

# A STUDY OF THE IMPACT OF ELECTRONIC CUSTOMER RELATIONSHIP MANAGEMENT ON CUSTOMER LOYALTY BY USING STRUCTURAL EQUATION MODELING IN BANKING SECTOR

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## ABSTRACT

*Customer Relationship Management (CRM) has changed the approach of traditional and conventional way of marketing. One of the several issues addressed by CRM has been identification retention of profitable customers with an objective to translate short-term retention in to a long-term loyalty. Customer loyalty, a diminishing phenomenon in this fiercely competitive market, is considered to be a critical success factor for firm profitability and long term sustainability. The integration of technology with the core processes of CRM has upgraded the concept to electronic CRM or e-CRM. Electronic CRM has ensured the process of de-intermediation in service delivery, thereby providing the customers new and advanced channels to interact with firms. Service firms, who are constrained by intangibility and heterogeneity factors, have reduced the non-monitory cost component to a considerable extent and enabled the customers to perceive service quality in a better way. This study attempts to understand the impact of electronic CRM, which is a relatively novel application in Indian market, on the banking sector.*

**Keywords:** loyalty, customer relation management, e-CRM, banking sector, bank.

## INTRODUCTION:

The Indian banking sector has undergone phenomenal change with the initiation of financial sector reforms leading to opening up of sectoral markets and emergence of private banks in the otherwise nationalized bank dominated domain. The change has been further stimulated with the introduction of technologies, particularly internet and information technology. Modern bank customers are enlightened enough to make investment decisions and other transactions and thereby choose a bank or a combination of banks. The transition of the banking sector has also ensured that the banks increase their spectrum of activities from a linear service to a host of cross and up-selling services. Historically, CRM has been a feature of the service marketing sector, where intangible nature of services and its inseparability from its delivery and consumption process have made service provider-customer dyadic relationship quite pivotal in determining customer loyalty, retention of valued customers, profitability etc. The financial services industry has gone through a rapid structural change (Peter, 2012). Competitive pressure and customer demand has compelled the financial services providers focus on core competencies in order to deliver better value to their customers. Consequently, companies that were formally highly integrated have split into divisions or independent companies focusing on different parts of the value chain (Heinrich & Leist, 2002). On the other hand, many customers demand a complete range of financial products in order to satisfy their financial 'on-stop' needs. This forces financial services companies to collaborate with providers of complementary products and services. Ultimately, networks of financial services companies emerged (Alt & Reitbauer, 2005). This emergence stimulated initiation of networks consisting of relationship managers, product providers and transaction processors (Heinrich & Leist, 2002); (Hagel & Singer, 2014). CRM emerged as a response to decreasing customer loyalty in different industries. The reasons for decreasing customer loyalty in the financial services industries are manifold and closely interconnected. Three fundamental factors can be identified (Walter, 2015); (Kamer, 2013); (Krisnan, 2012):

- New technological opportunities.
- Increasing competition from new market entrants.
- Customers' changing behaviour.

Community and retail banking system has evolved as a major domain of CRM application. As banks automated back-office functions with mainframes, and the number of products and services, particularly related to cross-selling and up-selling activities, grew, banks found it increasingly necessary to introduce and replace its branch-based filing cards with a Central Information file (CIF). At the beginning of the 1970s, CIFS were equivalent to centrally located file cards which during the latter half of the decade was replaced by mainframe based hierarchical database management system. Even with computerized CIFs it became difficult to update customer records particularly at a time when the banking sector proliferated rapidly and expanded its business spectrum in cross-selling and up-selling product lines like insurance, mutual funds, cards etc. A customer investing in a diversified portfolio across the product/service line offer of a single bank has different data for different accounts. Banks that are organized around product 'silos' with separate systems for deposit accounts and other transaction involvements, found that effective customer relationship revolves around retrieval of data from different databases and synchronizing it according to homogeneous information provided. (Panda & Parida, 2009) pointed out the needs for implementation of CRM solutions in retail banking which are as follows:

- (i) Need for increase in operating efficiencies.
- (ii) Need to derive more values from the employees.
- (iii) Dealing with increasing competition
- (iv) Managing the rise in NPAs
- (v) Increasing importance of Fee-based income
- (vi) Lack of clarity regarding branch banking
- (vii) Emergence of Universal banking concept
- (viii) Vasudevan Committee recommendations.

