate was 35.8%.

IV. Analysis

In <Table 1>, our samples are classified by the type of company. Banking, insurance, stock brokerage and credit card companies together make up the largest grouping of companies. That is, in total, nearly 46% of the companies are in the financial service industry. This indicates the importance of CRM in the financial services industry. It is reported that 80% of financial service industry has adopted CRM systems (KRG, 2005).

<Table 1> Sample Classification

Company Type	Number	Percentage (%)
Banking	9	15%
Insurance	8	13.1%
Stock Brokerage	10	16.4%
Credit Card	7	11.5%
Pharmaceutical	15	24.6%
Cosmetics	1	1.6%
Automobile	11	18.0%
Total	61	100.0%

Using the principal components method with a varimax rotation, the factor analysis was performed to identify valid constructs. As shown in <Table 2>, the factor analysis resulted in five factors, each of which has an Eigen value greater than 1. Factor loading for each item of the five factors was over 0.4. In addition, communality of each item was over 0.4. Accordingly, each item is considered to be important in inter-

preting the factors. The five factors were: Learning Mechanism, Knowledge Leverage, Supporting Services, Empowered Structure and Shared Knowledge. Training on CRM and CRM system, the support for the learning community, and the participation of the learning community of HR dimension were found to consist of one factor named Learning Mechanism. The System Dimension appears to have two factors. Three of the proposed items-uninterrupted data transfer, relevancy of customer data, and currency of customer data-loaded on the second factor, called Knowledge Leverage with evaluation and reward. According to Hibbard (1997), knowledge is defined as information in context or information put into action. In this regard, knowledge systems in broad terms include CRM systems that contain contextual information on customers. Since employees' motivation to gather and leverage customer knowledge is associated with proper evaluation and reward mechanisms, easy transfer and quality of customer data in repository, we label this factor as Knowledge Leverage. Human infrastructure items in the system dimension-system support, helping with report; and employee selection from the HR dimension were loaded on the same factor named Supporting Services with provision of ease-to-use application from System Dimension,

The Structural Dimension appears to be two factors. While working relationships and autonomy were loaded on one factor called Empowered Structure, idea generation and communication are loaded on the other factor called Shared Knowledge. Communication between management and employees (Bostrom, 1989; Krauss and Fussel, 1990; Nelson and Cooprid-

<Table 2> Results of Factor Analysis (**significant parameter at p=.01)

Questionnaire Items	Factors				
	Learning Mechanism	Knowledge Leverage	Supporting Services	Empowered Structure	Shared Knowledge
Provision of Ease-to-use Application			.569**		
Uninterrupted Data Transfer		.798**			
Relevancy of Customer data		.644**			
Currency of Customer data		.678**			
System Support			.689**		
Helping with Report			.780**		
Working Relationships				.740**	
Autonomy				.851**	
Idea Generation					.591**
Communication Flow					.625**
Selection of Employees			.603**		
Training on CRM	.775**				
Training on CRM systems	.850**				
Evaluation		.685**			
Reward		.658**			
Support for Learning Community	.539**				
Participation in Learning Community	.704**				
Cronbach's Alpha	.829	.814	.798	.590	.660
Eigen Value	6.378	1.924	1.528	1.309	1.076
% of Variance	37.519	11.317	8.989	7.699	6.327
Cum %	37.519	48.836	57.825	65.524	71.851

er, 1996); and idea generation by the employees (Schrage, 1990; Keen 1988; Swanson, 1974) provide a common knowledge base through which barriers to understanding between two parties are removed. Thus we label communication and idea generation as Shared Knowledge.

