A STUDY OF ENHANCING BUSINESS PERFORMANCE BY MCRM FROM RESOURCE-BASED VIEW

Research-in-Progress

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Abstract

Mobile Customer Relationship Management (mCRM) combines mobility with CRM (Customer Relationship Management) to enable organizations increase their business performance through delivery of better products or services to their customers. In this study, we are investigating how general IT infrastructure and mCRM knowledge and education as part of technical and organizational resources within an organization can improve its business performance. In this paper, we propose a model that incorporates resource-based view of the firm and DeLone's and McLean's IS success model. In order to validate our proposed model, we have also developed a survey to collect information from companies using mCRM. We expect the result of the study would help both academic and professionals to understand and maximize business performance of an organization by employing the appropriate resources that harness the full potential of the mCRM system.

Keywords: Mobile CRM, resource-based view, mCRM education, business performance.

Introduction

Customer relationship management is one of the most important technological contributions to organizations in 21st century (Awasthi and Sangle 2012) which helps organizations to increase their profit by knowing their customers, identifying their needs, and providing them with personalized products and services through the use of information technology. This would increase customers satisfaction and establish a stable and long-term relationship with the them through continuous communications (Hsu and Lin 2008; Park and Kim 2003; Payne and Frow 2005).

CRM would also lead to creating and retaining customers who are a critical component for any business to survive and continue in the competitive environment (Drucker 1954; Eid 2007; Hsu and Lin 2008). Previous studies have shown that the cost of retaining existing customers greatly exceeds the cost of creating new customers. They have shown that a 5% increase in customer retention can lead to 75% increase in the value of the customer and 20% to 100% rise in corporate profits (Reichheld and Teal 2001; Reichheld et al. 2000).

Recent technological advancements have had an immense impact on business environments (Alawairdhi et al. 2008). Mobile channels have significantly transformed the ways organizations interact with their customers and employees (Reinhold and Alt 2009). Mobile devices and telecommunication technology have enabled many people to work while on move. This has created the need for many companies to add mobility features to their existing information systems (including CRM) in order to enable their employees and managers access the customers data through mobile devices while mobile (Ranjan and Bhatnagar 2009). A recent report shows that at the end of 2010 about 80% of Fortune 500 companies are considering to leverage mobile devices into their business (Dickie 2011). The proliferation of mobile devices has also increased customers' accessibility and has facilitated communication with them (Hsu and Lin 2008). Many companies find the use of mobile channels as an opportunity to increase their customers' satisfaction by improving their CRM process and offering value added services such as location-based services and various information services (Hsu and Lin 2008).

Ubiquitous technologies, location-based services, and product/service personalization are the three key trend categories that have led to the emergence of mobile CRM (mCRM) (Alawairdhi et al. 2008; Steimer and Steimer 2008; Unnithan et al. 2007). mCRM incorporate wireless technologies into the company's existing CRM system and add the mobility features, which not only allow managers and employees within an organization to work remotely, but also enable provision of various mobile value added services to the customers (Hsu and Lin 2008; Ranjan and Bhatnagar 2009). mCRM strengthens personalized communication with customers through the use of mobile channels which can promote their satisfaction and at the same time allow the organizations to send relevant communication messages only to target customers (Hsu and Lin 2008; Ranjan and Bhatnagar 2009). This saves the organization's expenses by reducing redundancies in customers' communication.

Despite the advances in CRM technologies during the last decade, about 70% of CRM projects either fail or bring no significant improvement for their organizations, which is mainly due to the lack of integration between strategic and technical aspects of the CRM (Awasthi and Sangle 2012). mCRM also brings its own challenges. For instance, it requires a robust technological infrastructure that enables managing customers' relationship on mobile channels. Its integration into the existing CRM system can also be challenging (Sinisalo et al. 2007). There are also regulatory, security and privacy issues related to mCRM programs.

Although the success and organizational benefits of CRM systems have been addressed in previous studies, special attention needs to be paid to the success of mCRM as a one-to-one marketing strategy, which has the potential to be the future of CRM (Unnithan et al. 2007). The goal of this study is to identify factors attributing to mCRM's benefits for organizations. in order to do this we propose a research model within the context of mCRM to explain how technical and organizational resources for mCRM can impact the information quality, system quality, and service quality within the organizations which can benefit the organization in terms of financial performance, productivity, and customer satisfaction. In our model, we capture mCRM's technical infrastructure, scalability and location-based service support as technical resources, mCRM knowledge and education as well as customer orientation climate and technological innovativeness as organizational resources, and information creation, integrity, availability as information quality.