Electronic CRM (e-CRM) is the augmentation of CRM process on the technology platform. e-CRM focuses on convergence of technology or multichannel integration to provide superior services and value-additions. The e-CRM concept in India is relatively new and is making its inroads into financial service sectors namely banking sector.

## LITERATURE REVIEW:

Customer Relationship Management (CRM) has been argued to replace the traditional 4Ps of marketing (product, price, place and promotion) concept as a dominant logic in marketing process (Gureu, 2003). Gradual polarization of marketing process towards a relationship base was found to be dyadically more effective in establishing mutually profit-benefit transactions between sellers and buyers respectively. CRM evolved from this ground of relationship marketing as a proactive strategic integration that brought firm closer to customers. (Boulding, William, Staelin, Ehret, & Johnston, 2005) argued that the domain of CRM has not begun to converge on a common definition. Customer Relationship Management (CRM), defined by (Nguyen et. al 2016), is an information system that enables organizations to track customers' interactions with their firms and allows employees to extract customer-based information namely history of sales, unresolved problems, payment records, service records etc. The scholastic debate sprung a number of views about the domain of CRM - some researchers view CRM as a mere software based application, therefore emphasizing on the process part; while others consider CRM as a philosophy which aims to translate customer intimacy into profit (Maklan, S. and Buttle, F., 2015; (Nguyen, Sherif, & M., 2016). Subsequent research works have highlighted CRM as an integration of people, process and technology, targeted to bring firms closer to customers. (Reynolds 2002) identified three key processes which brought companies closer to customers and vice-versa: (a) Data-enabling product-centric processes, (b) Customer-centric processes and (c) One-to-one philosophy.

Most of the CRM applications, in their earlier years, concentrated only on customer interactions. At present the applications include all possible transactional data, supply chain integration and collaborative networking. Empirical research works pointed out, time and again, towards the mutual and symbiotic benefits both for the sellers and customers (Dekimpe, Steenkamp, Mellens, & Abeele, 1997). In a study (Gray & Byun, 2001) viewed CRM as a continuous flow of corporate changes in culture and processes that combines three focal areas: (i) Customer (ii) Relationship and (iii) Management. (Barrington, 2008) viewed that CRM systems evolved as a system to track customer interactions with an objective to offer customized products and services to the customer. With this introduction of hyper-customized products and services, particularly in the cross-selling and up-selling domains of a financial service organization, the customer needs and desires have undergone a sea change. CRM Guru conducted a study in 2006, which was subsequently reported by (Sandall, 2007), with regard to this growing complexity in customer need identification. (Grabner-Kraeuter, Moedritscher, Waiguny, & Mussnig, 2007) point to the lack of an adequate CRM strategic framework from which to define success as being a reason for the disappointing results of many CRM initiatives. One of the major reasons for CRM failing to deliver goods is overemphasis on technological aspect by ignoring the 'people' and the process part.

CRM refers to all business activities directed towards initiating, establishing, maintaining, and developing successful long-term relational exchanges (Heide, et al., 2016). One of the results of CRM is the promotion of customer loyalty (Evans & Laskin, 1994), which is considered to be a relational phenomenon (Sheth & Parvatiyar, 1995); cited by (Macintosh & Lockshim, 1997). The benefits of customer loyalty to a provider of either services or products are numerous, and thus organizations are eager to secure as significant a loyal customer base as possible (Gefen, 2002); (Reinartz & Kumar, 2003); (Rowley & Dawes, 2000). The idea that one cannot have a profitable relationship with all customers and the practice of targeting customers with a differentiated product or service is already widespread in many financial services viz banking, insurance, credit cards etc.

