

# AN EXPLORATORY STUDY OF A CRM EFFECTIVENESS CONSTRUCT

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## ABSTRACT

In spite of the enormous information technology (IT) investments that have been and are expected to be made to customer relationship management (CRM), customer satisfaction appears unchanged. This suggests that factors other than those related to IT performance determine CRM effectiveness. This study proposes and develops a CRM effectiveness construct comprised of three dimensions: IT performance, relationship marketing (RM) performance and organizational climate. The results of an empirical analysis support these dimensions. The construct provides an operational definition of CRM effectiveness.

**KEYWORDS:** Customer relationship management, information technology, relationship marketing, organizational climate

## INTRODUCTION

The recent phenomenal growth in global commerce has opened many new opportunities for businesses. Forecasts for 2005 place total electronic commerce (e-commerce) revenues between US\$2.2 and \$5 trillion (Killen & Associates, 2001; ZDNet, 2001), and the number of users beyond 1 billion. Much of this growth can be attributed to the continual advances in information technology (IT). Yet, as opportunities abound, greater competitive challenges face businesses, namely in their ability to distinguish themselves with products and services that closely match their customers' needs and expectations. Additionally, a business can secure a strong competitive advantage with offerings that its competitors cannot easily imitate, duplicate or substitute.

Recently, many businesses have turned to customer relationship management (CRM) to gain a better understand of and consequently satisfy their customers through developing and maintaining one-to-one relationships with them. During 2002, businesses worldwide invested US\$2.3 billion in CRM technology, including software and technology services (Computer Weekly, 2003), to pursue these relationships, and their investments are predicted to more than quadruple to \$10.8 billion in 2004, up \$1 billion from 2003 (AMR Research, 2004). However, the paradox lies in an apparent disjointed relationship between CRM investments

and customer satisfaction. Between the first and fourth quarters of 2002 and 2003, the American Customer Satisfaction Index (ACSI) score, reflecting 38 industries across 9 sectors of the economy, rose only from 73.0 to 74.0 (72.1 for the first quarter of 1999). It appears customer satisfaction may not accurately gauge CRM effectiveness. Thus, *does achieving CRM effectiveness go beyond investments in IT?* Factors other than those related to IT may influence CRM performance and effectiveness, and should be identified and examined.

The purpose of this study is to propose a CRM effectiveness construct comprised of three dimensions: IT performance, relationship marketing (RM) performance and organizational climate. IT enables many aspects of CRM through both automation and intelligence. It provides an infrastructure that allows a business to orchestrate its activities, gather, retain and analyze massive amounts of data to discover invaluable information to pursue innovative endeavors and form effective responsive actions, and create and disseminate its knowledge throughout the organization. RM directs the application of this knowledge and the business' organizational activities toward the purpose of attracting and retaining customers through satisfaction and innovative offerings. The organizational climate embodies the organization's culture, values and norms with respect to its practices and management style, and sets the tone of the environment for shaping member behavior. While IT focuses on technology and RM provides the paradigm, organizational climate represents the human aspect of CRM. Given these three dimensions, the construct may better explain and describe CRM effectiveness. From a practical perspective, a less abstract definition of CRM effectiveness will provide businesses a more tangible target. This study involves the development of a survey instrument and the analysis of empirical data to explore the construct.

## **BACKGROUND**

### CRM Effectiveness

CRM involves IT-enabled business processes that focus the business' competencies on forging long-term customer relationships and delivering superior value to them (Plakoyiannaki and Tzokas, 2002). It incorporates the organization's leadership, management and culture to shape a customer-centric business philosophy (Thompson, 2001) that seeks to understand and influence customer behavior through meaningful two-way communication, and improve customer acquisition, retention, loyalty and profitability over time (Day, 2000; Kohli et al., 2001; Peppers et al., 1999; Swift, 2001). In addition to creating greater customer value with the right products and services delivered at the right time and place through the right channels, CRM helps tune the business to its customers' needs and expectations to ensure the longevity of their relationships. Thus, CRM not only focuses the business on retaining customers, it also helps distinguish and position the business in the field of competitors through an intimate understanding of their customers' buying behavior and patterns.