The study will have several theoretical and practical implications. First, it helps organizations utilize recent technological advancement in mobile and telecommunications within their CRM systems to build or improve their competitive position .Second, it helps organizations enhance the benefits of their mCRM system through the effective use of technical and organizational resources. Third, it allows organizations to understand how technical

and organizational resources impact the information quality, system quality and service quality of mCRM system for the organization. From theoretical perspective, this study confirms the result of the previous studies that showed that sole focus on technical resources does not suffice for mCRM systems to be successful and to benefit the organizations but a combination of technical and organizational resources are required for the mCRM system to be beneficial for its respective organization.

Theoretical Background - CRM and mCRM

There is a vast variety of definitions for customer relationship management (CRM) (Payne and Frow 2005). Kutner and Cripps (1997) define CRM as data driven marketing (Kutner and Cripps 1997). Stone & Woodcock (2001) define it as methodologies and technologies and e-commerce capabilities to manage customer relationships (Stone and Woodcock 2001). Parvatiyar and Sheth (2001) view it as a strategy and process of acquiring and retaining customers (Parvatiyar and Sheth 2001); and Glazer (1997) views it as a strategic bridge between marketing and IT strategies (Glazer 1997). As we see, these definitions range from a simple application to an inter-functional strategy within a firm.

The main goal of CRM is to create customer's satisfaction, loyalty and deliver value to the customers through superior performance (Payne and Frow 2005; Xu et al. 2002). CRM is an interdisciplinary area mainly between marketing and IT (Keramati et al. 2010; Payne and Frow 2005). Some researchers classify CRM as a customer orientation strategy which is built upon the IT capabilities of the firm (Keramati et al. 2010). CRM is the reflection of the relationship between IT and marketing that was emerged in 1990's and for this reason it was mistakenly considered as a technology solution rather than a marketing strategy to build win-win bilateral relations with their customers (Eid 2007; Keramati et al. 2010; Payne and Frow 2005). Previous research has shown that CRM cannot be successful if viewed merely as a technology and even if it is successful as a technology, it will not indicate a successful strategy since narrow focus on technology cannot lead to sustained competitive advantage (Carr, 2003; Kim, Kim, & Park, 2010; Ravichandran & Lertwongsatien, 2005).

Many studies have tried to identify critical factors resulting to success/failure of CRM implementation within organizations. Kale (2004) identifies seven reasons including: sole focus on technology, inflexible business processes, inefficient change management, lack of management support, overlooking customers' needs, losing sight of customers and undervaluing data analysis (Kale 2004). In another study, Kim & Pan (2006) proposed a process model for CRM implementation in an effort to explain how interactions between various factors can affect the result. They categorized the factors into five groups including organizational, process, technology, project management, and consequences and they found that although technology is important , but it is dominated by other factors (Kim & Pan, 2006). In another study people, process, and technology defined as three components of CRM which need to be integrated for successful system implementation (Chen & Popovich, 2003). Eid (2007) proposes a generic model for CRM implementation that categorizes CRM's critical success factors for into three areas: CRM enablers, CRM effectiveness factors, and CRM success factors. The CRM enablers include strategic factors (e.g. top management support, organizational culture, CRM development strategy), tactical factors (e.g. CRM software selection, acceptance among employees, and integration with other information systems within the firm), and operational factors (e.g. implementation plan, performance metrics, personalization features). CRM effectiveness factors include relationship quality, transaction quality, and reduced costs. Finally, CRM success based on this model is defined based on customer retention (Eid 2007).

Increased need of businesses and people to work on move, widespread popularity of CRM among business executives and recent mobile technology advancements have introduced the need to add mobility features to CRM systems which ultimately has led to the evolution of mobile CRM (mCRM) (Ranjan and Bhatnagar 2009). mCRM aims at creating and retaining customers, improving value delivered to the customers, as well as their relationships with the organization which also supports mobile channels (Camponovo et al. 2005; Ranjan and Bhatnagar 2009). The mobile channels enables both business executives and customers to interact with the system which improves the effectiveness of the interactions between organization and its customers and also integrates sales, service, and marketing processes within the organization (Ranjan and Bhatnagar 2009; Sinisalo et al. 2007). mCRM has been studied within various contexts such as geographical regions (Camponovo et al. 2005; Valsecchi et al. 2007; Zheng 2011) and small-medium enterprises (Zheng 2011).