With the introduction of information technology, internet technology and mobile technology, CRM has metamorphosed into electronic CRM or e-CRM which has paradigmatically shifted the inter-firm competition from price and core service orientation to value added service orientation (Aydin & Ozer, 2005). (Peppard, 2000) suggested the technological advances in global networks, convergence and improved interactivity are key to explaining the growth of technology-enabled business or e-business and CRM. The increasing use of digital technology by customers, particularly the internet is changing the possibilities and expectations in terms of customer management (Tamminga & O'Halloran, 2000). The concepts of CRM and e-business integrated to generate a new term e-CRM (Light, 2003); (Fjermestad & Romano, 2003); (Bull, 2003). (Norton, 2007) conceptualized e-CRM as a combination of hardware, software, processes, applications and management commitment to enhance customer service, to retain customer and provide analytical capabilities.

Technology-enabled CRM has ensured, to a large extent, de-intermediation in service delivery. The financial service sector namely banking service is using de-intermediation process by integrating their core services on a digitized platform. A number of research works have been conducted on the performance level of e-CRM which led to positive outcomes of e-CRM performance namely customer satisfaction (Khalifa & Shen, 2005); (McKinney, Yoon, & Zahedi, 2002), intention to purchase (Khalifa & Shen, 2005) & Parvatiyar, Sheth, 2002),

customer retention (Jayachandran, Sharma, Kaufman, & P., 2005), managing knowledge (Donio, Massari, & Passiante, 2006), profitability (Kim, Choi, Qualls, & Park, 2004); Reichheld and Sasser, 1990), organizational commitment (Pritchard, Havitz, & Howard, 1999); (Venkatesh & Davis, 2000) and customer loyalty (Chang, Liao, & Hsiao, 2005); Kelley, L, Gilbert, D. and Mannicom, R. 2003).

**METHODOLOGY:**

State Bank of India, the largest nationalized bank in India, was chosen for the study. The selection of the bank was further justified by the fact that it has upgraded itself technologically and has adopted the philosophy and practice of CRM. Primary data was collected using a self-administered structured questionnaire. A complete list of the SBI bank branches for Chandigarh was obtained from the website (<http://www.sbi.co.in>). The branches thus obtained were arranged alphabetically. The primary filter that was applied to screen branches was the mandatory presence of three service features: (i) already installed CBS, (ii) already offered ATM services and (iii) activated and already offered Internet enabled banking services (i-banking). Every seventh branch was picked up for the study from this sub-list (which was also arranged alphabetically) thus prepared by applying the filtration technique. Random sampling technique was used to collect primary data with the selection of every 7<sup>th</sup> customer leaving the bank premise as a respondent. A total of 1000 questionnaire were distributed amongst every 7<sup>th</sup> customer coming out of the bank premise out of which 781 were received back. Upon scrutinization, 689 usable responses were generated.

Electronic CRM performance was measured across six items (Khalifa, Shen, 2005; McKinney, Yoon and Zahedi, 2002; Jayachandran, Sharma, Kaufinan and Raman, 2005; (Kim, Choi, Qualls, & Park, 2004); (Reichheld & Sasser, 1990); Dome, 2006 and Chang, Liao, Hsiao, 2005; (Kelly, Gilbert, & Mannicom, 2003) and (Azila & Noor, 2011) namely customer satisfaction, intention to purchase, customer retention, managing knowledge, profitability and customer loyalty. The customer loyalty dimensions were fixed as duration of relationship, mutual trust and commitment (Dimitriadis, 2006) (Azila & Noor, 2011). The data were obtained across the items in a seven point Likert Scale.

**PROPOSED THEORETICAL MODEL:**

A theoretical model was formulated based on the structural relationship between the variables and its items under study. The researcher aims to examine the logical connection between the variables along with its items and the assumptions and propositions used to develop the explanatory framework.