Although acquiring new customers plays a major role in expanding the customer base, retaining existing customers and building their loyalty leads to increased profitability. A 1999 McKinsey study strongly suggests that repeat customer can generate over twice the gross income as new customers (Winer, 2001). Similarly, a 5 percent increase in the customer retention rate often results in increases between 35 to 95 percent to the average customer lifetime value (i.e., net present value of a customer) (Reichheld and Sasser, 1990). Based on annual surveys conducted by the University of Michigan, the American Society of Quality and Arthur Anderson, a one-point increase in a business' customer satisfaction index corresponds to an average \$240 million increase in market (equity) value (Sweet and Hibbard, 1999).

Thus, it behooves a business to invest in the development of its customer relationships through such means as loyalty and satisfaction (Kohli et al., 2001) since the greatest leverage comes from investments in retention rather than the generation of new customers (Winer, 2001). When successful, these investments also lock-in customers by increasing their switching costs through added value and trust (Walsh and Godfrey, 2000).

This study defines CRM effectiveness as a CRM implementation's ability to mediate organizational factors and influence the achievements of results (i.e., customer retention, satisfaction, acquisition, etc.), and a means to judge its (CRM's) contribution to the business' marketing goals and objectives. It can be viewed as an abstract representation of a phenomenon since it occurs when other activities, circumstances and events are present. Although frequently viewed as a successful application of IT, CRM goes beyond this and draws upon three organizational factors: IT performance, RM performance and organizational climate. As with the assessment of other systems, effectiveness requires elements that interact with the environment (i.e., front-end), lend operational and management support (i.e., back-end), and integrate and enable (i.e., infrastructure). Because these three components are inherent to CRM effectiveness, they are viewed as its dimensions.

### IT Performance

CRM draws upon IT to enable and enhance its performance capabilities. As an enterprise-wide system, CRM depends on the integration of technologies (Bose, 2002). Therefore, underlying these capabilities are the business' IT architecture and infrastructure. The architecture defines a master plan of the technologies, the arrangement of these technologies and the resources the business has chosen to commit to support its business activities and organizational goals and objectives. Various aspects of the architecture, such as databases, telecommunications, inter/intra/extranet and information systems, become IT resources as they are leveraged (directly and indirectly) for profitable gains. Organizationally, the architecture involves enabling various functions and capabilities, including the automation and computerization of tasks, integration of operations through the timely transfer and sharing of information, analytical tools and capabilities, dissemination of knowledge to benefit everyone within the organization and in some cases with business partners, the application of knowledge that embodies an understanding of customer needs and expectations, and internal and external accessibility to information and resources.

In contrast, the infrastructure ensures access to and the delivery of IT resources. It typically consists of a technical and human IT infrastructure (Henderson and Venkatraman, 1994). Duncan (1995) views the technical IT infrastructure as a set of tangible, shared, physical IT resources, including hardware and operating systems, network and telecommunications technologies, data, and core software applications. The technical IT infrastructure should integrate and interconnect the organization in such a way to efficiently and effortlessly route information through its telecommunication network (Rockart et al., 1996).

The human IT infrastructure addresses the necessary individual skills and knowledge required to develop, maintain, manipulate and support end-users in their abilities to leverage the technical infrastructure. Osterman (1995) discusses the importance of developing and acquiring individual skills and roles to enable an organization's investments in IT. Without an adequate human IT infrastructure, the organization will realize very few benefits from its technical infrastructure and investments. The IT infrastructure ensures the timely flow of data and information into and throughout the organization.

Applegate et al. (1996) and Swift (2001) suggest that IT plays a major role in relationship marketing and operational performance. Given a business' expectations of CRM, IT performance provides a measure of the overall capacities IT offers to enable and enhance CRM. When lacking, CRM will be less effective. Therefore, IT performance represents a vital dimension of CRM effectiveness.

### Relationship Marketing (RM) Performance

CRM embodies the concepts of RM, an emerging marketing paradigm that centers on identifying, maintaining and enhancing customer and stakeholder relationships through trust and the fulfillment of exchanges and promises (Gronross, 1996). Generally, RM focuses a combined organizational effort on building enduring (continuous) and collaborative relationships with key customers across a family of related products and services (Copulsky and Wolf, 1990; Morgan and Hunt, 1994; Sheth and Sharma, 1997). Based on the numerous definitions of RM that have surfaced, Harker (1999) has identified seven of its primary constructs: creation (attracting, establishing, getting), development (enhancing, strengthening, enhance), maintenance (sustaining, stable, keeping), interactive (exchange, mutually, co-operative), long term (lasting, permanent, retaining), emotional content (commitment, trust, promises), and output (profitable, rewarding, efficiency). Thus, RM performance involves a carefully organized and orchestrated array of activities aimed at retaining and satisfying customers through extended relationships.

