

Service Satisfaction, Information Trust and e-CRM Performance in BSC model in the empirics of Financial Institutions

Majidul Islam and Yi-Feng Yang

Our study used e-Customer Relationship Management (e-CRM) to measure Kaplan & Norton's (2001) balanced scorecard (BSC) performance based on their suggested marketing relationship value such as customer loyalty, internal process efficiency, channel management, and innovation, which closely ties into the core of this study of e-CRM performance. The objective of this study is to achieve a better understanding of an e-CRM phenomenon for measuring BSC performance, namely the mediation effect of marketing interaction relationship on its e-CRM process to performance. A total of 400 questionnaires were distributed in the summer of 2006 to four Taiwanese banks which have applied the e-CRM system to their customer service operations. Mediator hierarchical regressions were applied to analyze the data, and it was discovered that when institutions used e-CRM services with web-based applications to create and raise levels of quality service satisfaction and information trust, this resulted in improvements in customer interaction, potentially helping the institution achieve the "profit-maximizing portfolio" level. Our finding of this mediating effect in the e-CRM process extends previous insights on the leadership process to the new field of e-CRM study for measuring BSC performance.

Key Word: e-CRM, BSC Performance, Mediation Effect, Buyer-seller Relationship, Quality Service Satisfaction, and Information Trust

1. Introduction

Most empirical banking systems experience some degree of inefficiency in their business operations and performance, especially with regard to managing the quality of buyer-seller relationships and service marketing. Many studies have concluded that these arise for the following major reasons: the service is very complex and customized in the transaction process; the external environment is dynamic rather than static; and the marketing is uncertain when sellers are not sure what the service buyers want. To respond to these challenges, many studies have suggested the concept of customer relationship management (CRM). The concept of CRM is often defined as the marketing interaction relationship between buyers and sellers (Christopher, Payne, & Ballantyne, 2002; Ryals & Knox, 2001).

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Two-way marketing information exchange and communication enhances opportunities for suppliers to understand their customers and thus improve their customer relationships. In addition, CRM service improves marketing target level when this service attracts new and existing customers. Zablah, Bellenger, and Johnston (2004) suggested that CRM service should consider the customer-supplier relationship with its three ordinal procedures as “input, process, and output.” The input component of the CRM process involves tangible and intangible resources. The CRM process can be viewed as interaction management, which aspires to achieve the highest quality of interaction relationship with the exchange partners. The output component of the CRM process refers to the “profit-maximizing portfolio” of customer relationships.

Taking advantage of the revolutionary impact of the Internet, CRM, combined with web-based applications, is able to provide integrated marketing, sales, e-commerce, and customer support services to institution through a single, customized Web interface. This concept of web-based CRM applications has been defined as electronic customer relationship management (e-CRM) (Pan & Lee, 2003). E-CRM provides the capability to capture, integrate, and distribute data/information/knowledge gained from its organizational website throughout the entire institution. In addition, e-CRM enhances the integration of data/information/knowledge from e-commerce to support services in marketing and sales over a single, customized Web interface. E-CRM can achieve better understanding by using technology and web-based applications as important tools to link “front office”- sales, marketing, and customer service with “back office”- financial, operations, logistics and human resources. E-CRM expands the traditional CRM approach of technology tools, such as Internet, website, and wireless, into the e-commerce applications of the overall institution. Some advantages exist when the institution considers using an e-CRM approach to its service interaction marketing, such as quick service/response time, two-way interactive service relationships, and the ability to provide service for customers from anywhere at any time (Pan & Lee, 2003). Consistent with prior BSC studies, which include broad perspectives of financial, customer, innovation and learning, and internal business, it is a combination of people, technology, and marketing elements seeks to achieve a better understanding of the buyer-seller relationship. BSC has been evolving from advances in information technology and organizational changes in customer-focused processes of the organizations. BSC, it may be argued, is an integrated approach to deal with CRM, especially focusing on customer retention and relationship development. Thus, this paper intends to apply e-CRM performance for Measuring Kaplan & Norton’s (2001) BSC Performance

Previous studies of CRM and e-CRM (Chen & Popovich, 2003; Pan & Lee, 2003; and Zablah, et al., 2004) have contributed greatly to the development of the framework, conceptualizations, and theoretical relationships used in this paper. The literature has been able to answer questions related to these theoretical correlation relationships, as shown in **Figure 1**.