The validity and reliability of the factors were evaluated. Reliability, as represented with Cronbach's alpha in <Table 2>, was over 0.6 for each factor except Empowered Structure. The reliability coefficients above 0.60 are typically considered satisfactory (Hair, 1998). Empower-

<Table 3> Regression results between Independent Variables and CRM system use

Independent Variables	Unstandardized Coefficients		Standardized Coefficients β	T	Sig.
	B	Std. Error			
Learning Mechanism	.360	.079	.431**	4.534	.000
Knowledge Leverage	.295	.079	.354**	3.718	.000
Supporting Services	.314	.079	.376**	3.957	.000
Shared Knowledge	.186	.079	.223*	2.346	.023

Note) + p .10; p* ≤ .05; ** p ≤ .01.

ed Structure was excluded from subsequent analyses. Correlations among factors and between the factors and CRM system use were checked. While Person Coefficients among factors were not significant, Person Coefficients between the factors and CRM system use were significant (p < 0.01). Next, we investigated the relationships among the individual factors and CRM systems use, which is discussed in the following section.

V. Model Development

Next, we investigated the relationships among the individual determinants and CRM systems use. To address the possibility that some of the constructs combined multiplicatively rather than additively in CRM system use, we conducted a step-wise regression analysis (p-in = 0.05. p-out = 0.10). As shown in the regression model in <Table 3>, all four factors have significant impact upon CRM use. The R-square value was 0.502 and the Standard Error of Estimation was 0.609.

As shown in <Table 3>, the factors that can explain CRM system use in order of the most

important to the least are Learning Mechanism ($\beta = 0.431$), Supporting Services ($\beta = 0.376$), Knowledge Leverage ($\beta = 0.354$) and Shared Knowledge ($\beta = 0.223$).

The next task was the identification of mediating effects. According to Baron and Kenny (1986), the impact of the mediate variable can be assessed via a hierarchical regression analysis (HRA). In HRA, the independent and mediate variables are entered into the regression and simultaneously regressed on the dependent variable with the goal of improving the fit of the regression model. The results are shown in steps 2 and 3 of <Table 4>. To demonstrate mediation, the following conditions are necessary: 1) independent variables have to be significantly related to the mediator; and 2) there must be a substantial reduction in the relationship between independent and dependent variables when the mediator is included (Baron and Kenny, 1986). Complete mediation is evidenced by non-significant relationship between independent and dependent variables once the mediator is included. Condition 1 was tested and the results are shown in setp1 of <Table 4>. The results indicate that each factor was signifi-

<Table 4> Hierarchical Regression Results with Mediator

Independent Variables	Step1 (From <Table 3>): Independent ->Mediator (CRM systems Use)	Step2: Independent -> Dependent (SPR Success)	Step3: Independent*Mediator -> Dependent (SPR Success)	Mediation Effect
	β	β	β	
Learning Mechanism	.431**	.267*	-.011	Complete mediation
Knowledge Leverage	.354**	.394**	.038	Complete mediation
Supporting Services	.376**	.414**	.253*	Partial mediation
Shared Knowledge	.223*	.229*	.050	Complete mediation

Note) + p .10; p* ≤ .05; **p ≤ .01.