The investments a business places in RM result in several measurable and observable benefits, including relationships that lead to higher levels of profitability and lower selling costs, customer orientation, trustworthiness and proactive behaviors on the part of employees that positively affect relationships, and interactive elements of a relationship that influence the behaviors of customers and employees (Sharma et al., 1999). The impetus established by RM lends support to CRM effectiveness as it (RM) defines the philosophical (management) framework in which a business views its customers, conducts its *business* and adopts solutions that reflect its priorities.

### Organization Climate

Organizational climate reflects the consensual working agreement among an organization's members in terms of its systems, practices and leadership style (McMurray, 2003), based upon their perceptions of observable practices and procedures that are closer to the surface of organizational life (Guion, 1973; James and Jones, 1974). It embodies the collective perceptions of the organization's members with respect to autonomy, trust, cohesiveness, support, recognition, innovation and fairness that are produced through their (member's) interactions, reflects the norms, values and attitudes of the organization's culture, serves as a basis for interpreting situations, and acts as a source of influence to shape behavior (Moran and Volkwein, 1992; Schneider and Reichers, 1983). In contrast to organizational culture which persists over time and embraces the accumulated shared learning of the organization's members with respect to behavior, emotion and cognition, organizational climate represents an assessment at a given point in time and can change through training or alterations in the organization structure (Falcione and Kaplan, 1984; Hellriegel et al. 1974).

Organizational climate sets the tone for employee conduct, such that employees of customer-centric organizations will perform differently from those of market-centric

organizations. Behaviors that provide insights into the organizational climate include their commitment to advancing the business (value, innovation), involvement with satisfying the customers' needs (trust) and a willingness to altruistically assist one another (autonomy, cohesiveness, support). Because the perceptions of proper conduct and practices employees observe influence their behavior, values and attitudes toward customers, suppliers and other employees, the vision and leadership of management looms largely in setting organizational climate, with reciprocity between managers and employees instilling a sense of fairness in forming the climate. Thus, management's attitude toward CRM must be consistent with the business' strategy of defining itself, and apparent and observable to employees. Without the human element as a dimension of CRM effectiveness, CRM falls shy in promoting creativity, innovativeness and customer interactions (i.e., adding the personalized touch).

## **DEVELOPMENT OF THE CRM EFFECTIVENESS CONSTRUCT**

This study proposes a CRM effectiveness construct comprised of three dimensions: IT performance, RM performance and organizational climate (Figure 1). The presence of activities, circumstances and events in these dimensions allows for its scientific appraisal and measurement. The development of the CRM effectiveness construct followed the three-stage methodology of Churchill (1979): domain identification, instrument development and statistical analysis of the data collected with the instrument.

Nunnally's (1967) domain sampling approach provided the direction for the first stage. A formal meeting between academicians and business professionals was held to discuss 47 items drawn from a review of prior studies and judge their (items') fitness to the CRM effectiveness domain. Items in support of organizational climate were adopted from Rogg et al. (2001) who proposed a climate for customer orientation to assess the degree to which employees value customers and are concerned with their needs and desires. Their study developed items to measure three general aspects of organizational climate, including employee commitment (i.e., the degree to which employees support organizational goals and welfare), cooperation and coordination (i.e., degree to which various units within the organization cooperated and trusted each other), and management competence (i.e., degree to which managers were consistent in their treatment of employees and the articulation of organizational goals and policies).

RM performance items were mainly adopted from the research studies of Lehtinen (1985), Reichheld and Sasser (1990), Blattberg and Deighton (1996), and Sweeney et al. (1999). Items for IT performance focused on IT's impact on customer service and abilities to enable a business' marketing and operations functions through CRM applications, and were taken from the studies of Kirimi et al. (2001) and Applegate et al. (1996).

During the second stage, an initial instrument using the 47 items was pilot tested on 25 managers who later provided suggestions on improving the conciseness of the items. The measures were operationalized on five-point Likert-type scales, with 1 indicating "strongly disagree" and 5 "strongly agree." The managers also categorized and ranked the items according to their fitness in their respective categories. This removed 19 items and left 26 for data collection.

The last stage involved data collection and a confirmatory factor analysis to test the proposed three-dimensional construct of CRM effectiveness. Specifically, the confirmatory factor analysis examined the instrument's convergent validity, discriminant validity, reliability and

nomological (i.e., predictive) validity.