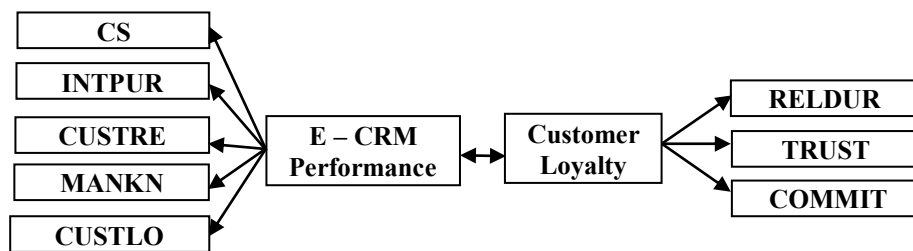


Figure 1: Proposed Theoretical Model

**DATA ANALYSIS AND FINDINGS:**

Table 1: Demographic Profile of the respondents

Demographic Variable	Demographic Characteristics	Chandigarh	
		Frequency	%age
Gender	Male	431	62.55
	Female	258	37.45
Age	≤ 21 years	21	3.05
	22-32 years	279	40.49
	33-43 years	241	34.98
	44-54 years	72	10.45
	≥55 years	76	11.03
Income	≤ Rs. 14999.00	5	0.73
	Rs. 15000.00-24999.00	261	37.88
	Rs. 25000.00-44999.00	293	42.53

Demographic Variable	Demographic Characteristics	Chandigarh	
		Frequency	%age
	≥ Rs. 45000.00	130	18.87
Occupation	Service (Govt. /Pvt.)	287	41.65
	Self-employed	161	23.37
	Professional	121	17.56
	Students	18	2.61
	House Wives	41	5.95
	Others (Rtd., VRS etc.)	61	8.85
Educational Qualifications	High School	2	0.29
	Graduate	453	65.75
	Post-graduate	204	29.61
	Doctorate & Others	30	4.35

Pearson correlation was done to understand the relationship between the electronic-CRM (e- CRM) performance and customer loyalty. The e-CRM performance was estimated by obtaining the mean of response across the six items identified. Similarly, the estimation of customer loyalty was done by taking the mean of response across the three items. Table-2 displays the relationship between the variables. It is revealed that a strong and positive relationship exist between e-CRM performance (e-CRM PERF) and customer loyalty ( $r=.429^{**}$ ,  $p<.001$ ).

**Table 2: Correlation between e-CRM performance and customer loyalty**

		e-CRM PERF	CUSTLOY
e-CRM PERF	Pearson Correlation	1.000	.429**
	Sig. (2-tailed)		.000
	N	689.000	689
CUSTLOY	Pearson Correlation	.429**	
	Sig. (2-tailed)	.000	
	N	689	689.000

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

**Table 3: Correlation between e-CRM performance and customer loyalty**

		Cust Sat	Int pur	Cust Ret	Man Know	Profit	Cust Loy	Reld Ur	Trust	Com Mit
Cus Tsat T	Pearson Correlation	1.000	.159**	.314**	.069	.290**	.038	.134**	.323**	.051
	Sig. (2-tailed)		.000	.000	.067	.000	.317	.000	.000	.176
	N	712	712	712	712	712	712	712	712	712
Int Pur	Pearson Correlation	.159**	1.000	.042	.076*	.578**	.753**	.427**	.127**	.384**
	Sig. (2-tailed)	.000		.258	.043	.000	.000	.000	.000	.000
	N	712	712	712	712	712	712	712	712	712
Cus The T	Pearson Correlation	.314**	.042	1.000	.040	.523**	.076*	.481**	.090*	.168**
	Sig. (2-tailed)	.000	.258		.284	.000	.043	.000	.016	.000
	N	712	712	712	712	712	712	712	712	712
Ma Nk No W	Pearson Correlation	.069	.076*	.040	1.000	.563**	.037	.130**	.612**	.332**