- a) There is a positive relationship between and among the variables of people and e-service quality and the intervening roles as satisfaction and trust in

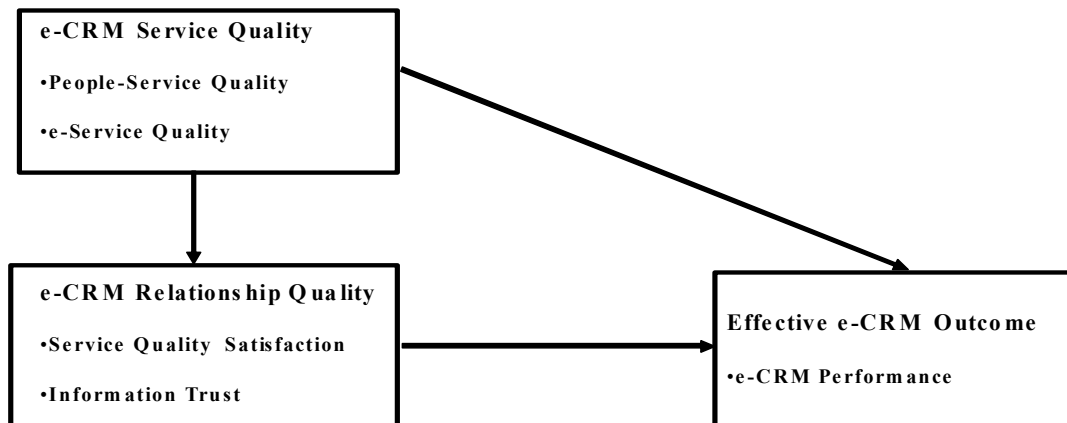
- e-CRM;
- b) There is a positive relationship between and among the intervening roles as satisfaction and trust in e-CRM and the dependent variable as e-CRM performance; and
- c) There is a positive relationship between and among the independent variables of people- and e-service quality and dependent variable as e-CRM performance.

A large part of e-CRM involves technology; however, viewing e-CRM as a technology-only solution is likely to fail (Chen & Popovich, 2003; Greenberg, 2000; Zablah, 2004). These prior studies suggest that both e-service and people-service play important roles in the e-CRM process. The services literature suggests that personal interaction plays a key part in creating satisfied customers (Crosby & Stephens, 1987; Parasuraman, Zeithaml, & Berry, 1985). Satisfaction and trust in e-CRM have been identified as important measures of relationship quality (Crosby, Evans, & Cowles, 1990) because a good buyer-seller relationship enables reductions in uncertainties caused by service failure and negative outcomes (Roloff and Miller 1987; Zeithaml 1981). These findings lead to the conclusion that institutions should enhance e-service quality for increasing people-service quality to meet the customer's expectations (satisfaction) and interests (trust) in each service interaction toward e-CRM performance that will help measure performance. There is a positive relationship between and among e- and people-service quality, satisfaction with and trust in e-CRM, and e-CRM performance.

E-CRM techniques are important for enabling institutions to respond to complex marketing changes, at least in service interaction marketing. Zablah et al. (2004) have suggested the development of conceptual models and the extension of their measurement to enable a better understanding of the natural e-CRM process. Their suggestion leads us to define e-CRM success as an institution's capability to build a "profit-maximizing portfolio" of customer relationships. In other words, this paper assumes that efficient e-CRM management is likely to enhance e-CRM success. This leads to the major research question for this study:

Research has suggested that relationship quality is one effective way to reduce the uncertainty resulting from service failure and negative outcomes (Roloff and Miller 1987; Zeithaml 1981), and enable institutions to continue reaching their customer's expectations (satisfaction) and interests (trust). Also, some studies have concluded that a successful buyer-seller interaction relationship raised levels of customer satisfaction (e.g., Crosby and Stephens 1987; Parasuraman, Zeithaml, and Berry 1985; Solomon et al. 1985). Thus, it is very important for this study to discover whether satisfaction and trust mediates the relationship between and among the independent variables of people- and e-service quality and dependent variable of e-CRM performance. In other words, we wish to discover when adding the mediating roles of satisfaction and trust into the e-CRM performance process, whether these roles will enhance the relationship between and among people- and e-service quality and e-performance.

**Figure 1.1 Mediating Effects of Service Quality Satisfaction and Information
Trust on the e-CRM Process Model**



2. Literature Reviews and Hypotheses

Kaplan & Norton (2001) present their balanced scorecard model (BSC) to measure organizational performance from the four perspectives of finance, customers, innovation and learning, and internal business. Kaplan & Norton's (2001) suggestion, with its marketing relationship value, closely ties into the core of this study of e-CRM performance of organizations. Thus considerable research suggests that the e-CRM performance in the context of measuring BSC performance could broadly include customer loyalty, internal process efficiency, channel management, and innovation.

