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# Electronic customer relationship management (E-CRM), customer experience and customer satisfaction: evidence from the banking industry

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## Abstract

**Purpose** – The purpose of this paper was to examine the relationship between electronic customer relationship management (E-CRM) and customer satisfaction through the mediating role of customer experience in the banking industry.

**Design/methodology/approach** – The data were collected from customers of 10 banks (5 public and 5 private sector banks) of Delhi, India. In total, 836 useable structured questionnaires were filled, and the data were analyzed using structural equation modeling (SEM) through AMOS.

**Findings** – The results revealed that customer experience mediated the relationship between E-CRM and customer satisfaction confirming well with the hypothesized model.

**Research limitations/implications** – The model was tested in the domain of banking industry; future results may be conducted in different domains for improving generalizability. A comparative study between public and private sector banks in terms of E-CRM, customer experience and customer satisfaction could also be conducted.

**Originality/value** – The study was the first to unequivocally analyze the influence of the E-CRM on customer satisfaction through customer experience in the banking industry. The study also introduced stimulus-organism-response (S-O-R) model as a theoretical support to associate E-CRM to customer satisfaction through customer experience. Thus, this study will enhance the current knowledge base and will also aid E-CRM managers amid decision-making process.

**Keywords** E-CRM, Customer experience, Customer satisfaction, Banking industry

**Paper type** Research paper

## 1. Introduction

The government's Digital India initiative, combined with increased Internet penetration in recent years, resulted in a digital population of around 688 million active users in January 2020 ([Statista, 2020](#)). Between 2019 and 2020, the number of Internet users in India increased by 128 million (+23%) ([Data Reportal, 2020](#)). As a result, the marketing sector has changed dramatically as many companies recognize the potential of this unique medium to efficiently deliver targeted messages, generate revenue and facilitate two-way communication with consumers ([Adlin et al., 2019](#)). The Internet has become a powerful tool for managing electronic customer relations ([Oumar et al., 2017](#)). As digital technology begins to obscure the difference between data platforms, the relatively new field of science, that is, electronic



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customer relationship management (E-CRM), is being developed (Abdulfattah, 2012). Customers connect with companies through a number of information channels, some of which are connected to information and communication technologies (ICTs) applications via the Internet (Santy and Hardiyanti, 2019). Digitization has forced the companies to digitize their services and provide customers to have a 24\*7 online relationship with their companies (Steinhoff *et al.*, 2019).

The banking sector is undergoing rapid changes as a result of developments in ICTs (Priya *et al.*, 2018). Strong competition, increasing globalization and rising consumer expectations (Owusu Kwateng *et al.*, 2019) have forced banks to provide the best possible services to their customers, both to retain customers and to increase their financial profitability (Abu-Shanab and Anagreh, 2015; Al-Abdullat and Dababneh, 2018). As a result, the business model has shifted from being bank-centered to customer-centered. Product homogeneity has only been added to the burden of the banking industry and has become a formidable challenge to maintain customer satisfaction and loyalty during a remarkable transition in technology and customer behavior (Singh and Chauhan, 2018; Sarmah and Rahman, 2018). Banks use different ICT strategies to improve their customer relationships (Al-Dmour *et al.*, 2019). The emergence of E-CRM is one such phenomenon. Banks have accepted E-CRM not only as a way to gain competitive advantage over others, but also as a way to thrive in such a dynamic market environment (Yamuna, 2020). The rapid expansion in digital banking has made it necessary for banks to transform their current strategy into an all-channel strategy that includes the Internet, the web or physical branches (Report Linker, 2020). Banks, therefore, offer a range of digital products, including online banking, mobile banking, tele-banking, neo-banking, self-service technology and so forth (Mathew *et al.*, 2020). This research is carried out in the banking industry. The reasons for selecting this industry were, firstly, the banking industry is a part of financial services which is the greatest source of economic growth in India (Dhamija *et al.*, 2019). Secondly, banks, being traditional service sector, are considered relevant to the market as well as to the world economy and their services are needed much by the companies and people (Milan *et al.*, 2018). Thirdly, the banking services are intrinsic in relation to contractual services (Norman, 2004) in which customers tend to become more productive and profitable only after steer patronization (Reichheld, 1996). Therefore, the role of E-CRM in the growth and promotion of the banking industry must constantly be examined.

Every marketing campaign is primarily aimed at promoting business profitability and developing and maintaining good customer relationships (Kotler and Keller, 2016). Many studies investigated the impact of E-CRM on various factors such as customer satisfaction (Rashwan *et al.*, 2019), customer loyalty (Mang'unyi *et al.*, 2018; Shastri *et al.*, 2020), customer retention (Al-Dmour *et al.*, 2019), financial profitability (Kaur and Kaur, 2016; Cajestan, 2018) and so forth. Despite all these attempts, E-CRM that affects customer satisfaction was not analyzed and assessed through customer experience, and this gap was clearly identified in the previous work (Zaim *et al.*, 2020). Customers expect to have interactions with their banks based on time-built experiences that make interactions fast, personalized and efficient (Garg *et al.*, 2014). Mulyono and Situmorang (2018) stated that investment in relationship and satisfactory factors would contribute to experience and satisfaction. Cajestan (2018) also argued that customer experience leads to customer satisfaction in the banking industry. Raina *et al.* (2019) stated that creating and understanding customer experience is important to deliver high quality of services to their customers so as to achieve customer satisfaction and loyalty. Syahputra and Muwatiningsih (2019) also supported the positive relationship of customer experience and customer satisfaction and stated that positive and memorable experience tends to improve the satisfaction among the customers. On the basis of the recent studies, customer experience was proposed to be a mediator between E-CRM and customer