	Sig. (2-tailed)	.067	.043	.284		.000	.321	.000	.000	.000
	N	712	712	712	712	712	712	712	712	712
<b>Pro Fit</b>	Pearson Correlation	.290**	.578**	.523**	.523*	1.000	.396**	.296**	.374**	.550**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000	.000
	N	712	712	712	712	712	712	712	712	712
<b>Cui Std Oy</b>	Pearson Correlation	.038	.753**	.076*	.037	.396**	1.000	.478**	.761**	.507**
	Sig. (2-tailed)	.317	.000	.043	.321	.000		.000	.000	.000
	N	712	712	712	712	712	712	712	712	712
<b>Rel Dur R</b>	Pearson Correlation	.134**	.427**	.481**	.130**	.296**	.478**	1.000	.248**	.560**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000	.000
	N	712	712	712	712	712	712	712	712	712
<b>Trust</b>	Pearson Correlation	.323**	.127**	.090*	.612**	.374**	.761**	.248**	1.000	.518**
	Sig. (2-tailed)	.000	.000	.016	.000	.000	.000	.000		.000
	N	712	712	712	712	712	712	712	712	712
<b>Commitment</b>	Pearson Correlation	.051	.384**	.168**	.332*	.550**	.507**	.560**	.518**	1.000
	Sig. (2-tailed)	.176	.000	.000	.000	.000	.000	.000	.000	
	N	712	712	712	712	712	712	712	712	712
	Sig. (2-tailed)	.926	.000	.004	.232	.000	.000	.753	.199	.001
	N	712	712	712	712	712	712	712	712	712

\*Correlation significant at the 0.05 level (2- tailed),

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

Inter-correlation-ship was also obtained between the items of e-CRM performance and customer loyalty identified for the study. Table-3 represents the results of the inter-correlation-ship between the items of the construct. The results revealed that positive correlation exist between durability of relationship (RELDUR) and customer satisfaction (CUSTSAT) ( $r=.134^{**}$ ,  $p<.001$ ), intention to purchase (INTPUR) ( $r=.427^{**}$ ,  $p<.001$ ), customer retention (CUSTRET) ( $r = .481^{**}$ ,  $p<.001$ ), managing knowledge (MANKNOW) ( $r=.130^{**}$ ,  $p<.001$ ), profitability (PROFIT) ( $r=.296^{**}$ ,  $p<.001$ ) and customer loyalty (CUSTLOY) ( $r=.478^{**}$ ,  $p<.001$ ). The results further revealed that positive correlation of moderate to strong degree exist between trust (TRUST) and (CUSTSAT) ( $r=.323^{**}$ ,  $p<.001$ ), intention to purchase (INTPUR) ( $r=.127^{**}$ ,  $p=.001$ ), customer retention (CUSTRET) ( $r=.090^{*}$ ,  $p=.016$ ), managing knowledge (MANKNOW) ( $r=.612^{**}$ ,  $p<.001$ ), profitability (PROFIT) ( $r=.374^{**}$ ,  $p<.001$ ) and customer loyalty (CUSTLOY) ( $r=.761^{**}$ ,  $p<.001$ ). The final item of customer loyalty i.e. commitment (COMIT) also exhibited positive correlation-ship with intention to purchase (INTPUR) ( $r=.384^{**}$ ,  $p<.001$ ), customer retention (CUSTRET) ( $r=.168^{**}$ ,  $p<.001$ ), managing knowledge (MANKNOW) ( $r=.332^{**}$ ,  $p<.001$ ), profitability (PROFIT) ( $r=.550^{**}$ ,  $p<.001$ ) and customer loyalty (CUSTLOY) ( $r=.507^{**}$ ,  $p<.001$ ).