E-CRM service is a combination of people, processes and technology and seeks to achieve a better understanding of the buyer-seller relationship. e-CRM has evolved from advances in information technology and organizational changes in customer-focused processes. E-CRM is an integrated approach to managing customer relationships, especially focusing on customer retention and relationship development. It is true that no employee can remember every customer's preferences and needs, so a large amount of information collection relies heavily on e-technology (Chen & Popovich, 2003). This means that a large percentage of customer interactions will take place over the Internet, rather than directly with employees. When an institution performs a large amount of customer service, the most e-CRM employees use electronic media to enhance the interaction with their customers. This study concludes that both people and e-service quality are major keys to predicting e-CRM performance. Technology plays an important role in enhancing e-CRM success while at the same time individual employees are necessary in order to build up e-CRM services to their customers.

One successful marketing approach has been described as customers' psychological contract toward a higher level of satisfaction and trust which enable institutions to become more profitable because they retain customers, rather building new relationships (Chen & Popovich, 2003). When an institution tries to build a new market segment, it has to face challenge and uncertainty, about things such as

customer needs, preferences, purchase behaviors, and even price sensitivity. This study concludes that the two roles, satisfaction and trust, are both mediators for predicting e-CRM performance or in other words BSC performance.

These conclusions lead to the following hypotheses as shown in Figure 1:

Hypotheses 1a: Customer quality service satisfaction will mediate the relationship between the institution people-service quality and e-CRM performance, measuring BSC performance.

Hypotheses 1b: Customer quality service satisfaction will mediate the relationship between the institution e-service quality and e-CRM performance, measuring BSC performance.

Hypotheses 2a: Customer information trust will mediate the relationship between the institution people-service quality and e-CRM performance, measuring BSC performance.

Hypotheses 2b: Customer information trust will mediate the relationship between the institution e-service quality and e-CRM performance, measuring BSC performance.

3. Methodology and Research Design

Sampling

There are four banks, which have applied e-CRM systems to their customer service in Taiwan recently: Citibank, Chinatrust, Taipei Fubon Bank, and Taiwan HSBC. Questionnaires were distributed to 400 e-CRM experienced customers of these banks in the summer of 2006. We received 75% usable responses for the study.

These four banks have acted internationally by issuing financial products such as global exquisite articles, international stock funds, and European market funds, etc. This research data-collection was designed to use these sample banks and then analyzed these to build the theoretical relationship. The research results could be highly expected toward generalization because the new extension theory could contribute and apply to the mostly banking systems. These banks also issue many diversified products, including: traditional financial merchandise such as stocks, bonds, deposits, and financial bills, etc.; popular financial merchandise such as real estate investment trusts (REITS), cash cards, and credit cards, etc.; and new financial merchandise such as high-tech industry funds, emerging market stocks, and global exquisite articles, etc. Data from these sample banks were used to show how an e-CRM service plays an important role in the marketing integration process. Specifically, e-CRM raises the level of seller-buyer transaction satisfaction when sellers/banks successfully promote their financial merchandise to buyers/customers, because sellers could use e-CRM service to understand the preferences and needs of the customers.

Statistical Analysis and Tool

Statistical tests using SPSS as a tool for data analysis included:

- 1) Correlation analysis to study the relationship between and among variables;
- 2) Multiple hierarchical regressions to test and then analyze whether trust and satisfaction mediated the relationship between and among the independent variables and the dependent variable;
- 3) Moderated multiple regression (MMR)/ moderated regression strategies to test and then analyze whether organizational support moderated the relationship between and among the independent variables, mediators, and the dependent variable;
- 4) A mediation and moderating model, approach, and application was also used in this study (Baron & Kenny, 1986; Stone-Romero & Anderson, 1994; Yousef, 2000; Parker, 2003); and
- 5) Other methods of data analysis included descriptive statistics (e.g. mean and S.D.), factor analysis, reliability analysis, and relevant charts, graphs, and tables.

Measurements, Reliability, and Validity

This section analyzed these research scales: people and e-service quality, service quality satisfaction and information trust, and e-CRM performance for measuring BSC performance. Responses were made using a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). A principal-component factor analysis (Rotated Varimax Solution) was used to ensure adequate measures of validity and reliability (Appendix 1) based on the following: 1) each scale's KMO (Kasier-Meyer-Olkin Measuring of Sampling Adequacy) exceeded Rice's (1974) recommendation level of 0.5; 2) each scale's Bartlett χ^2 was statistically significant; 3) each scale's reliability (Cronbach's α) exceeded Nunnally's (1978) recommendation level of 0.7; 4) each scale's "cumulative explained (%)" exceeded the level of 50.00 %; 5) each factor's Eigenvalue exceeded Kasier's (1974) recommended level of 1.000, and each item's factor component exceeded the level of .500.

Mean Score, Standard Deviation, Reliability, and Correlations

Table 1 shows the correlation coefficients for all variables. It also shows that the highest mean scores were on the "Information Trust" (3.3763) scale. The lowest mean score was on the "e-Service Quality" scale (3.3053). The two highest standard deviation scores are on the "People-Service Quality" scale (.3761) and "Information Trust" scale (.4082). The lowest standard deviation score was on the "e-CRM Performance" scale (.3178).