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satisfaction. Hence, customer satisfaction can be achieved through positive experience between E-CRM and customer satisfaction in emerging economies. Despite the overarching popularity of E-CRM in marketing literature in developed countries (Mang'anyi *et al.*, 2018), studies aimed at emerging resource-limited organization environments such as those in the service sector of India are yet to be performed. The organizational strategies, product life cycle or market credibility of developed economies is distinct from developing economies because of the differences in governmental organizational policies and internal rules and regulations (Khan *et al.*, 2020). In reality, without proper contextualization and critical questioning as to their suitability and significance to such contexts, the literature warns of transposing Western-designed studies into resource-poor contexts (Farh *et al.*, 2004). More precisely, even though scholars widely recognize that the existence, significance and value of E-CRM can be influenced by cultural and economic institutions, there is limited research in Indian context that measures the effectiveness of E-CRM in Indian banking sector (Kaur, 2016; Sharma *et al.*, 2020; Shastri *et al.*, 2020). Hence, the results of this study are different from the studies conducted in developed economies.

In order to substantially bridge the above-mentioned research gaps, this paper contributed significantly to the current marketing literature in the field of E-CRM. Firstly, the present study was the first to unequivocally analyze the influence of the E-CRM on customer satisfaction through customer experiences in the banking industry, whereby customer satisfaction is essentially the satisfaction of customers with the online channels of the banks. Secondly, the current study introduced the stimulus-organism-response (S-O-R) model to relate E-CRM to customer satisfaction through customer experience. The S-O-R model confirms that the emotional and cognitive state of customers (here customer experience) is stimulated by certain environmental characteristics or stimuli (here E-CRM), which exhibit some behavioral responses (here customer satisfaction). Although previous work had augmented the recognition of the influence of the human-computer interface effect on consumer behavior, E-CRM has not been extensively studied (Mousavai, 2015). Thirdly, based on the extensive literature, we have identified and validated E-CRM, customer experience and customer satisfaction dimensions in the context of the banking industry. Fourthly, this study will contribute further to intensifying our understanding of the mediating relationship between E-CRM and customer satisfaction. Finally, the banks need to carefully monitor the current situation and to keep abreast of consumer behavior and prospects. Traditional CRM lacks clarity, as it is more of a reactive approach and therefore needs a better gradation. Since E-CRM is a proactive approach and an advanced variant of analytical CRM, it provides a single solution to the current situation in which the bank operates. The constant change in consumer behavior due to changing business technology leads to the complexities of CRM. As the traditional way of banking fades, the traditional approach or implementation of CRM may not fit into the new model of banking (Singh and Chauhan, 2018). Therefore, this study would extend the current knowledge base and also help E-CRM managers make better decisions to improve the experience and satisfaction of their customers.

The paper has been organized as follows: Theoretical underpinnings, that is, the theoretical model that supports the relationships among the examined variables (E-CRM, customer experience and customer satisfaction), and the development of the hypotheses have been presented in the next section. Thereafter, the next section briefly explains the research methodology adopted in this paper. Then, the data analysis and the testing of the hypotheses were done using confirmatory factor analysis (CFA) and structural equation modeling (SEM). Finally, it describes in detail the results of the present study and

provides theoretical and practical implications with limitations and future scope of this research.

## 2. Theoretical underpinnings and hypotheses

### 2.1 The S-O-R model

The S-O-R model was developed by Mehrabian and Russell in 1974 and modified by Jacoby in 2002. The model has been described in marketing studies as the dominant tool for studying customer behavior in a store environment and has been widely used (Arora, 1982; Donovan and Rossiter, 1994; Wakefield and Blodgett, 1996). This model describes how people will react with three steps: stimulus, organism and reaction to environmental stimuli. The model reconfirms that environmental characteristics act as stimuli that influence the cognitive and affective status of individuals, leading to certain behavioral responses (Donovan and Rossiter, 1994), that is, the organism mediates the associations between stimulus and behavioral responses of consumers (Chang and Chen, 2008). The model was initially intended for general environmental psychology, and several later studies have modified and tested it for retail use. Stimulus is defined in the context of e-commerce/e-retail as the features or attributes of the e-commerce world (Yadav and Rahman, 2018). The internal states in the S-O-R model mean that customers embody the cognitive and emotional states and include their views, observations and evaluations, while the responses are expressed as consumer behavior, such as purchase behavior, customer loyalty and customer satisfaction (Sautter *et al.*, 2004).

In numerous e-commerce contexts, especially the S-O-R model has been extensively used. Koo and Ju (2010) employed the S-O-R model in order to determine the effect of atmospheric cues on the emotional status of their consumers and their future intentions to shop online. Manganari *et al.* (2011) adopted the S-O-R model, which represents website attributes as stimulus, pleasure and attitude as organism and satisfaction as response. Walsh *et al.* (2011) also applied the S-O-R model, which considers the influence of store features (stimuli) on the pleasure (organism) that would subsequently lead to satisfaction (response). Gao and Bai (2014) proposed the S-O-R model to study the influence of online travel agency flows on customer satisfaction and buying intention. Zhang *et al.* (2014) employed the S-O-R to investigate the impact of technology on consumer experience and subsequent business purposes, while Mousavai (2015) also adopted the S-O-R model to analyze the relationship between E-CRM and customer loyalty through customer satisfaction. Based on the crucial role of E-CRM and customer experience in influencing customer satisfaction in the e-commerce context, in our study, the S-O-R model offers a theoretical framework to investigate the impact of E-CRM (as a stimuli) on customer experience (as an organism) and then subsequently on customer satisfaction (as a response).