### Data Collection

A National Science Council of Taiwan-funded survey was conducted on 523 financial services institutions (i.e., banks, investment, insurance and trading companies) and 407 of the 1,000 largest manufacturing companies in Taiwan. Questionnaires were directed to customer service and marketing managers with an accompanying letter that explained the purpose of the survey and instructed them on its completion. After four weeks and several follow-up phone calls urging recipients to complete their surveys, 231 surveys were received (24.7 percent return rate), of which 96 were from manufacturers, 127 from financial institutions and 8 did not indicate. The removal of nine invalid questionnaires reduced the sample to 221 observations. A comparison between the composition of companies sampled and the responses received revealed no bias (Table 1).

### **ANALYSIS**

The following paragraphs discuss the results of the confirmatory factory analysis conducted with AMOS (4.0).

#### Convergent Validity and Scale Reliability

Convergent validity tests the measures of a construct to ensure those that are supposedly related to one another are observed as such. It is supported if the analysis indicates that the existence of a construct (i.e., latent trait) underlies the set of measures (Anderson et al., 1987). The values obtained for the measures assess their (measures') validity which is inferred if a measure's factor loadings meet or exceed a criterion value. Although .30 has been suggested as an appropriate value for exploratory studies (Byrd and Turner, 2000), this study applied a stricter criterion value of .50. Table 2 displays the measures that satisfy the criterion. Ten measures with factor loadings below the criterion were dropped, thereby leaving 16. Various indices, including chi-square, adjusted chi-square, Goodness-of-Fit, Root Mean Square Residual, incremental fit index and the Tucker-Lewis index, indicate a good fit between the proposed three construct and data. The Cronbach alphas for each of the dimensions suggest appropriate reliabilities of the measures for capturing the dimensions.

#### Discriminant Validity

In contrast to convergent validity, discriminant validity examines the measures of a construct to ensure those that are not related to one another are observed as such (i.e., discrimination of measures). The correlations between pairs of dimensions provide an assessment of discrimination (i.e., their significant difference from unity). A series of chi-square tests were conducted to test discriminant validity by comparing an unconstrained model that frees the correlations between the dimension pairs with a constrained model that sets the correlations of the dimension pairs to unity. The significant differences of chi-square values with one degree of freedom imply discriminant validity. All possible pairs of the three dimensions were compared and significant differences appear among the dimensions (Table 3). The results suggest that the data fits the unconstrained model better than the constrained model and provide evidence of discriminant validity of the measures.

#### Nomological Validity

The final test assesses the nomological validity of the construct. The purpose is to examine the degree to which the proposed construct as measured by its indicators (i.e., measures) predicts other related constructs of prior theoretical or empirical studies. This study used “customer loyalty and benefits” as the means to establish nomological validity. Prior studies suggest that an effective CRM will result in higher customer loyalty (i.e., long-term patronage, recommendations of products and services to friends) and greater levels of customer benefits (i.e., personalized and friendly service, psychological confidence) (Berry, 1995; Bitner, 1995; Gwinner et al., 1998; Peterson, 1995; Sheth and Parvatiyar, 1995).

The analysis reveals a good fit between the proposed construct and data (Goodness-of-fit = .915, Root Mean Square Residual = 0.040) and an acceptable reliability ( $\alpha = 0.70$ ). The significantly positive construct correlations between the CRM effectiveness measures and “customer loyalty and benefits” criterion ( $\gamma = 0.81$ ,  $p < .001$ ) support nomological validity (Figure 2).

## **DISCUSSION**

The analysis supports the proposed construct and its three dimensions, IT performance, RM performance and organizational climate to explain CRM effectiveness. The importance of the results lies in the underlying involvement of business and CRM practices. IT enables a business to collect, retain, retrieve, update and manipulate massive amounts of data, and conduct customer transactions in a very timely (i.e., real time) and accurate manner. It provides the backbone on which the business relies for its interactions with customers, and the dissemination and sharing of information and knowledge throughout the enterprise to support its activities, such as the innovative customization of products and services that accurately meet customers’ needs and expectations. With a strong IT performance, a business can better leverage its information resources to more effectively compete in its marketplaces and reach its customers anytime and anyplace. Thus, IT performance is a fundamental component to CRM effectiveness.