Table 1 shows the two highest reliabilities were on the "e-CRM Performance" (.8415) and "e-Service Quality" (.8422) scales. The two lowest reliabilities were on the "Quality Service Satisfaction" (.8275) and "People-Service Quality" (.8308) scales. The overall reliability alpha for this study was .8585. All reliabilities on this table exceed Nunnally's (1978) recommended level of .70.

Table 1 Overall Correlations

	Mean	S.D.	α	1	2	3	4	5
1	3.3258	.3761	.8308	1.000				
2	3.3053	.3602	.8422	.477**	1.000			
3	3.3483	.3182	.8275	.575**	.450**	1.000		
4	3.3763	.4082	.8386	.532**	.451**	.594**	1.000	
5	3.3205	.3178	.8415	.458**	.524**	.478**	.432**	1.000

**Correlation is significant at the 0.01 level (2-tailed)

1. People-Service Quality; 2. e-Service Quality; 3. Service Quality Satisfaction; 4. Information Trust; 5. e-CRM Performance

Results of Mediating Test

A hierarchical multiple regression analysis of the data and Baron & Kenny's (1986) suggestion were used for testing for mediation effects. Baron & Kenny (1986) suggested that a variable functions as a mediation when the otherwise significant effect of an independent variable is rendered non-significant after controlling for the potential mediating variable. In these hypotheses, trust and satisfaction have mediating roles.

Hypothesis 1a

From Table 2, it can be seen that the first regression analysis showed the independent variable affected the dependent variable. In other words, there was a positive and statistically significant relationship between the predictor of people-service quality and the dependent variable of e-CRM performance ($R^2 = .209^{**}$). The second regression analysis showed that there was a statistically significant relationship between quality service satisfaction and e-CRM performance ($R^2 = .228^{**}$). When people-service quality was added to the regression that already contains quality service satisfaction, the change R^2 was statistically significant ($\Delta R^2 = .050^{**}$). This can be seen as evidence that quality service satisfaction does not perfectly mediate the relationship, because in complete mediation the change in R^2 should be close to zero and be statistically significant. However, the change in R^2 is less than the R^2 initially found between "people-service quality" and "e-CRM performance" excluding "quality service satisfaction". This is evidence that the effect of "people-service quality" is partially mediated by "satisfaction with e-CRM". There is still a direct path between "people-service quality" and "e-CRM performance" with a change in R^2 of $.050^{**}$. Based on these regression analyses, therefore, this hypothesis was supported.

Hypothesis 1b

From Table 2 we can see that the first regression analysis showed the independent variable affected the dependent variable. In other words, there was a positive and statistically significant relationship between the predictor of e-service quality and the dependent variable of e-CRM performance ($R^2 = .275^{**}$). The second regression analysis showed that there was a statistically significant relationship between quality service satisfaction and e-CRM performance ($R^2 = .228^{**}$). When e-service quality was added to the regression already containing quality service satisfaction, the change in R^2 was statistically significant ($\Delta R^2 = .120^{**}$). This could be seen as evidence that satisfaction with e-CRM does not perfectly mediate the relationship, because in complete mediation the change in R^2 should be close to zero and be statistically significant. However, the change in R^2 is less than the R^2

initially found between e-Service Quality and e-CRM Performance but excluding satisfaction with e-CRM. This is evidence that the effect of e-service Quality is partially mediated by quality service satisfaction. There is still a direct path between e-service quality and e-CRM performance with a change in R^2 of .120**. Based on these regression analyses, therefore, this hypothesis was supported.

Hypothesis 2a

From Table 2 we can see that the first regression analysis showed the independent variable affected the dependent variable. In other words, there was a positive and statistically significant relationship between the predictor of people-service quality and the dependent variable of e-CRM performance ($R^2 = .209^{**}$). The second regression analysis showed that there was a statistically significant relationship between information trust in e-CRM and e-CRM performance ($R^2 = .187^{**}$). When people-service quality was added to the regression already containing information trust in e-CRM, the change in R^2 was statistically significant ($\Delta R^2 = .072^{**}$). This could be seen as evidence that trust in e-CRM does not perfectly mediate the relationship because in complete mediation the change in R^2 should be close to zero and be statistically significant. However, the change in R^2 was less than the R^2 initially found between people-service quality and e-CRM performance without including information trust in e-CRM. This is evidence that the effect of people-service quality is partially mediated by trust in e-CRM. There was still a direct path between people-service quality and e-CRM performance with a change in R^2 of .072**. Based on these regression analyses, therefore, this hypothesis was supported.