Therefore, in our study, we have used the above theoretical underpinning to formulate the hypotheses and research model.

### 2.2 Hypotheses

**2.2.1 E-CRM and customer satisfaction.** Gaining customer satisfaction improves quality of relationship between customers and service providers (Chaluvadi *et al.*, 2018; Syapsan, 2019). Customer satisfaction implies that the customers are happy with the quality of services offered by their customer relationship manager (Oumar *et al.*, 2017; Otto *et al.*, 2020). In order to take corrective steps, E-CRM offers accurate and quick access to up-to-date and real-time information (Khan and Khawaja, 2013). Lu (2003) conducted a study on measuring the effectiveness of E-CRM on the customer satisfaction in the context of e-transaction cycle and found that the E-CRM services provided by the service providers improve the satisfaction

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level of the customers. The customers feel more comfortable as they are able to transact at their fingertips. Customer satisfaction is generally used as an indicator to measure the achievement of information system and the applications of E-CRM (Kim *et al.*, 2003). It makes the relationship stronger which further leads to positive word-of-mouth (Szymanski and Henard, 2001). Online customer satisfaction is measured not only through the products and services, but also through the interaction between the customers and the system (Bataineh, 2015; Al-Dmour *et al.*, 2019). Numerous research studies have been done in the past that revealed that E-CRM has a significant positive relationship with the customer satisfaction. Abdulfattah (2012) opined that the proper implementation of E-CRM influences customer satisfaction in the banking industry. Dhingra and Dhingra (2013) revealed that the customers are satisfied with their banks because of the convenience and trust feature of E-CRM and service quality. Khan and Khawaja (2013) postulated that E-CRM had a significant positive relationship with the customer satisfaction that helped in building customer loyalty. Bataineh (2015) stated that E-CRM leads to more satisfied customers with a positive word-of-mouth. In addition, Ismail and Hussin (2013), Kaur (2016), Kaur and Kaur (2016), Oumar *et al.* (2017), Mang'unyi *et al.* (2018), Mulyono and Situmorang (2018), Al-Dmour *et al.* (2019), Rashwan *et al.* (2019) and Upadhyaya (2020) also revealed the positive association of E-CRM with customer satisfaction. Therefore, E-CRM services provided by the organizations have allowed the customers to connect and interact with them, which increases their satisfaction level. Thus, we hypothesize:

*H1. E-CRM has a positive relationship with customer satisfaction.*

*2.2.2 E-CRM and customer experience.* The primary aim of every marketing campaign is to foster business profitability and to create and maintain good and enduring customer relationships (Kotler and Keller, 2016). It has become important for companies to enable the customers to live all the relationship moments with a company in a superior manner (Klaus and Maklan, 2013). Using E-CRM, businesses or organizations can evaluate their customers' views in 360 degrees, providing them with a good memorable experience that will further improve their satisfaction (Mulyono and Situmorang, 2018). Ding *et al.* (2011) postulated that customer experience has proved to be a crucial factor in achieving viable competitive advantages in online financial services. Customers expect to have interactions with their banks based on time-built experiences that make interactions fast, personalized and efficient (Garg *et al.*, 2014). Banks that can meet customer expectations and offer innovative ways of interaction will have more competitive advantage over the others. Most customers communicate with their banks using several platforms such as chatbots, virtual assistants, help desk, interactive voice recognition (IVR), email and mobile (Adlin *et al.*, 2019). Customers anticipate their experience across these various platforms to be seamless inadvertent of the platform they choose. Customers are optimistic about banks that have acknowledged and sought to meet their demands (Rajaobelina, 2017). Therefore, providing such experiences has become of utmost importance for sustainable business performance (Fernandes and Pinto, 2019). Thus, we hypothesize:

*H2. E-CRM has a positive relationship with customer experience.*

*2.2.3 Customer experience and customer satisfaction.* Consumers usually gather and analyze product information from mass media or friends, and then shape up their own opinions and perception, before making any buying decisions (Klaus and Maklan, 2013). In other words, pre-acceptance is the main goal, and is therefore irrelevant to levels of customer service. By analogy, first-hand experience, which often varies according to the level of customer experience, affects the perceived performance after purchase (Raina *et al.*, 2019). This problem is relatively negligible for experienced products, since such products are normally used only once and often for a shorter period of time. Research studies in the past have pointed out that

a memorable customer experience would make customer delighted and satisfied. [Chandok and Gupta \(2014\)](#) conducted a study to examine the association of customer experience with customer satisfaction in the banking industry and found that positive customer experience leads to more enhanced satisfied customers. [Chahal and Dutta \(2014\)](#) also postulated that a good memorable customer experiences improve satisfaction of the customers. [Sharma et al. \(2016\)](#) opined that happier the customer is with the service or experience, the more he/she would be satisfied. [Cajestan \(2018\)](#) explored the customers' perceptions toward digital banking and found that the positive customer experience improves customer satisfaction and loyalty, which, in turn, would enhance financial performance of the banks. In addition, [Kamath et al. \(2019\)](#), [Mulyono and Situmorang \(2018\)](#), [Nobar and Rostamzadeh \(2018\)](#), [Raina et al. \(2019\)](#), [Syahputra and Muwatiningsih \(2019\)](#) and [Saini and Singh \(2020\)](#) also stated the positive association of customer experience with customer satisfaction. Thus, we hypothesize:

*H3. Customer experience has a positive relationship with customer satisfaction.*

*2.2.4 E-CRM, customer experience and customer satisfaction.* For developing the link between E-CRM, customer experience and customer satisfaction, the S-O-R model of [Mehrabian and Russell \(1974\)](#), reformed by [Jacoby \(2002\)](#) in marketing context, had been used. According to S-O-R model, environmental characteristics (i.e. E-CRM) act as stimuli that influence the cognitive and affective status of individuals (i.e. customer experience), resulting in certain behavioral responses (i.e. customer satisfaction). Proper implementation of E-CRM provides 360 degree view of the customers which helps the businesses or organizations to offer best possible services in a more convenient manner in order to establish long-term mutual relationship with their customers ([Adlin et al., 2019](#)). As a result, positive or memorable experience prevails ([Mulyono and Situmorang, 2018](#)). Customer experience is significant as it enables the customers to live all the relationship moments in a superior manner with the company ([Verhoef et al., 2009](#)). This positive customer experience instills a feeling of fulfillment that results in customer satisfaction ([Kamath et al., 2019](#)). Therefore, E-CRM enhances customer satisfaction via customer experience, which plays the role of mediator. Thus, we hypothesize:

*H4. Customer experience mediates the relationship between E-CRM and customer satisfaction.*

Based on the theoretical and conceptual framework, we propose a research model for the study as presented in [Figure 1](#).

### **3. Methodology**

#### *3.1 Sample and data collection*

The respondents of this study were the customers of the Indian banks. As per the data available on market capitalization (2019) of India ([Money control, 2019a](#); [Money control, 2019b](#)), 10 banks were selected, that is, top 5 public and top 5 private sector banks. To ensure the valid participation of the respondents, the data were collected keeping in mind the following criteria:

- (1) Each respondent uses E-CRM services provided by their banks.
- (2) Respondents are the active customer of any of these selected 10 banks, that is, they are required to select their bank from the given list of banks as chosen for this study.
- (3) If in case the respondents are having more than one bank, then they should select the most preferred bank in which they use most of the E-CRM services.