The inherent characteristic of mCRM is its mobility or in other words the medium through which users get connected to the system (Hsu and Lin 2008; Sinisalo et al. 2007). It integrates mobile technology into firm's

strategies and operations with regard to its customers (Hsu and Lin 2008). This leads to three unique characteristics to mCRM: personalization of communication, mobile interactivity, flexibility (Sinisalo et al. 2007). The mobility feature also brings its inherent challenges and limitations such as small screen size, limited bandwidth, device diversity, limited audio/video capabilities, that may confine the range of activities mCRM can provide users through mobile devices compared to personal computers (Jalassi and Enders 2006). Sinsalo et al. categorize mCRM issues and challenges into three categories: endogenous (issues associated with CRM system and customer database), exogenous (issues associated with regulatory and mobile infrastructure) and mCRM-specific issues (issues associated with technology and marketing) (Sinisalo et al. 2007).

Resource-based view

Resource-based view (RBV) of the firm explains the link between capabilities and resources within a firm and its performance (Barney 1991). It posits that firms can utilize their resources in a unique way to attain a competitive advantage and superior performance over their competitors (Wade and Hulland 2004). Researchers provide different definitions for 'resource' as a key concept of RBV. Barney (1991, 2001) defines resources as bundles of tangible and intangible assets controlled by the firm, which enable the firm to gain superior performance (Barney 1991, 2001). Other researchers have used different terminologies to refer to 'resources', such as 'assets' (Ross et al. 1996), 'competencies' (Hamel and Prahalad 1990), 'skills'(Grant 1991), 'strategic assets' (Amit and Schoemaker 1993). This makes the concept of 'resource' open to various interpretations and difficult to be clearly defined (Wade and Hulland 2004). Some researchers define resources as a mixture of tangible or intangible assets, are valuable, rare, appropriable, inimitable, non-substitutable, and non-transferable (Barney 2001; Radhakrishnan et al. 2008).

Some other researchers define resources as a combination of assets and capabilities that are available and helpful for detection and response to market opportunities or threats (Christensen and Overdorf 2000; Sanchez et al. 1996; Wade and Hulland 2004). As we can see assets and capabilities are the two concepts used within the latter definition. The difference between assets and capabilities is that assets are tangible and intangible things used in the process of creating and delivering products to the markets, while capabilities are repeatable patterns of actions that use the assets (Sanchez et al. 1996; Wade and Hulland 2004). Assets can also be used as an input or output of a process while capabilities are transforming inputs to more valuable outputs (Wade and Hulland 2004). RBV is used both within marketing and IS disciplines by linking both IT capabilities and marketing process to competitive advantage (Barney 2001). Within the information systems discipline, RBV has been used by IS researchers to evaluate strategic value of IT, to differentiate various types of information systems, to compare IS and non-IS resources, and to promote cross-functional research (Wade and Hulland 2004). RBV also provides a framework for measuring IT performance and successful IS implementation (Kim et al., 2010) including CRM systems. However, CRM literature within both IS and marketing disciplines warns against overemphasis on the technology, which is only one of the three components of competitive advantage which are business, technology and people (Kim et al., 2010).

IS success models

IS researchers have developed different of models to understand the acceptance and success of information systems. We should note that although system's acceptance is a prerequisite to system's success, it is not a sufficient condition for it (Petter et al. 2008). While Technology acceptance model (TAM), Theory of Reasoned Action (TRA), and Theory of Planned Behavior (TPB) are more focused on acceptance of information systems, DeLone and McLean (D&M) model provides a taxonomy of IS success (Petter et al. 2008). In their initial model, DeLone and McLean identified system quality, information quality, use, user satisfaction, individual impact and organizational impact as six dimensions of IS success. However, after reviewing the debates and discussions about their model, they updated their model adding 'service quality' as a new dimension of IS success to capture the service nature of the IS (Delone & Mclean, 2004), while merging 'individual impact' and 'organizational impact' dimensions as one dimension called 'net benefits'. Thus, D&M model (2003) identifies system six components of IS success: system quality, information quality, service quality, use, user satisfaction, and net benefits (Delone & McLean, 2003; Petter et al., 2008). In their model the 'system quality' refers to desired characteristics of the system (e.g. reliability, ease of use, flexibility) (Petter et al. 2008). 'Information quality' refers to desirable characteristics of system's outputs (e.g. understandability, accuracy, timeliness) (Petter et al. 2008). 'Service quality' refers to the quality of system's support by IT personnel (e.g. technical competence, responsiveness). 'Use' refers to the degree to which users utilize system's capabilities (e.g. frequency and amount of use) (Petter et al. 2008). 'User

satisfaction' refers to level of users satisfaction and 'Net benefits' refers to the balance of positive and negative impacts of the system on its stakeholders (Delone & Mclean, 2004; Petter et al., 2008). D&M success model has been widely used for measuring dimensions of IS success for various information systems (Petter et al. 2008) including e-commerce system (Delone & Mclean, 2004). A combination of RBV and D&M model have also been studied for Knowledge management systems (Chen, 2009; Khalifa, Yu, & Shen, 2008).