Although IT performance provides the technological means for achieving CRM effectiveness, it does not address the strategic and tactical issues. RM performance represents the marketing paradigm that frames the organizational impetus and defines business practices, including a structure in which problems are viewed and solved. It directs the business’ efforts towards delivering the right products and services at the right time through the right channel that meet the customers’ needs and expectations. Yet, garnering customer satisfaction requires the business to focus itself on developing and following customer-centric practices, and building long-term learning relationships with its customers. The quick delivery of goods and services reflects the business’ practice and organizational ability to quickly respond in its interactions with customers. The practices involved with retaining existing and acquiring new customers also reflect the business’ commitment to RM, including building trust, maintaining satisfaction and providing value. Thus, the practices embodied in RM performance contribute to CRM effectiveness as they provide execution (of RM).

The organizational climate dimension sets a de facto standard of employee performance that helps distinguish the business from its competitors. In a customer-centric environment, the employees play an important role as the first line of interaction between the business and its customers. Perceptions conveyed through their conduct often leave an impression of the value a business places on its customers. Conduct that reflects a customer oriented climate

(i.e., friendliness, personalization), such as personal sacrifices and initiative, lead to positive customer relationships that embody loyalty and instill psychological benefits. However, for employees to adopt such behavior, management must exhibit it first.

The three dimensions and their measures offer a parsimonious and practical approach for judging CRM effectiveness. The CRM effectiveness construct suggests that the investments in CRM should not be only directed toward enhancing IT performance, but also toward boosting RM performance and developing an organizational climate that fosters customer orientation. Each helps ensure the achievement of CRM results through the mediation of organizational and technological factors. The construct also reveals the deficiencies that the business may have and needs to address to increase customer satisfaction and remain competitive in the continually growing global marketplace, and the strengths it can leverage.

## **CONCLUSION**

CRM has been frequently viewed as a marketing application of IT. Yet, to successfully achieve results, such as one-to-one marketing, mass customization, customer loyalty and trust, CRM must be recognized as an enterprise endeavor that requires organizational and marketing elements as well. The results of this study support the proposed CRM effectiveness construct comprised of three dimensions: IT performance, RM performance and organizational climate. The study also provides a practical, operational definition of CRM effectiveness.

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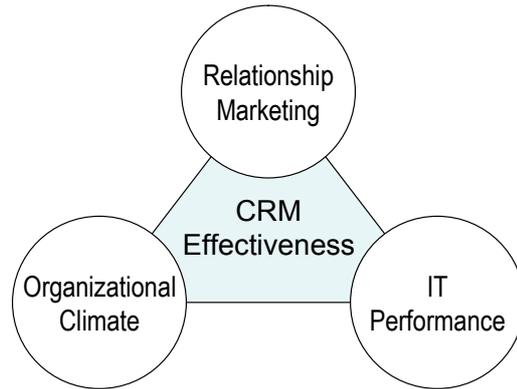
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**Figure 1.** Three dimensions of the CRM effectiveness construct

**Table 1.** Survey responses

<i>(percent)</i>	<b>Surveyed</b>	<b>Returned</b>
Financial	524 (52.3)	127 (55.0)
Manufacturing	407 (43.7)	96 (41.6)
Not indicated on return		8 (3.5)
Total	931	231