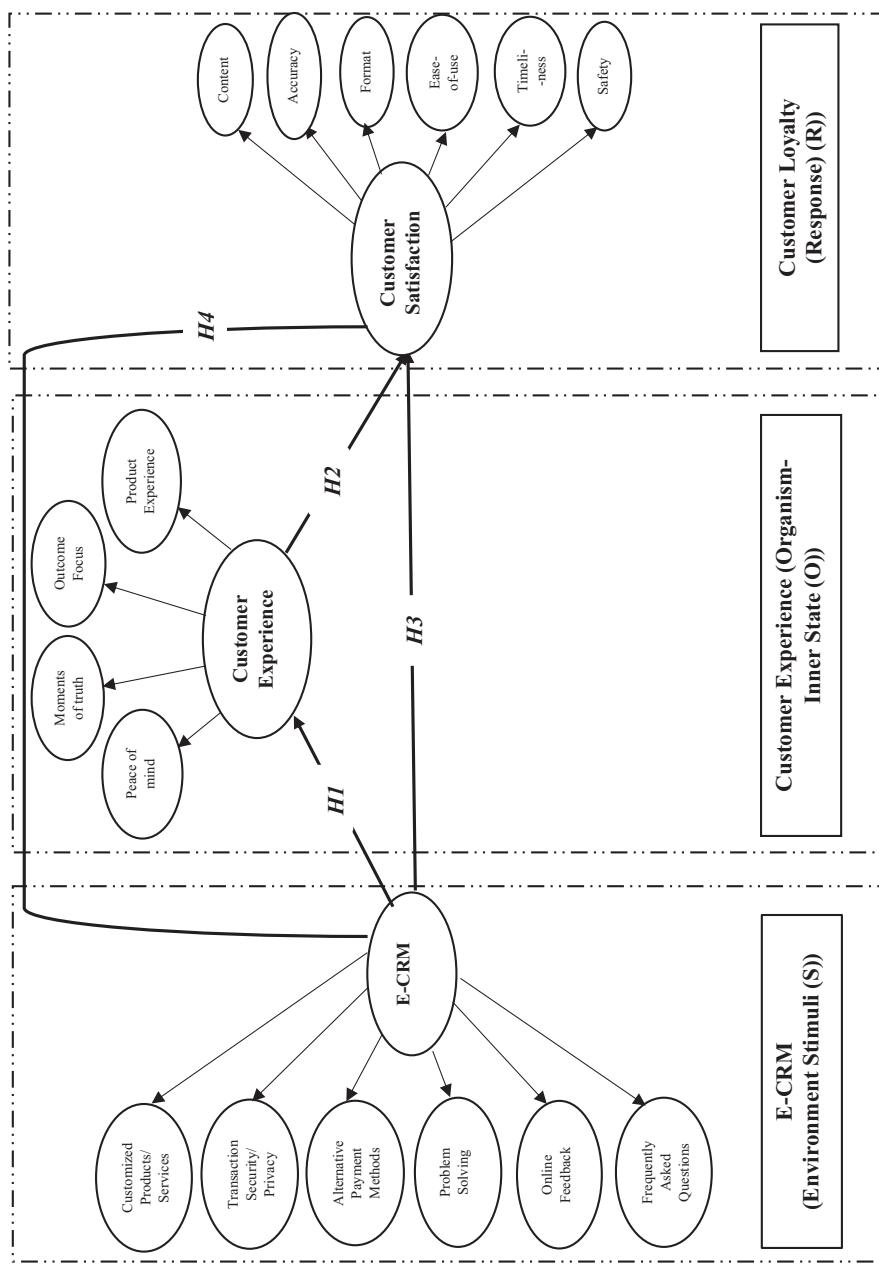


Figure 1.  
The S-O-R theory  
based research model

The aforesaid criteria were followed strictly to ensure effective participation of the respondents. The data were collected from the customers of these selected 10 banks from Delhi. Delhi has been selected because it has huge number of migrants from all over India and has mixed communities, lifestyle and culture from various demographic profiles. The questionnaire encompasses four sections. First, the screening questions were included so as to meet the criteria as mentioned above to have the valid participation and then the questions related to E-CRM constructs were included. Second and third sections were related to the constructs of customer experience and customer satisfaction respectively, and then finally, fourth section included the questions related to demographic profiles of the respondents. Prior to the collection of full data, pilot testing was done on the data collection instruments by taking a small sample of 50 banks' customers. The instruments were found to be reliable and, therefore, were considered for the main study. We have adopted purposive sampling technique in this study. Only those respondents who were using E-CRM services and also were the customers of the 10 selected banks, that is, the above-mentioned criteria, were approached. We obtained the contact details of relevant people from friends and relatives and then forwarded the questionnaires. A total of 1200 questionnaires were sent to the respondents online using various social media applications such as WhatsApp, Facebook and LinkedIn. Only 915 questionnaires were returned. Out of 915, 24 questionnaires were removed as they did not meet the set criteria and 55 questionnaires were not useable; thus, 836 questionnaires were accepted in the final analysis, yielding a response rate of 70%, which is adequate (Baruch and Holtom, 2008). In order to reduce common method bias (CMB), the data for different variables were collected with some time lag to ensure temporal separation (Podsakoff *et al.*, 2003).

### 3.2 Measures

For measuring the variables, pre-existing scales were employed in the study (see [Table A1](#) of [Appendix](#)). The constructs were re-validated to be used for Indian analysis since the scales were established in the different countries. All the statements were measured on a 5-point Likert scale, 1 being "strongly disagree" and 5 being "strongly agree."

*E-CRM:* We have employed the scale consisting of 19-items from [Abdulfattah \(2012\)](#). This scale is comprised of six dimensions: (1) customized products/services, (2) transaction security/privacy, (3) alternative payment methods, (4) problem-solving (5) online feedback and (6) frequently asked questions. Upon pilot testing, the Cronbach's alpha value was found to be 0.982.

*Customer experience:* The scale consisting of 19-items was adopted from [Klaus and Makhlan \(2013\)](#). This scale is comprised of four dimensions: (1) peace of mind, (2) moments of truth, (3) outcome focus and (4) product experience. The Cronbach's alpha value based on the pilot study was found to be 0.985.

*Customer satisfaction:* We have employed the scale consisting of 18-items from [Chen \*et al.\* \(2012\)](#). This scale is comprised of six dimensions: (1) content, (2) accuracy, (3) format, (4) ease-of-use, (5) timeliness and (6) safety. Upon pilot testing, the Cronbach's alpha value was found to be 0.978.

## 4. Analysis of data

### 4.1 Demographic information

The demographic profile of the respondents, who are the customers of the 10 banks in the National Capital Region of Delhi considered in the present research, was presented in [Table 1](#). This table analyzes the following demographic variables such as gender, age, occupation, educational qualifications and annual income of the respondents. Delhi is one of the most prosperous regions in India. This section includes some indicators of the demographic profile

Characteristics	Description	Frequency	Percentage (%)	Electronic customer relationship management
Gender	Male	453	54.2	
	Female	383	45.8	
Age	Less than 30 years	364	43.5	
	30–40 years	328	39.2	
	41–50 years	106	12.7	
	51–60 years	24	2.9	
	Above 60 years	14	1.7	
Educational qualification	High school	104	12.4	
	Graduation	356	42.6	
	Postgraduation	255	30.5	
	Doctorate	32	3.8	
	Professional degree	89	10.7	
Occupation	Student	129	15.4	
	Service	307	36.7	
	Self-employed	353	42.3	
	Homemaker	47	5.6	
Annual income	Less than Rs 2,50,000	72	8.6	
	Rs 2,50,001-Rs 5,00,000	164	19.6	
	Rs 5,00,001- Rs 7,50,000	248	29.7	
	Rs 7,50,001 to Rs 10,00,000	202	24.2	
	More than Rs 10,00,000	150	17.9	

559

**Table 1.**  
Demographic profile of the respondents

of the general population of Delhi for a general appreciation, though the target population in our study is the customers of banks practicing E-CRM rather than the general population. The indicators are presented as hereunder. Percentage of males and females in the population was 54 and 46, respectively. Its literacy rate of 86.2% is one of the highest in the country. In all, 97.51% of the population is urban residents. And the working population in the age group of 15–59 constitutes around 65% of the population.