Regression analysis was adopted to understand:

- 1) the strength of relationship between service quality (independent variable) and brand equity and brand resonance (dependent variable)
- 2) predictive capability of service quality (independent variable) to predict brand equity and brand resonance (dependent variable)

The regression analysis produced the model summary (Table-4) which exhibited R=.662 which showed the existence of 66.2% relationship e-CRM performance (e-CRM PERF) & customer loyalty (CUSTLOY). Adjusted R square (R<sup>2</sup>) (.438) showed that e-CRM performance explained 43.8% variation in customer loyalty. The results of ANOVA (Table-5) established that the variation exhibited by e-CRM performance and customer loyalty was significant at 1% level (f=327.457, p<.001). The standardized regression coefficient results (Table-6) established that e-CRM performance (β=.562, t=18.096, p<.001) have statistical significance and is positively correlated to customer loyalty.

3) The estimated regression equation on the predicted model will be:

4) Customer loyalty (CUSTLOY) = ax + b

5) or, CUSTLOY = .604 \*x + 2.047

6) whereby replacing 'x' for e-CRM performance score customer loyalty can be estimated

**Table-4: Model Summary<sup>b</sup> of Regression Analysis**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.662 <sup>a</sup>	.438	.436	.37128

a. Predicators: (Constant), e-CRM performance

b. Dependant Variable: Customer Loyalty

**Table-5: ANOVA<sup>b</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	45.139	6	45.139	327.457	.000 <sup>a</sup>
	Residual	97.871	687	.138		
	<b>Total</b>	<b>143.010</b>	<b>688</b>			

a. Predicators: (Constant), e-CRM performance

b. Dependent Variable: Customer Loyalty

**Table-6: Coefficients<sup>a</sup>**

Model		Un-standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)				12.075	.000
	e-CRM	2.047	.170			
	PERF	.604	.033	.562		

a. Dependent Variable: Customer Loyalty

**MODEL DEVELOPMENT:**

Structural Equation Modeling (SEM) is a multivariate statistical analysis technique that is primarily used to analyze structural relationships. SEM is a technique that combines factor analysis with multiple regression analysis and it explores the structural relationship between measured/observed variables and latent constructs (Eboli & Mazzulla, 2007). In the proposed network of variables, the measured/observed variables are e-CRM performance and customer loyalty. The latent variables were identified by adopting exploratory factor analysis (EFA) with orthogonal rotated solution whereby components having eigen values > 1 are considered. The latent variables thus proposed are (i) e-CRM performance and (ii) Customer loyalty. Confirmatory factor analysis was used to understand the dimensionality, convergence and discriminate validity. LISREL software was used for further calibration and to cross-validate the convergence of the models. Fig.-2 represents the model convergence. After the identification of the latent variables, LISREL software was used to draw the path

diagrams (Fig.-3). The dependencies of the models are denoted by the arrows. The double-curved arrows indicate co-variability of the latent variables. The residual variables (error variances) are indicated by  $\epsilon_1, \epsilon_2, \epsilon_3,$  etc. The regression weights are represented by  $\lambda$ . The co-variances are represented by  $\beta$ . To provide the latent factors an interpretable scale; one factor loading is fixed to 1 (Hox & Bechger, 1998). The Goodness of Fit indicators are tabulated (Table-7). The probability value of Chi-square is more than the conventional 0.05 level ( $P=0.20$ ) indicating an absolute fit of the models to the data. The values of the goodness of fit indices are significantly low supporting the quality of the model fit to the data.