Research Model and Hypotheses Development

In order to address the organizational benefits of mobile CRM, we need to identify not only success factors of mCRM, but also we need to take into account the resources that can support these success factors within the organization. DeLone's and McLean's IS success model is one of the widely accepted models for information systems. We believe this model can establish a robust foundation to influence the organizational benefits of mobile CRM systems and explain their impacts on business performance. That is why we are using D&M model as a basis of our research model in this study. However, D&M model does not link information systems success factors to resources within the organization. In order to identify these resources and link them with organizational benefits of mCRM, we need to have a look at resource-based view of the firm. To date, RBV has proved to be a suitable framework that links the resources in a firm with the performance and competitive position of the firm among its competitors. This enables us to use the RBV approach in identifying and categorizing firm's resources as part of our proposed model in order to link it with the impact of mobile CRM on organizational performance. Combining RBV and D&M model, we propose a research model shown in Figure 1.
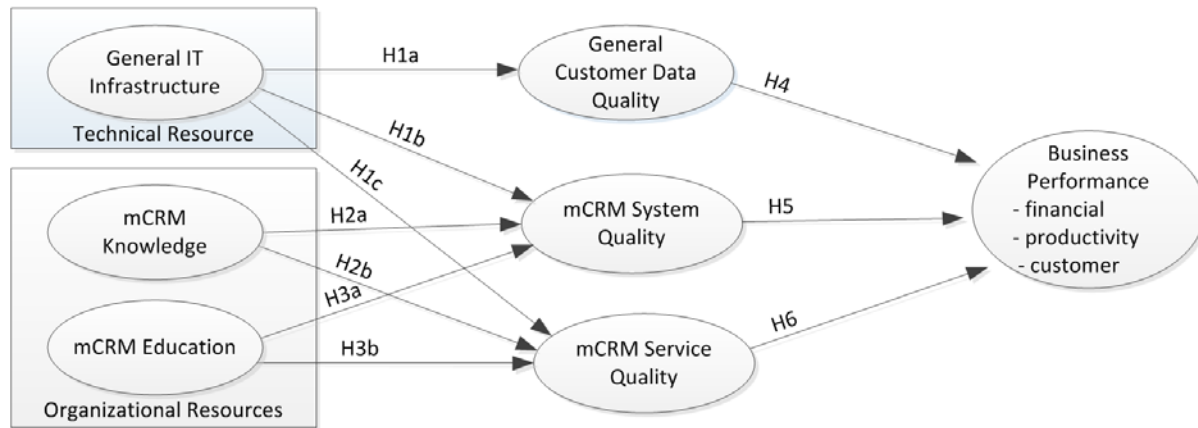

Figure 1: Research Model

Impact of resources on data, system, and service quality

RBV, for several reasons, is a suitable theoretical framework for the context of CRM and IT. First, RBV has important implications for both marketing and information systems disciplines in which CRM is mainly grounded (Barney 1995; Keramati et al. 2010). Second, human resource, business process and technology are the three categories of resources and capabilities for a successful CRM, which are all addressed by RBV (Keramati et al., 2010; Kim et al., 2010; Mata et al., 1995). Finally, both RBV and CRM aim at creating superior value for both the firm and its customers (Barney 1995; Keramati et al. 2010; Payne and Frow 2005).

Many studies have linked CRM to firm performance (Coltman 2007; Greve and Albers 2006; Izquierdo et al. 2005; LiebachLuneborg 2003; Reinartz et al. 2004). Combining RBV's multidimensional perspective with the effect of CRM on companies' performance, we can infer that CRM resources (technological resources, infrastructural resources and HR resources) can lead to organizational performance. This complies with the CRM value generation process model proposed in previous study by Keramati et al. (Coltman et al. 2011; Keramati et al. 2010). Based on this, we categorize capabilities and resources required for successful mCRM implementation into two categories: technical resources and organizational resources.