#### 4.2 Descriptive statistics

**Table 2** summarizes the descriptive statistics of the data such as mean, standard deviation and correlation matrix along with the square root of average variance extracted (AVE) value. The mean values of the three constructs, that is, E-CRM, customer experience and customer satisfaction, were found to be 3.178, 3.598 and 3.703, respectively, whereas the standard deviation values of the three constructs, that is, E-CRM, customer experience and customer satisfaction, were found to be 0.462, 0.467 and 0.537, respectively, which indicated that the variation in the data was not very high. Also, correlation matrix indicated that all the values of correlation coefficients, that is, between E-CRM and customer experience ( $r = 0.437$ ), E-CRM and customer satisfaction ( $r = 0.432$ ) and customer experience and customer satisfaction ( $r = 0.478$ ), were moderately associated with each other and found to be statistically significant ( $p < 0.05$ ). Therefore, all the three constructs were positively associated with each other.

Variable	Mean	Std. dev	E-CRM	Customer experience	Customer satisfaction
E-CRM	3.178	0.462	0.710 <sup>#</sup>		
Customer experience	3.598	0.467	0.437	0.726 <sup>#</sup>	
Customer satisfaction	3.703	0.537	0.432	0.478	0.751 <sup>#</sup>

**Note(s):** #Square root of AVE

**Table 2.**  
Mean, standard deviation, correlation matrix and discriminant validity

### 4.3 Measurement model

CFA was employed through AMOS (26.0) to assess the fit indices of the pooled measurement model by taking all the constructs together. All the fit indices ( $\chi^2/df$ : 2.019; NFI: 0.941; TLI: 0.968; CFI: 0.969; RMSEA: 0.035; SRMR: 0.038) were found to be within an acceptance range (Hair *et al.*, 2010), which revealed that the data fit the pooled measurement model very well. The fit indices are presented in Table 3. According to Fornell and Lacker (1981), to achieve convergent validity, the recommended value of composite reliability (CR) more than 0.70, Cronbach's alpha more than 0.70 and AVE more than 0.50 are accepted. It is clear from Table 4 that all the constructs enjoy convergent validity as CR was more than 0.70, Cronbach's alpha was more than 0.70 and AVE was more than 0.50. Table 1 also indicates that E-CRM, customer experience and customer satisfaction had a discriminant validity as the squared correlation values between the corresponding constructs (non-diagonal values) were less than the square root of AVE (diagonal values), that is, the constructs were distinct (Fornell and Lacker, 1981). Thus, Tables 2 and 4 showed that both the convergent and discriminant validity had been met; therefore, the three-factor pooled model had construct validities.

### 4.4 Common method biasness (CMB)

To rule out the presence of CMB, we followed the works of Spralls *et al.* (2011) and used Harman's single-factor analysis (Harman, 1967). In this, a single factor was extracted through principal component matrix without any rotation. The results showed that the factor explains 30.48% of the total variance of the data, which is below the threshold of 50%. Thus, there was paucity of evidence for common method biasness and the data were not contaminated.

### 4.5 Structural model testing

After the validation of the pooled measurement model, the structural model was evaluated on the basis of maximum likelihood estimation along with the bootstrapping procedure with 2000 bootstrap replicates. The hypothesized model was validated based on the analyses of the fit indices and other parameters. All the fit indices ( $\chi^2/df$ : 2.019; NFI: 0.941; TLI: 0.968; CFI: 0.969; RMSEA: 0.035; SRMR: 0.038) were found to be within an acceptance range (Hair *et al.*, 2010). All these values revealed that the data fit the model well. The fit indices were presented in Table 5. The loading estimates had not changed from the measurement model which indicated that the stability prevails in the parameters between measured items which further supported the validity of the measurement model (Hair *et al.*, 2010).

Table 6 summarized the path details of the structural model after testing the relationship between E-CRM, customer experience and customer satisfaction. The effect of E-CRM on customer experience was found to be significant (beta = 0.437; *p*-value < 0.01); therefore, H1 was supported. Also, the effect of customer experience on customer satisfaction was found to be significant (beta = 0.358; *p*-value < 0.01); therefore, H2 was supported. With the help of

Index	Value	Acceptable values for good model fit#
CMIN/df	2.019	<5.00
NFI	0.941	>0.90
TLI	0.968	>0.90
CFI	0.969	>0.90
RMSEA	0.035	<0.05
SRMR	0.038	<0.05

Table 3.  
Measurement model fit  
indices

Note(s): #Hair *et al.* (2010)

Constructs	Factor loadings	Cronbach's alpha	Composite reliability (CR)	Average variance extracted (AVE)
E-CRM		0.938	0.859	0.505
Customized products/ services	0.708			
Transaction security/ privacy	0.716			
Alternative payment methods	0.714			
Problem solving	0.702			
Online feedback	0.716			
FAQs	0.707			
Customer experience		0.950	0.816	0.526
Peace of mind	0.730			
Moments of truth	0.725			
Outcome focus	0.734			
Product experience	0.713			
Customer satisfaction		0.951	0.886	0.564
Content	0.754			
Accuracy	0.768			
Format	0.717			
Ease of use	0.731			
Timeliness	0.793			
Safety	0.742			