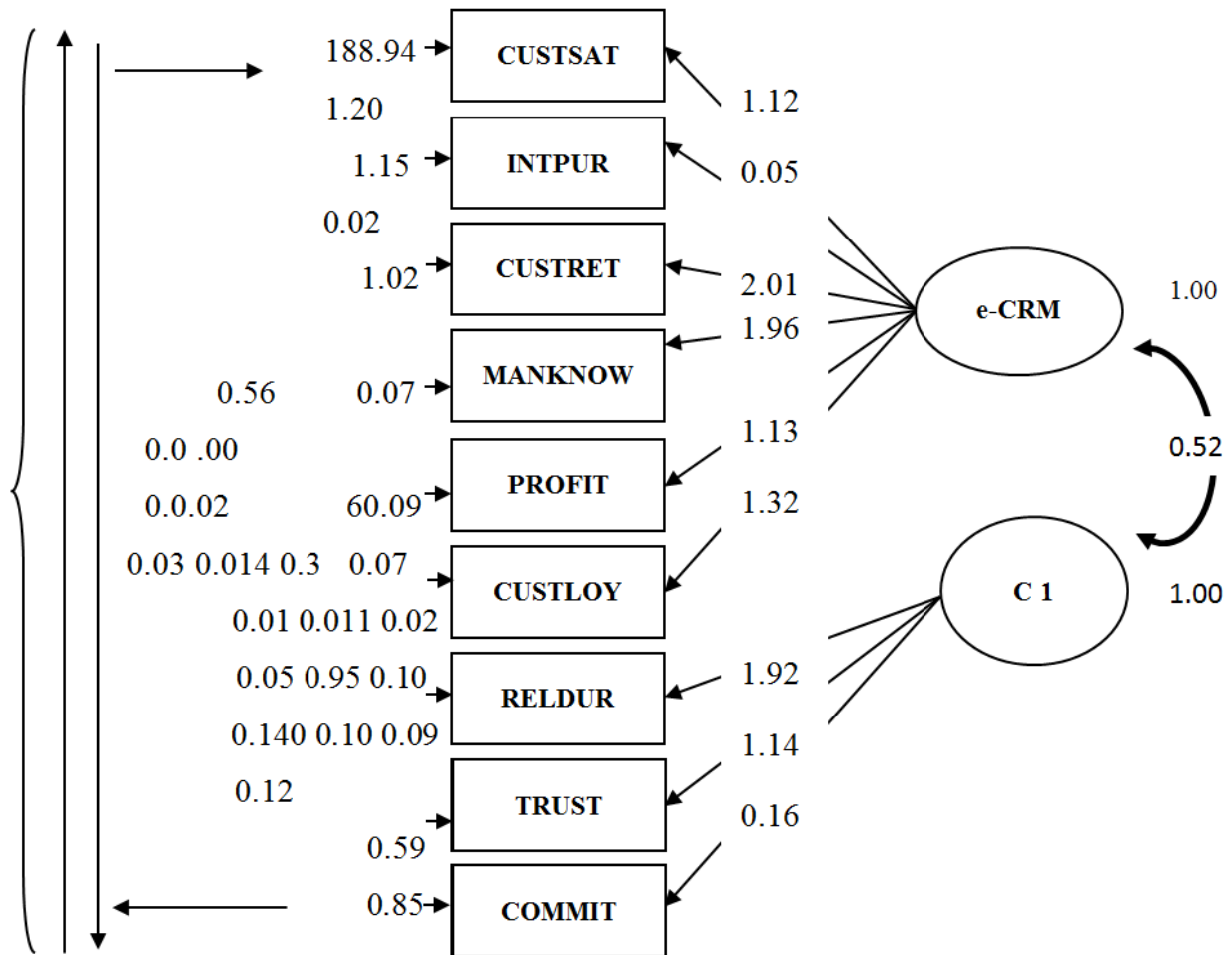
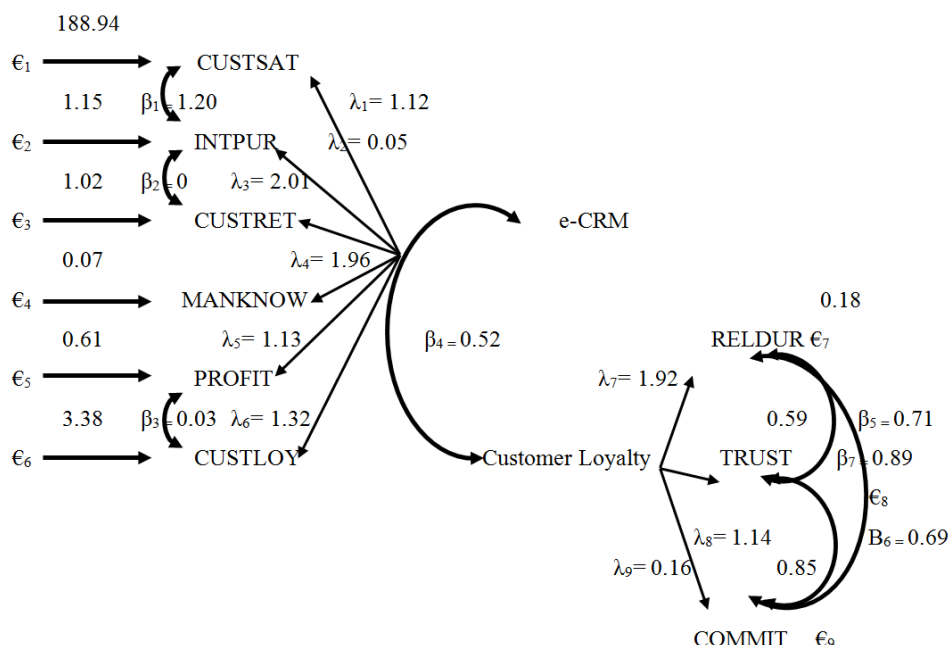