Hypothesis 2b

From Table 2 it can be seen that the first regression analysis showed the independent variable affected the dependent variable. In other words, there was a positive and statistically significant relationship between the predictor of e-service quality and the dependent variable of e-CRM performance ($R^2 = .275^{**}$). The second regression analysis showed that there was a statistically significant relationship between trust in e-CRM and e-CRM performance ($R^2 = .187^{**}$). When e-service quality was added to the regression already containing information trust in e-CRM, the change in R^2 was statistically significant ($\Delta R^2 = .136^{**}$). This can be seen as evidence that information trust in e-CRM does not perfectly mediate the relationship because in complete mediation the change in R^2 should be close to zero and be statistically significant. However, the change in R^2 was less than the R^2 initially found between e-Service Quality and e-CRM performance excluding information trust in e-CRM. This is evidence that the effect of e-service quality is partially mediated by information trust in e-CRM. There was still a direct path between e-service quality and e-CRM performance with a change in R^2 of .136**. Based on these regression analyses, therefore, this hypothesis was supported.

Table 2 Result of Mediator Multiple Regression (MMR) to Hypothesis 1a to 2b

	e-CRM Performance		
	β	R ²	ΔR^2
Step1			
Independent Variables:			
X1.1 : people-Service Quality	.458**	.209**	
X1.2 : e-Service Quality	.524**	.275**	
Step2			
Mediating Role:			
X2.1 : Satisfaction with e-CRM	.478**	.228**	
X2.2 : Trust in e-CRM	.432**	.187**	
Step3^a			
X2.1 (Satisfaction with e-CRM) & X1.1 (people-Service Quality)	.527**	.278**	.050**
X2.1 (Satisfaction with e-CRM) & X1.2 (e-Service Quality)	.590**	.348**	.120**
X2.2 (Trust in e-CRM) & X1.1 (people-Service Quality)	.509**	.259**	.072**
X2.2 (Trust in e-CRM) & X1.2 (e-Service Quality)	.568**	.323**	.136**

** sig. $\Delta F < .01$ level (2-tailed); * sig. $\Delta F < .05$ level (2-tailed); a. Independent Variables Entered after Mediating Role

4. Discussions and Conclusion

The major theoretical grounds for this study include: (a) using conceptual CRM to develop and then build the input, process, and output of e-CRM theory; (b) applying the theory of buyer-seller relationship quality to study customer quality service satisfaction and information trust; (c) using customer knowledge management as a tool to help institutions adapt to marketing needs. Among these theoretical studies, we find that when an institution uses e-CRM services with web-based applications to establish and raise levels of satisfaction and trust, this effect results in a favorable interaction relationship and thus can help the institution achieve the so-called “profit-maximizing portfolio” level. Our findings of this mediating effect in e-CRM performance, measuring BSC performance, therefore, contributes to the literature on leadership processes in the relatively new field of e-CRM study and suggests that satisfaction and trust play a potential mediating role in the transformational leadership process within the institutions. In summary, it is important for an organization to support its e-CRM marketing relationship, especially through top management’s leadership and commitment to marketing relationships (Chen & Popovich, 2003; Conger 2000).

Discussion of Mediating Roles

Many prior studies argue that the mediating effect exists in the most practical/empirical case (Bacharach, 1989; Graen, Scandura, and Graen, 1986;

Hackman & Lawler 1971; Hackman and Oldham, 1976; Johns, Xie, and Fang, 1992; Renn and Vandenberg, 1995; Tieg, Tetrick, and Fried, 1992; Renn and Vandenberg, 1995). Moreover, a mediator plays the important role to link and explain the reasonable theoretical relationship between predictor and criterion variable. Without adding a mediating role in the theoretical study, these prior researchers argue that the research findings are difficult to accurately interpenetrate its empirical phenomenon. Therefore, in the role of the critical psychological states (CPS) to the job characteristics model, for example, Hackman and colleagues (Hackman & Lawler; 1971; Hackman & Oldham, 1976; 1980) used the CPS, such as experienced meaningfulness, experienced responsibility, and knowledge of results, to provide a theoretical link between perceived job characteristics and internal work motivation. As a result, their findings have suggested that the CPS were partial mediators of most of the core job dimensions-outcomes relations.

Consistent with the prior CPS studies, our study found that service quality satisfaction and informational trust played important mediating effect on the e-CRM performance process. There four study findings were showed by the followings: 1. Service quality satisfaction plays a mediating role ($\Delta R^2 = .050^{**}$) to partially mediate the relationship between the institution people-service quality and e-CRM performance; 2. Service quality satisfaction plays a mediating role ($\Delta R^2 = .120^{**}$) to partially mediate the relationship between the institution e-service quality and e-CRM performance; 3. Information trust plays a mediating role ($\Delta R^2 = .072^{**}$) to partially mediate the relationship between the institution people-service quality and e-CRM performance; 4. Information trust plays a mediating role ($\Delta R^2 = .136^{**}$) to partially mediate the relationship between and among the institution e-service quality and e-CRM performance.