Table 4.  
Results of convergent  
validity

Index	Value	Acceptable values for good model fit#
CMIN/df	2.019	<5.00
NFI	0.941	>0.90
TLI	0.968	>0.90
CFI	0.969	>0.90
RMSEA	0.035	<0.05
SRMR	0.038	<0.05

Table 5.  
Structural model fit  
indices

Paths		Direct effect	Indirect effect	Remarks
E-CRM	→ Customer experience	0.437**		H1 supported
Customer experience	→ Customer satisfaction	0.358**		H2 supported
E-CRM	→ Customer satisfaction	0.276**	0.156**	H3 and H4 supported

Table 6.  
Path details of  
structural model

direct and indirect effect, the mediating role of customer experience was examined on the association between E-CRM and customer satisfaction. The direct effect of E-CRM on customer satisfaction was found to be significant ( $\beta = 0.276$ ;  $p$ -value < 0.01) and also the indirect path through customer experience was also found to be significant ( $\beta = 0.156$ ;  $p$ -value < 0.01). Both the direct as well as indirect effects were found to be positive and significant as shown in Table 6. Therefore, both H3 and H4 were supported. Thus, the

findings revealed that the relationship between E-CRM and customer satisfaction was mediated by customer experience. Hence, in our analysis, all the proposed hypotheses were supported. Thus, the proposed research model cannot be rejected, and hence it is accepted.

## 5. Discussion and implications

This research explored the association between E-CRM, customer experience and customer satisfaction through the mediating role of customer experience in the banking industry, which has not been studied so far (Zaim *et al.*, 2020). In this research, the data supported the hypothesized model. The S-O-R model states that environmental stimuli affect the emotional and cognitive status of individuals (Donovan and Rossiter, 1994). E-CRM aids companies or organizations to evaluate the views of their customers in a 360-degree grid to provide them with a good memorable experience (Mulyono and Situmorang, 2018). As a result, customers are more likely to build long-term relationships with their service providers (Al-Dmour *et al.*, 2019). This has led us to conclude that banks should interact frequently and offer the best services to their customers whenever they are confronted with bank-related problems. Such interaction and support lead to a positive customer experience. Applying the same theory of the S-O-R model, customers with positive and memorable experiences would be more satisfied and willing to maintain a lasting relationship with their banks. The finding of this result is in conformance with the previous work (Cajestan, 2018; Kamath *et al.*, 2019; Mulyono and Situmorang, 2018; Nobar and Rostamzadeh, 2018; Raina *et al.*, 2019; Syahputra and Muwatiningsih, 2019 and Saini and Singh, 2020). The positive relationship between customer experience and customer satisfaction showed that banks should improve and maintain long-term relationships with customers. Improving their E-CRM activities would give banks a competitive opportunity to improve their customer relationships (Hendriyani and Raharja, 2018; Kampani and Jhamb, 2020). E-CRM is therefore positively related to customer satisfaction.

### 5.1 Theoretical implications

Since every marketing campaign is primarily aimed at promoting the profitability of companies and developing and maintaining good customer relationships (Kotler and Keller, 2016), this research explored the influence of E-CRM on customer satisfaction through the mediating role of the customer experience. In addition, the existing literature lacked research on the relationship between E-CRM and consumer satisfaction based on customer experience (Zaim *et al.*, 2020). Numerous studies have also confirmed the relevance of E-CRM in the e-banking industry (Abdulfattah, 2012; Abu-Shanab and Anagreh, 2015; Kaur and Kaur, 2016; Mang'uni *et al.*, 2018; Al-Dmour *et al.*, 2019; Chuang *et al.*, 2012; Dhingra and Dhingra, 2013; Hendriyani and Raharja, 2018; Paul and Muthumani, 2018; Rashwan *et al.*, 2019; Sharma *et al.*, 2020; Shastri *et al.*, 2020). Also, there were limited studies that assessed the efficacy of E-CRM in the Indian banking industry (Kaur, 2016; Sharma *et al.*, 2020; Shastri *et al.*, 2020). Therefore, this research substantially contributed to the existing literature by conceptualizing and empirically examining the feasibility of E-CRM in the banking industry and its association with the customer experience and customer satisfaction by bridging the research gaps mentioned above.

The study introduced the S-O-R model as a theoretical support to investigate the relationship between E-CRM and customer satisfaction through the mediating role of customer experience. The S-O-R model confirms that the emotional and cognitive state of customers (here customer experience) is stimulated by certain environmental characteristics or stimuli (here E-CRM) that exhibit some behavioral responses (here customer satisfaction). Although previous work had augmented the recognition of the influence of the

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human-computer interface effect on consumer behavior, E-CRM has not been extensively studied (Mousavai, 2015). Establishing an association between E-CRM, customer experience and customer satisfaction does contribute to the existing literature (Zaim *et al.*, 2020).

### 5.2 Practical implications

From a practical perspective, the present study provides implications for the banking industry operationalized in emerging nations. To gain individual attention of the customers, the banks should build long-lasting durable relationships with them (Elbedweihy *et al.*, 2016). Proper investment in relationship and satisfactory factors significantly contribute to experience and satisfaction (Mulyono and Situmorang, 2018). Customers expect to have interactions with their banks based on time-built experiences that make interactions fast, personalized and efficient (Garg *et al.*, 2014). Therefore, this study has demonstrated customer experience which has a huge influence on E-CRM and customer satisfaction.