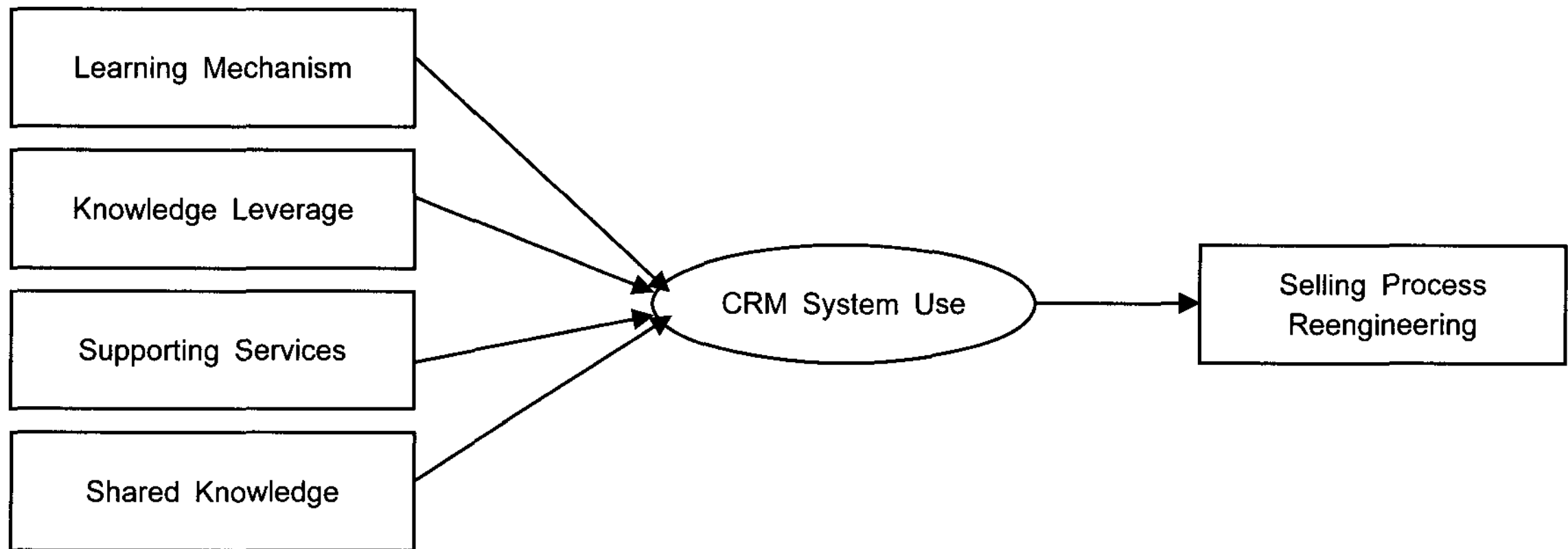
cantly related to CRM use.

To test condition 2 for mediation, we compared the regression coefficient of the independent variables between step2 and step3 in <Table 4>. The significant relationship between Learning Mechanism and SPR in step 2 becomes non-significant (p < .05 in step 2, p > .10 in step 3) when CRM use is accounted for in the equation. Thus, it is concluded that CRM system use completely mediates the relationship between Learning Mechanism and SPR. CRM system use also completely mediates the relationship between Knowledge Leverage and SPR (p < .01 in step 2, p > .10 in step 3). The relationship between Supporting Services and SPR (p < .01 in step 2, $\beta = .253$, p < .05 in step 3) was weaker after including the mediator, but were still significant. Thus, it is concluded that CRM system use partially mediates the relationship between Supporting Services and SPR. CRM system use also completely mediates the relationship between Shared Knowledge and SPR (p < .05 in step 2, p > .10 in step 3)

While R-square value of the model shown in step2 was 0.462, R-square value of the model shown in step 3 was 0.601. Therefore, it is concluded that the model with the mediator is a better model than the model without the mediator.

VI. Conclusion And Limitation

This study investigated organizational factors that influence the use of CRM systems and thereby likely success of SPR. Those were Learning Mechanism, Knowledge Leverage, Supporting Services and Shared Knowledge <Figure 4>. Learning Mechanism comprising with training and learning community was found to have positive relationships with more CRM system use and thereby SPR success. This implies that management needs to make ongoing investments in training sales people to acquire the competencies they need. In addition to training, learning community needs to be fostered and supported to improve self-efficacy of sales



〈Figure 4〉 Model for Selling Process Reengineering Success

people. Competencies and self-efficacy obtained through Learning Mechanism are likely to help sales people cope to the changing environment that is CRM system environment.

Knowledge Leverage representing motivation to gather and leverage customer knowledge was also found to predict more CRM system use and thereby SPR success. Indicated by Kelloway and Barling (2000), employees are investors of their intellectual capital and choose to invest their knowledge when the reward meets at their acceptable levels. Quality of customer knowledge in the repository is likely to motivate sales people to utilize and apply knowledge to sales process; and proper evaluation and compensation are likely to motivate sales people to insert and upgrade customer knowledge in the repository.