Using the prior study suggestion to adding these two mediating roles in the e-CRM theoretical study, our research finds could accurately interpenetrate the empirical e-CRM phenomenon. These two mediating roles explain that when institution used e-CRM services with web-based application to create and raise the levels of service quality satisfaction and informational trust, this effect resulted in the favorable customer interaction relationship and thus could help the institution achieve toward the so-called “profit-maximizing portfolio” level.

The Refinement of e-CRM Process Model

Through the empirical study, our refinement of e-CRM process model, as shown in Figure 5.1, has been better understanding of e-CRM study which uncovered the integration of customer and institute relationships by Zablah's et al. (2004) conceptual suggestion to the three ordinal procedures as “input, process, and output” in that study. Consistent with their conceptual suggestion to the first ordinal procedure “input” of e-CRM process, our empirical study used people- and e-service quality as independent variables because these two roles plays an important key in creating satisfied customers (Crosby & Stephens, 1987; Parasuraman, Zeithaml, & Berry, 1985). Based on Zablah's idea to the second ordinal procedure “process” in the e-CRM study, our study applied the two potential mediators into this research such as service quality satisfaction and information trust because these two could be viewed as interaction relationship that customers derived value from building that

interaction relationship with their exchange institutions. Also, the satisfaction and trust in e-CRM has been concluded as measuring quality relationship (Crosby, Evans, & Cowles, 1990) because a good buyer-seller quality relationship enables to reduce its result of uncertainty of service failure and negative outcomes (Roloff and Miller, 1987; Zeithaml, 1981). Finally, based on the last ordinal procedure “output” in e-CRM study referring to a “profit-maximizing portfolio” of customer relationships, our study used e-CRM performance to measure Kaplan & Norton’s (2001) balanced scorecard (BSC) performance with its marketing relationship value such as customer loyalty, internal process efficiency, channel management, and innovation, which, of course, closely ties into the core of this study of e-CRM performance.

Figure 5.1 The Refinement of e-CRM Process Model: the Mediating Effects of Service Quality Satisfaction and Information Trust on the e-CRM Process Model



Recommendations

For Academics to Literature Extension

Regarding transformational leadership characteristics, many researchers conclude that the leaders will lead followers to perform beyond the level of expectations if followers feel trust, admiration, loyalty, and respect for the leaders (Bass, 1985; Burns, 1978; Bycio, Hackett, & Allen, 1995; Organ, 1988; Podsakoff & Mackenzie, 1990; Yukl, 1998a). Prior researches have suggested that satisfaction and trust play the primary potential mediations in the transformational leadership process (Bass, 1985; Bennis & Nanus, 1985; House 1977; Kouzes & Posner, 1987; Organ, 1988a, 1988b, in press; Podsakoff & Mackenzie, 1990, 1997; Yukl, 1998a, 1998b). The insight of transformational leadership studies concluded that “transform or change the basic values, beliefs, and attitudes of followers” only when the followers trusted, satisfied, and respected for the leader. This study used the major theory grounds to contribute the literature extension from the leadership to e-CRM study. These major theory grounds include: Zablah et al.’s (2004) suggestion to develop the conceptual e-CRM model and then test the input, process, and output of e-CRM theory; Roloff and Miller (1987) and Zeithaml’s (1981) suggestion by the theory of buyer-seller relationship quality to investigate the customer satisfaction with and trust in e-CRM marketing relationship by Baron &

Kenny's (1986) statistical mediation test; e-CRM performance for measuring Kaplan and Norton's (2001) BSC performance to this study. Our research findings to the mediating effect on e-CRM process such as service quality satisfaction and information trust; therefore, contributes the literature extension from the previous insight of leadership process to the new known field of e-CRM study.

For Managerial Implementation

It should increase e-CRM performance that would help measure BSC performance, when institute was able to develop and maintain an interaction relationship with their customers. According to Table 4.2 "mediator multiple regression," the empirical data showed that when adding the mediating roles as service quality satisfaction and information trust into the e-CRM performance process, these roles could enhance the relationship between and among people- and e-service quality and e-performance. Thus, one mediating role such as service quality satisfaction should cover by the following essentials: informing customers about their right and obligation, providing customers about relevant product information, and giving customer personal consideration, ensuring ATMs transaction safety and customer service line available, and satisfying with handling customer complaints. Another mediating role such as information trust should cover by the following essentials: providing product information trust, reliability, and belief, encouraging institute information and knowledge share, and cultivating employee information value.