The banks should take into consideration all the dimensions of E-CRM to enhance customer experience and satisfaction. The growing relevance of E-CRM in the banking industry originates not only from its instantaneous benefits gained by lowering banks' operating costs, but also because it is important and directly related to the quality of the service rendered and the satisfaction of customers. The bank managers should develop ICTs and focus on improving retail banking policies so as to provide more positive experiences to their customers by carefully focusing on the cost-benefit analysis. When the banks implements new attractive services, they can persuade the customers to generate positive word-of-mouth to their friends/family, which can help the banks to achieve the competitive advantage over a period of time and ultimately gaining the market reputation (Manohar *et al.*, 2019).

The banks should provide more electronic touch points so as to have a smooth and efficient interaction with their customers. This study will be beneficial for banks that are already providing e-banking services and banks that are intending to provide such electronic services. E-CRM implementation is perceived as an expensive tool and requires a lot of work-process planning, refitting and, at times, reorganization. Thus, it is clear that the banking industry can gain significantly by linking E-CRM with the customer experience and customer satisfaction.

In other words, it is pertinent not only to build short-term customer relationships and customer values but also to use E-CRM to enhance long-lasting mutual relationships with the customers and to the success of the banking industry. This study is valued in particular as it demonstrates the association between E-CRM implementation and customer experience and satisfaction which will enable the current banks as well as other banks and financial institutions to provide insight and inference.

## 6. Limitations and direction for future research

This empirical study makes a significant contribution toward the relationship between E-CRM, customer experience and satisfaction; still, there are some limitations. *Firstly*, this research paper focuses on the customer-centric study and does not take into consideration the bank's employee's point of view. The model can be extended to include impact of E-CRM from banks' perspectives also. *Secondly*, the sample being small in size lacks in generalizability. The samples can be expanded by including respondents from different parts. *Thirdly*, the study focuses on the respondents from Delhi which can be extended to different parts of the states. *Fourthly*, few variables have been identified to measure E-CRM; other variables can also be included to measure E-CRM to understand its impact on customer satisfaction. *Fifthly*, the study can also include a comparison between public and private sector banks in terms of

E-CRM and customer satisfaction. *Lastly*, to determine the causality between variables, longitudinal data are a prerequisite. But, since we have used only cross-sectional data, we cannot infer about the causality of the variables in the current analysis.

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## Appendix:

E-CRM dimensions and items	Author(s)
1. Customized products/services	Abdulfattah (2012)
2. Transaction security/ privacy	
3. Alternate payment modes	
4. Problem solving	
5. Online feedback	
6. Frequently asked questions (FAQs)	

**Table A1.**  
Scales dimensions  
and items

Customer experience dimensions and items	Author(s)
1. Peace of mind	Klaus and Maklan (2013)
(1) I am confident in my bank's expertise (2) The whole process with my bank was easy (3) My bank will look after me for a long time (4) I stay with my bank because of my past dealings with my bank (5) I have dealt with my bank before so getting what I needed was really easy (6) My bank gives(s) independent advice	
2. Moments-of-truth	
(1) My bank was flexible in dealing with me and looked out for my needs (2) My bank keeps me up-to-date	
3. Outcome focus	
(1) My bank is a safe and reputable financial institution (2) The people at my bank have good people skills (3) My bank deals ( <i>if</i> ) with me correctly when things go (went) wrong (4) Staying with my bank makes the process much easier (5) My bank gives me what I need swiftly (6) I prefer my bank over an alternative provider	
4. Product experience	
(1) The people at my bank can relate to my situation (2) I need to choose between different options at my bank (3) I need to receive offers from more than just my bank (4) I need to compare different options from my bank (5) I have one designated contact at my bank	
Customer satisfaction dimensions and items	Author(s)
1. Content	Chen <i>et al.</i> (2012)
(1) Do you think that bank's online channels provide the precise information you need? (2) Do you think that the information content of bank's online channels meets your needs? (3) Do you think that bank's online channels provide transaction reports that seem to be just about exactly what you need?	
2. Accuracy	
(4) Do you think that bank's online channels provide sufficient information? (1) Do you think that data in bank's online channels are accurate? (2) Do you think that you are satisfied with the accuracy of data in bank's online channels?	
3. Format	
(1) Do you think the output of bank's online channels is presented in a useful format? (2) Do you think that the report information extracted from bank's online channels is clear?	

(continued)

Table A1.

Customer satisfaction dimensions and items	Author(s)
4. Ease of use	(1) Do you think that bank's online channels are user-friendly? (2) Do you think that bank's online channels are easy to use?
5. Timeliness	(1) Do you think that you get the information you need in time from bank's online channels? (2) Do you think that bank's online channels provide up-to-date information?
6. Safety	(1) Do you think bank's online channels provide sufficient security? (2) Do you think that you are satisfied with the security of bank's online channels? (3) Do you think that the adoption of security mechanism of bank's online channels will increase the data security on transactions? (4) Do you think that you are satisfied with the security mechanisms of bank's online channels? (5) Do you think that you are satisfied with the assurance of online transaction on bank's online channels? (6) Do you think that you are satisfied with bank's online channels while the involvement of trusted third party (TTP) in dealing with online transactions?

Table A1.