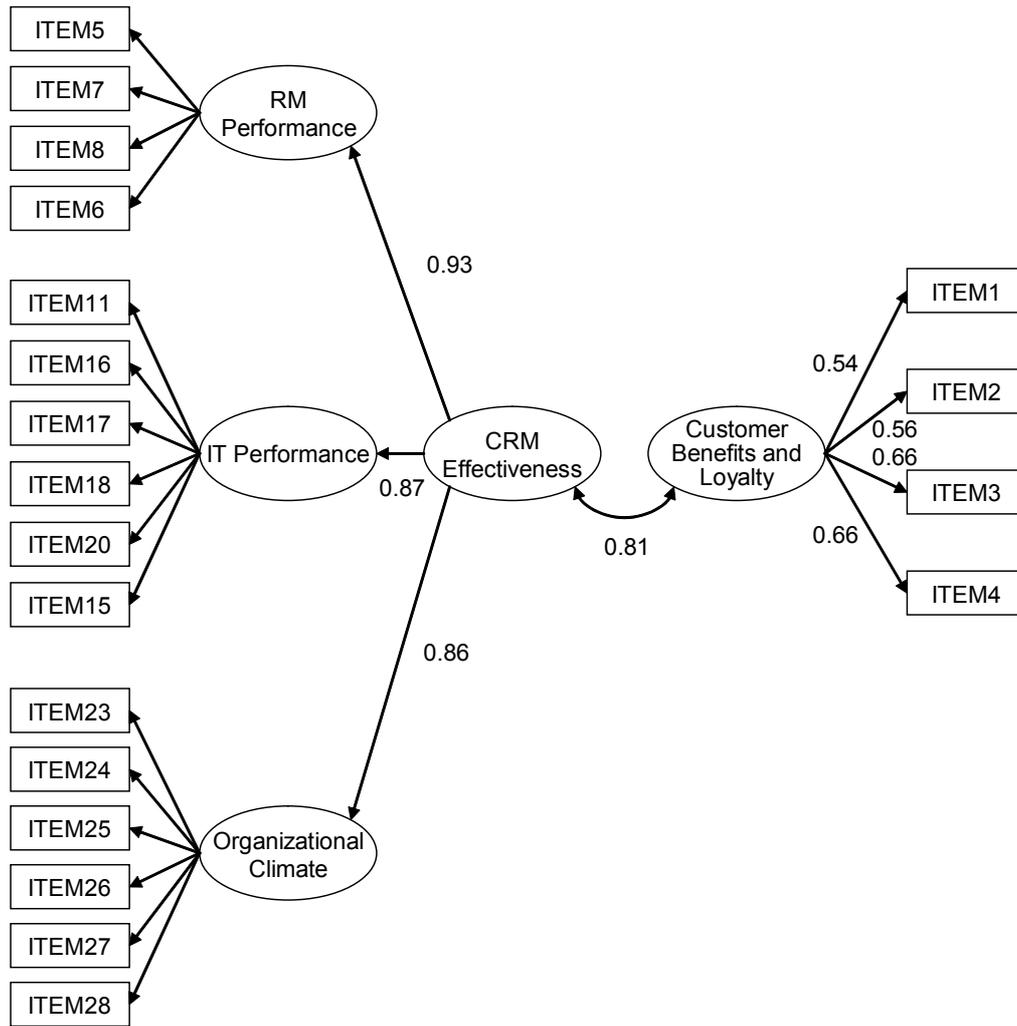
**Table 2. Test of convergent validity**

Dimensions and Items		Mean	Standard deviation	Standardized item Loading ( $\lambda$ )
<b>Relationship Marketing</b> Cronbach alpha = .752				
ITEM5	Quick delivery of goods and services	4.06	0.742	0.535
ITEM6	Customer satisfaction with service processes	3.75	0.706	0.633
ITEM7	Good customer retention practices	3.76	0.863	0.782
ITEM8	Good customer acquisition practices	3.53	0.917	0.675
<b>Organizational Climate</b> Cronbach alpha = .865				
ITEM23	Employee commitment to superior customer service	4.29	0.719	0.714
ITEM24	Customers truly valued	4.23	0.748	0.663
ITEM25	Employees take initiative to satisfy customers	4.17	0.755	0.800
ITEM26	Employees identify with company	3.82	0.826	0.784
ITEM27	Employee personal sacrifices to customers	4.30	0.747	0.649
ITEM28	Employees cooperate with one another	3.86	0.828	0.698
<b>IT Performance</b> Cronbach alpha = .832				
ITME11	Sharing of customer information within company	3.46	0.965	0.653
ITEM15	Efficient data processing	3.90	0.805	0.642
ITEM16	Efficient transaction processing	3.60	0.907	0.647
ITEM17	Added information from products and services	3.52	0.951	0.689
ITEM18	Customer information used for customization of products and services	3.84	0.757	0.726
ITEM20	Real time, updated customer information across multiple channels	3.44	0.974	0.676
Chi-Square = 188.324 ( $p < .001$ ) Adjusted Chi-Square = 1.865 Goodness-of-fit = 0.906 Root Mean Square Residual = 0.034 Incremental fit index = 0.942 Tucker-Lewis Index = 0.931				

**Table 3. Test of discriminant validity**

Variable constrained	Chi-square	Degrees of Freedom	Chi-square Difference
None	188.324	101	-
Relationship Marketing with: IT Performance	279.352	102	91.028*
Organizational Climate	313.354	102	125.03*
IT Performance with: Organizational Climate	273.853	102	85.529

\*Significant at  $p < .01$



- Customer Benefits and Loyalty
- ITEM1 Customer long-term patronage
  - ITEM2 Customer recommendations of products and services to their friends
  - ITEM3 Personalized and friendly services provided to customers
  - ITEM4 Customer psychological confidence

**Figure 2.** Nomological validation