According to Table 4.1 "overall correlations," the empirical data showed there was a positive relationship between and among institution people- and e-service quality and service quality satisfaction and information trust. For rising the level of service quality satisfaction to customer wants, a bank institution should consider efficiency response time to customer need, give marketing segment service, enhance marketing promotion, help customers search overall product/service information, be able to deal with customer complaints, assist customer decision-making, and give employees training to be better service capability. For raising the level of information trust to customer needs, a bank institution should provide online safety service, provide right and completed information to customer want, and internal and external system integration.

Conclusion

E-CRM is a business process and is contingent rely on an institution's ability to aware and respond to customer need and preferences. Institutions should keep on accessing customer relationships based on their relative lifetime profitability. Institutions also should be customer-oriented and driven by an understanding of customers' change need. E-CRM performance for measuring BSC performance requires a long-term and profitable relationship, and institutions are able to continuously adapt their behavior towards individual customers. To build customer knowledge and manager interactions, the technology is important because it is used to coordinate sales, marketing, and service information systems to build partnership with customers (Shoemaker, 2001).

The research findings of this study suggest that the two mediating roles such as service quality satisfaction and information trust will likely apply in a general bank industry to increase its e-CRM performance for measuring BSC performance. If a bank institute raises both people- and e-service quality, then these two higher levels of

service qualities will enhance the buy-seller relationships such as service quality satisfaction and information trust. When the level of buy-seller relationships are raised by the bank institute's operation, the level of e-CRM performance such as customer loyalty, internal process efficiency, channel management, and innovation will increase.

5. Limitations

With regard to threats to external validity, our research design allowed for data collection from only four representative banks in Taiwan, 2006. Even though it would be beneficial to enhance this data by studying more e-CRM service banks in the future, we believe our current research still achieved satisfactory levels of accuracy and precision, because these four banks have obviously applied the e-CRM system to customer service marketing and because the research sample size was 300, thus exceeding Flower's (1984) recommended level of 200. Data collection by post/ mail may result in a low response rate because participants may ignore, forget, or mislay the questionnaires, may be too busy to complete the questionnaire, or may not be interested in answering the questionnaire. To avoid a low response rate, all questionnaires were distributed and then collected immediately after completion. Because the length of the questionnaire (seventy-six questions) may have introduced a problems of "time stress", we did not collect information about demographic variables, such as gender, age, and education background, etc. In addition, each participant was given time to complete the questionnaire.

Suggestions for Future Studies

A contingency/ situational factor is a variable which moderates the relationship between two other variables such as the predictor and criterion variable (Farh, et al., 1987; House & Mitchell, 1974; Podsakoff, et al., 1995). In this study we did not find statistical significance to support the hypothesis that organizational support for e-CRM marketing relationships moderates the relationships between and among satisfaction and trust and e-CRM performance. However, according to Howell et al.'s (1986) mediation-moderator argument, which suggests that some mediating roles could be critical as moderators in the causal process, there is a very strong need for future studies to propose and then study whether both satisfaction and trust exhibit moderating roles in the e-CRM service process.

Prior research has suggested a positive relationship between customer knowledge management and new product development (Griffin & Hauser, 1992, 1996; Nonaka, 1994; Song et al., 2000) because marketing knowledge shared through buyer-seller interaction and communication activities could lead to better transaction/exchange between the seller's new product development and buyers' preferences (Nonaka, 1994; Nonaka & Takuichi, 1995). That is to say, knowledge management can be regarded as a knowledge sharing process and as an exchange process to enable the gathering and sharing of knowledge by both buyers and sellers. Prior research has also suggested that the efficiency of knowledge sharing is determined by individuals' intentions to either share or hoard knowledge among cross-functional employees and units (Coombs Jr. & Gomez-Mejia, 1991; Sarin & Mahajan, 2001). We therefore suggest that future studies may develop the theoretical relationships on how to achieve efficiency of knowledge sharing among cross-functional employees and units.

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Appendix 1.

Factor Analysis to all Variables

1.1 Employee-Service Quality

Factors/ Items were derived from: DeLone & McLean (1992) and Zmud (1978)

Factor 1	Loading	Factor 2	Loading
· Speed to service	.722	· Providing right information	.597
· Efficiency to service	.791	· Providing believable information	.772
· Waiting time to service	.749	· Providing completed information	.780
Factor 3	Loading	Factor 4	Loading
· Accuracy service to customer need	.700	· Employee service training	.788
· Efficiency service to deal with complaint	.637	· Employee service capability trust	.762
· Overall service to support internal need	.723		

Factor 1: Employee Response Time; **Factor 2:** Employee Service to Information Support; **Factor 3:** Personnel Asset; **Factor 4:** Employee Capability; Overall $\alpha=.7284$; Cumulative explained (%) = 59.027; KMO=.750; Bartlett $\chi^2=504.227^{**}$; Overall Eigenvalue >1; ****Sig.** = .000