Variety of Supporting Services represented by technical advice and support services were found to predict more CRM system use. Usually, management involves identifying, justifying and acquiring the resources to achieve organizational objectives. To ensure CRM system use and thereby likely success of SPR, management

needs to identify variety of supporting services. This includes recruiting sales personnel with IS knowledge and setting up supporting service infrastructure in relation to system support, helping with report and providing easy-to-use application.

Shared Knowledge between management and sales people was found to be a pre-condition of CRM system use. According to Nelson and Coopriider (1996), management is constantly involved in knowledge transfer process from management to employees. Knowledge about management initiatives is exemplar knowledge that needs to be transferred. Shared knowledge through communications and idea generations further enhances knowledge transfer from management to employees by reducing barriers to understanding between two parties (Bostrom, 1989; Krauss and Fussel, 1990; Nelson and Coopriider, 1996; Schrage, 1990). Similarly, this research found that shared knowledge removes barriers to acceptance of management's CRM initiative.

Managerial implications of this study can be broken down by management levels. Typically,

top management involves establishment of architectural elements to ensure that CRM value is achieved. To increase likelihood of SPR success, management at this level needs to ensure that IT and other structural elements are appropriate to support employees to gather and leverage customer data. In addition, steps must be taken to ensure that the stated CRM value is understood by organizational members. At middle management level, management involves working with top management to ensure that the resources needed by the CRM are identified, justified and acquired. To increase CRM system use and thereby likely success of SPR, middle management needs to identify variety of supporting services needed to achieve CRM objectives. At operational level, management is concerned with the effective utilization of the resources. To promote self-sufficiency of sales force in relation with CRM, management needs to focus on education on CRM objectives and tools relevant to CRM system use.

Future research is proposed subsequently. According to Nelson and Coopridner (1996), Shared Knowledge increases employee's ability to work toward an organizational goal. Defined as a strong belief in and acceptance of the organization's goals and values (Steers, 1977), commitment's level determines the level of efforts that individuals make to achieve the organizational goal. Then sales personnel who are committed to the organization could buy into organization's CRM strategy and make greater efforts in using CRM systems. As future research, an investigation of causal relationships among Shared Knowledge, Commitment and CRM system use is called for.

Future research could also be conducted,

which investigates organizational factors influencing successful management of customer knowledge and thereby SPR success. In Customer Relationship Management (CRM) system, the customer data obtained at the contact points are stored in the data warehouse and analyzed using data mining techniques and OLAP. The analysis results provide knowledge about important decision making situations related to customers. From this knowledge-focused view, SPR success could be associated with customer knowledge management that includes insertion, upgrade, and application of customer knowledge.

As limitation of this research, bias could exist in this study because the analyses were done with a small sample. The findings can not be extrapolated to all CRM initiatives but merely provide an indication in the sample frame. There is a need for more rigorous survey research with a large sample. However, this study found the research model and propositions that would help both academics and practitioners to understand the success of voluntary SPR.

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An Empirical Study on Selling Process Reengineering Success Model

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Abstract

One of the major applications of CRM systems is to integrate and automate selling processes. CRM systems provide sales people with tools and data sources they need to reengineer their selling processes. In the industry where sales are traditionally based on personal relationships and the use of the CRM systems is voluntary, the installation of technical solutions does not guarantee Selling Process Reengineering (SPR). The objective of this study is to investigate (1) organizational factors that influence CRM use by sales personnel; and (2) the mediation effect of CRM system use on SPR success when system use and process reengineering are voluntary rather than institutional. Understanding the determinants of voluntary CRM system use and SPR success provide valuable guidance for managers. Managers can benefit from this study by focusing on improving the factors that affect voluntary CRM system use and SPR success.

Keywords: *Process Reengineering, Customer Relationship Management, Selling Process, Voluntary IS Use*

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주요 관심분야는 비즈니스 프로세스 관리 (Business Process Management)로서 현재 프로세스 아웃소싱과 관련된 조정 및 통제 메커니즘에 대한 연구를 수행 중이며 관련 분야에서 다수의 논문을 발표하였다. 한국경영정보 학회와 한국 시뮬레이션 학회 회원이다.



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