The general IT infrastructure of a company is a technical resource that is associated with technical aspects of the system. Based on RBV, we can consider technical resources as a subset of resources within an organization that can contribute to organizational performance.

Based on RBV, firm's resources can be source of superior performance for the firm. Thus, we can infer that mCRM resources also benefit the organization by enhancing organization's performance. This combined with the three types of quality (information quality, system quality, and service quality) that D&M model propose as antecedents of systems net benefits for its stakeholders allow us to hypothesize that general IT infrastructure influence the business performance of the organization through the mediating effect of data quality, system quality, and service quality. Thus, we posit the following hypotheses:

H1a: General IT infrastructure will positively affect general customer data quality.
H1b: General IT infrastructure will positively affect system quality of mCRM.
H1c: General IT infrastructure will positively affect service quality of mCRM.

Knowledge within an organization can also be part its resources that can support its strategy and build its competitive advantage. Employee's knowledge is an organizational resource that can influence the business performance of the organization. CRM systems facilitate building long-term relations with customers by enabling sales force automation, and providing centralized customer data warehouse. This minimizes data duplication, retains customers knowledge, institutionalizes customer relationships, helps managing multiple products or services, and increases revenue by enabling the firm to cross-sell its products or services (Hendricks et al. 2007). Thus, employees' knowledge of mCRM, as a subset of CRM that incorporates mobile functionalities, can affect business performance of the organization through their influence on mCRM's system and service quality. Combining mCRM organizational resources from RBV with D&M model, we can hypothesize that:

H2a: mCRM knowledge will positively affect system quality of mCRM.
H2b: mCRM knowledge will positively affect service quality of mCRM.

Education and training of employees in an organization enable them to utilize the information systems within the organization more efficiently. This will result in an increase in their productivity as well as their work quality. Within the context of our study, training and education on mCRM systems, not only informs employees about the various functionalities made available by the system, it will also enable them use those system functionalities more effectively. The benefits of a mCRM system for the organization can be unleashed through the quality of the mCRM system as well as quality of the service that mCRM system provisions. However, such increase in system and service quality cannot be achieved without effective and efficient use of the system by the end users (in our case employees that use mCRM in their organization) who are the antecedents for the quality of service delivered by the system as well as the overall system's quality. That is why many organizations invest thousands of dollars on their employees' training and education in order to enable them fully utilize the power of their information systems as well as improve the quality of their systems. This is also true in the context of CRM. Employees' education on mCRM technology, operations, and management will affect the quality of mCRM system as well as the quality of the service provided by mCRM system. That is why we posit that:

H3a: mCRM education will positively affect system quality of mCRM.
H3b: mCRM education will positively affect service quality of mCRM.

Impact of information, system, and service quality on organizational benefits

D&M model proposes three types of quality (information quality, system quality, and service quality) that derive information system's use and users' satisfaction, which would ultimately affect the benefits of the system both at individual and organizational levels. That is why in the latest version of their model they merged the individual impacts with the organizational impacts into 'net benefits', defining it as the summation of system's impact on its stakeholders including users and the organization. In our model, we focus on the organizational aspect of 'net benefits' in D&M model. That is why in our model we name it as 'organizational benefits'.

Information is a source of power and is one of the resources that can highly influence the firm's performance. In-time access to accurate information is one of the factors that can help organizations outperform their competitors. Customer data is critical for mCRM systems because customers are a crucial determinant of an organization's profitability and competitiveness. It is critical for any organization to do its best to manage its customers' data by ensuring its accuracy, integrity, accessibility, and availability. It is also important for the organization to be able to

process its customer data in order to keep its customer information updated. Data processing capability also enables the organization to identify recent trends and changes within its market and thus address it at the right time. In D&M model, the information quality is also one of the factors that affects the 'net benefits' of the system. Thus, we posit that:

H4: General customer data quality will positively affect business performance.

mCRM system should not be a stand-alone system in the organization. It should be compatible with IT infrastructure of the organization. mCRM system should also able to interact with other systems and be integrated with other enterprise systems, in order to have maximum benefit for the organization. In this study, we categorize these properties as mCRM system quality and we posit that the system quality can affect the organizational benefits of the system. The system quality is also one of the three quality dimensions that influence the benefits of the system for the organization in D&M model.

H5: mCRM system quality will positively affect business performance.

The users of mCRM system are not limited to the employees of the organization. Customers are also the users and stakeholders of mCRM system. This makes the system even more important in terms of the quality of service it provides to its users. The quality of service of mCRM system, affects the organization benefits through its impact on customers satisfaction. mCRM systems can also influence the customer retention through the quality of personalized services they provide the customers with. This allows us to hypothesize that the service quality of mCRM can also affect the organizational benefits of the system.