Fig.-2: Model Convergence

Table 7: Goodness-of-fit indices

Indices	Values
Degree of Freedom	26
Minimum fit function Chi-Square	439.52 (P = 0.20)
Goodness-of-fit Index (GFI)	0.91
Adjusted Goodness-of-fit Index (AGFI)	0.90
Parsimony Goodness-of-fit Index (PGFI)	0.39
Comparative Fit Index (CFI)	0.81
Incremental Fit Index (IFI)	0.87
Relative Fit Index (RFI)	0.65
Normed Fit Index (NFI)	0.66
Non-Normed Fit Index (NNFI)	0.82
Standardized RMR (SRMR)	0.071
Root Mean Square Error of Approximation	0.099
Expected Cross-Validation Index (ECVI)	0.71





**Fig. 3: Structural Equation Model representing relationship between variables**

\*Legends used: CUSTSAT-Customer Satisfaction, INTPUR-Intention to purchase, CUSTRET-Customer retention, MANKNOW-Managing knowledge, PROFIT-Profitability, CUSTLOY-Customer loyalty, RELDUR-Duration of relationship, TRUST-Trust, COMMIT-Commitment, e-CRMperf- ECRM performance.

**CONCLUSION:**

The strong and positive correlation-ship that has been established between e-CRM and customer loyalty has been consistent with previous empirical findings (in other service sector) (Azilla & Noor, 2011; (Schoder & Madeja, 2004) and Kelley, L., Gilbert, D. and Mannicom, R. 2003). So far as Electronic Customer Relationship Management (e-CRM) is concerned, it is a relatively novel adaptation in business processes in Indian service sector, particularly the banking sector. With the integration and convergence of technology, State Bank of India has started delivering services and churned off products with precision targeting. The findings further suggest that adoption of e-CRM philosophy and its subsequent translation into up-gradation of bank service has a positive impact on customer satisfaction which is an indication of superior perceived service quality. As customer loyalty is an expression of behavioral intention of the customers, it has become quite critical in determining the success: failure ratio on financial performance of an organization. The managerial implication of the study embraces the future strategic option that State Bank of India can have at its disposal in augmenting its cross-selling/up-selling activities by precise customer segmentation and targeting. Data warehousing and data mining techniques will be deployed at large for these activities. The interaction with the customer will be much more on virtual platform and delivery of services will depend on multi-channel integration. e-CRM has already redefined the service quality for the service organization namely banking sector.

**SCOPE FOR FURTHER STUDY:**

The present study concentrated on impact of e-CRM performance on customer loyalty by using structural equation modeling of a specific sector namely banking sector and of a specific bank namely, State Bank of India. Therefore, in future, the study may be extended to other service sectors in assorted geographical regions to test its generalizability and to locate other factors that may influence the relationship between variables.

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