1.2 e-Service Quality

Factors/ Items were derived from: Byrd & Turner (2000), Kim et al. (2003), Weill & Vitale (2002), Pan & Lee (2003), Hart & Dohert (2000), Plakoyiannaki & Tzokas (2002), and Storey (2000)

Factor 1	Loading	Factor 2	Loading
· Website service	.761	· Searching potential customer	.624
· Online safety service	.757	· Assisting decision-making	.656
· Marketing segment service	.480	· Enhancing marketing promotion	.520
		· Searching overall service information	.549
Factor 3	Loading	Factor 4	Loading
· Internal and external system integration	.825	· Searching customer information	.548
· Access integration	.818	· Storing customer information	.798
		· Analyzing customer information	.606

Factor 1: Internet Service; **Factor 2:** Marketing Information Integration; **Factor 3:** Technology Integration; **Factor 4:** Data Integration; Overall $\alpha=.7019$; Cumulative explained (%) = 53.131; KMO=.754; Bartlett $\chi^2=436.275^{**}$; Overall Eigenvalue >1; ****Sig.** = .000

1.3 Service Quality Satisfaction

Factors/ Items were derived from: Fornell's, et al. (1996) American Customer Satisfaction Index (ASCI); Brussels & Belgium's (1999) European Customer Satisfaction Index (ESCI); Fornell's (1992) Customer Satisfaction Barometer (CSB); and Parasuraman's et. al (1988, 1991) Service Quality (SERVQUAL)

Factor 1	Loading	Factor 2	Loading
· Informing about customer rights and obligations	.593	· ATMs transaction safety	.658
· Providing information about relevant products	.612	· Customer service line available	.621
· Social obligations	.618	· Overall satisfaction with products and service	.645
· Institute trust	.502	· Satisfaction with handling of customer complaints	.535
· Customer consideration	.652		
Factor 3	Loading	Factor 4	Loading
· Institute professional service	.804	· First option to the institute	.591
· Institute problem solution	.824	· Recommendations to the institute	.544
		· Repurchase intention	.600
		· Willingness to choose the institute	.600
		· Intercourse with the institute	.643
Factor 5	Loading		
· Response while complaining	.789		
· Continue to intercourse with the institute	.676		

Factor 1: Perceived Quality; **Factor 2:** Quality Satisfaction; **Factor 3:** Professional Satisfaction; **Factor 4:** Customer Support; **Factor 5:** Interaction Communication; Overall $\alpha=.7245$; Cumulative explained (%) = 50.444; KMO=.734; Bartlett $\chi^2=814.782^{**}$; Overall Eigenvalue >1; **Sig. = .000

1.4 Information Trust

Factors/ Items were derived from: Ganesan (1994), McCauley & Kuhnert (1992), Doney & Canon (1997), Crosby et al. (1990), Lewis & Weigert (1985), and Crosby et al.(1990)

Factor 1	Loading	Factor 2	Loading
· Product information trust	.689	· Institute information belief	.575
· Product information reliability	.796	· Institute information reference	.512
· Product information belief	.787	· Institute information sharing	.769
		· Institute knowledge sharing	.684
Factor 3	Loading		
· Employee information value	.511		
· Employee information viewpoint	.809		
· Employee information assistant	.657		

Factor 1: Institute Information Trust; **Factor 2:** Institute Trust; **Factor 3:** Institute Employee Trust; Overall $\alpha=.7284$; Cumulative explained (%) = 53.589; KMO=.788; Bartlett $\chi^2=497.536^{**}$; Overall Eigenvalue >1; **Sig. = .000

1.5 e-CRM Performance

Factors/ Items were derived from: Kim et al. (2003), Gunasekaran et al. (2001), Juhl et al. (2002), Kim et al. (2003), Kaplan & Norton (1992, 2001), Peppard (2000), and Sivakumar (2002)

Factor 1	Loading	Factor 2	Loading
· Purchase of relevant product/service	.622	· Provision of channel interaction	.583
· Recommendation from old customer to new customer	.766	· Customer information consistency	.662
· Provision of new product/service	.659	· Provision of channel communication	.546
· Creation of new patent	.430	· Dealing with channel conflict	
Factor 3	Loading	Factor 4	Loading
· Less time to respond	.745	· Customer continuance commitment	.672
· More efficiency in response	.761	· Customer repurchase	.802
Factor 5	Loading		
· Fit to reasonable need	.635		
· Provision of service in time	.786		

Factor 1: Innovation; **Factor 2:** Channel Management; **Factor 3:** Response to Customer; **Factor 4:** Customer Loyalty; **Factor 5:** Internal Process Efficiency; Overall $\alpha=.7098$; Cumulative explained (%) = 54.336; KMO=.747; Bartlett $\chi^2=468.192^{**}$; Overall Eigenvalue >1; **Sig. = .000