H6: mCRM service quality will positively affect business performance.

Methodology

In order to validate our research model, we developed a survey and distributed it to business professionals in various companies that have adopted mCRM. The sampled companies will differ in terms of number of employees, financial turnover, and industry in order to minimize the sampling bias and increase the generalizability of the study. The survey items are adapted from existing measures. We modified the items to make sure that it fits the context of our study. Appendix 1 shows the survey instrument items developed for the study.

We categorized the survey items into five groups: Technical resources, organizational resources, data quality, system quality, service quality, and business performance. Survey items associated with technical resources measure the general IT infrastructure of the organization. The survey items associated with organizational resources measure mCRM knowledge, and mCRM education of the employees in the organization. Items associated with data quality measure general customer data quality of the organization. System quality items measure availability and scalability of mCRM system. Service quality items measure the quality of the service provided by mCRM system, and the degree to which the system meets the customer needs and requirements. Finally, the survey items associated with business performance measure the impact of mCRM system on the profitability, productivity, customer satisfaction of the organization.

Expected results and contribution

In terms of academic contribution, we expect our study to provide an in-depth understanding of how various organizational resources along with technical resources of an organization can benefit the organization through their impact on mobile CRM. We also expect that the result of our study confirm those of previous studies that mere focus on technical resources does not guarantee mCRM's success in organizations. In terms of practical contributions, we expect that the results of our study would help practitioners and business professionals to identify and employ resources within the organization to that helps them maximize the organizational benefits of the mCRM system.

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APPENDIX 1: Survey instrument

Category	Construct	Measurement item
Technical Resource	General IT Infrastructure	1. Our company has been built mobile infrastructure to support its staff/representatives for their self-service. 2. Our company's technical infrastructure to support mCRM is excellent. 3. All functional systems (i.e., marketing, sales, customer service, etc.) of our company are well integrated. 4. Our company has excellent customer value analysis systems (e.g., DW, Data Mining, OLAP, BI, etc.) 5. Our company has excellent level of customer database by utilizing the customer value analysis systems. 6. Our company has excellent level of customer segmentation data by utilizing the customer value analysis systems. 7. Our company can identify valuable customers by utilizing by utilizing the customer value analysis systems.
Organizational Resources	mCRM knowledge	1. Our company has the high degree of knowledge on general mCRM. 2. Our company has the high degree of knowledge on mCRM technology. 3. Compared to our competitors, our company has the high degree of knowledge on mCRM.
Organizational Resources	mCRM Education	1. Our company provides the appropriate level of education on general M-CRM. 2. Our company provides the appropriate level of education on M-CRM management. 3. Our company provides the appropriate level of education on M-CRM operations. 4. Our company provides the appropriate level of education on M-CRM technology.
Data Quality	General Customer Data Quality	1. Customer data of each department in our company has been well managed. 2. Customer data in our company has been well managed by contacting each customer. 3. The standardization of customer data in our company has been well established. 4. Our company has kept real time updating customer data. 5. The customer data of our company's mCRM system is well integrated.
System Quality	System availability	1. Using the mCRM system of our company, we can retrieve real-time information. 2. Using the mCRM system of our company, we can access information at any time. 3. Using the mCRM system of our company, we can instantly access information at any place. 4. Using a mobile device, we can always use our company's mCRM system.
System Quality	Scalability	1. The mCRM system of our company has hardware scalability. 2. The mCRM system of our company has database scalability. 3. The mCRM system of our company has network scalability. 4. The mCRM system of our company has software version-up scalability. 5. Our company's mCRM system has upgradeability and expandability.

	mCRM Service Quality	1. The mCRM system of our company provides services that meet customer needs. 2. The mCRM system of our company provides customers special service that they feel they are treated well. 3. The mCRM system of our company provides useful information to customers on time. 4. The mCRM system of our company provides services based on the latest customer information. 5. Our company's mCRM system is well implemented. 6. The M-CRM system of our company provides friendly and appropriate services.
Business Performance	Financial	6. As a result of mCRM, the profitability of our company has improved. 7. As a result of mCRM, the marketing and operating costs of our company have been reduced.
	Productivity	8. The productivity of our company's employee has been improved. 9. The total work process time of our company has been decreased.
	Customers	10. The customer satisfaction of our company has been improved. 11. The customer service of our company has been improved. 12. The understating of customer needs of our company has been improved.