

# IMPACT OF INFORMATION SYSTEMS ON CUSTOMER RELATIONSHIP MARKETING IN THE HOTEL INDUSTRY DURING COVID-19

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## Abstract

*This article examines the impact of information systems on customer relationship marketing in the hotel industry during COVID-19. A structured questionnaire was developed to gather data from users connected with the hotel industry in Delhi/NCR associated with HAI for the study. The research design used for the study is quantitative data analysis that was helpful in the collection of deep and trustworthy data in the field. Regression analyses has been employed to measure the relationships and impact among the dependent and independent variables. The findings of this study provide significant insight for the planners and marketers in the hotel industry into the benefits of information systems usage in customer relationship marketing during COVID-19. The study contributes to institutional theory and customer utility theory.*

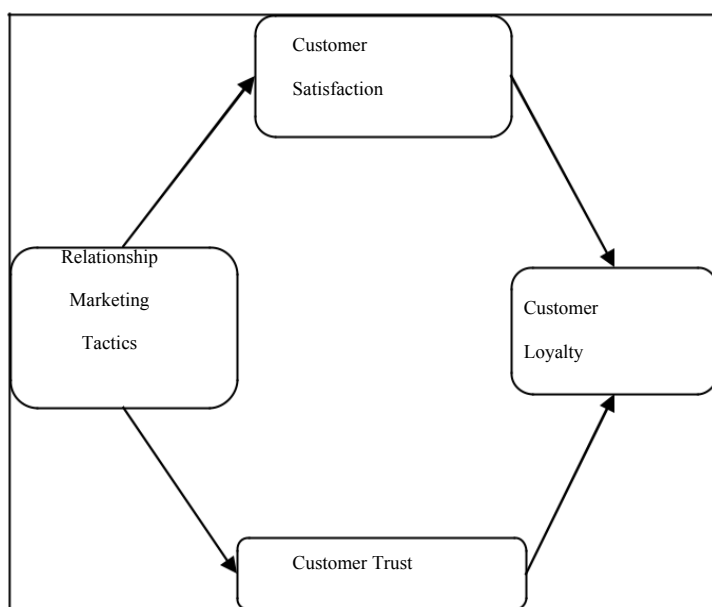
**Keywords:** *Customer Relationship Marketing (CRM), Indian Hotels, Information Systems (IS), COVID-19, National Capital Region (NCR), Hotel Association of India (HAI)*

## Introduction

Relationship marketing is about determining long-term customer relationships. Customer relationship marketing, with the help of information systems, has become the foremost strategy to retain customers for companies irrespective of their size (Kelly, 2001). Hotel operators are starting to pay more consideration to the possible benefits of information systems and their

application in hotel management practices which help in customer loyalty and retention (KPMG, 2003). Industries can improve their relationship with consumers through CRM and thus contribute to greater customer engagement, retention, and profitability (Mariani, 2020). One of the most challenging tasks facing any company is to understand novel customers, so, more and more research has concentrated on hotel-related impacts of the information systems at the personal and organizational level (Tussyadiah, 2020).

CRM strategy is a reply to the evolving business situation of COVID-19 and a strategic effort to allow businesses to create long-lasting relationships that optimize the value of their customers over their lifetime (Huang, 2018). The influence of advances in information technologies that initiated the arrival of new business paradigms after COVID-19 impacts the lives of people all over the world with growing rivalry in the economy, wherein every business is stressed to survive today (Mariani, 2020).



Source: (Rizan, 2014).

**Fig. 1: Relationship Marketing, Customer Satisfaction and Loyalty**

CRM is critical in the hotel industry (Fig. 1), for hotel chains operating nationally, globally, or through global partnerships, and the link between customer loyalty and relationship marketing was investigated further using variables such as trust and satisfaction (Rizan, 2014). The significance of this

study is that it attempts to illustrate the impact of information systems on CRM in the hotel industry by disclosing the effect of CRM on the COVID-19 situation in a variety of ways. The research questions are used in this research are:

- Does the hotel use information systems in hotels at Delhi/NCR for customer relationship marketing during COVID-19?
- Whether or not the information systems had an impact on CRM in the hotel industry during COVID 19?

Based on the research questions the objectives were prepared and are as under:

- To analyse the usage of IS in hotels at Delhi/NCR for CRM during COVID-19.
- To determine the impact of IS on CRM in Hotels at Delhi/NCR during COVID-19.

The rationale of the study is CRM deals with attracting, developing, and retaining customer relationships (Parasuraman, 2006). Delhi/NCR hotels are highly impacted in attracting, developing, and retaining customer relationships in the current situation. CRM through information systems is the major definitive change that happened in marketing theory and practice during this pandemic. CRM assists to build a good relationship between customers and organization. Every organization tries to fulfil its customer requirements with choice. Hence, we are determining the impact of information systems on CRM in the hotel industry during COVID-19. This study helps to recognize what are factors determine the impact of IS on CRM in a hotel.

## **Review of Literature and Hypotheses Development**

The hotel industry is prone to threats caused by startling events, such as epidemics and natural disasters (Huang, 2018). Owing to the global health crisis of COVID-19, the travel and tourism industry is already in decline and fighting for survival (Guevara, 2020). The COVID-19 pandemic has perpetrated serious blows on hoteliers around the world which have put an end to life and have brought about everyday developments and the effect of COVID-19 age practices and policies on marketing, including the failure of brand managers and market analysts to perform in-person customer interviews and on-site global research to identify tastes, behaviours, motives, and behavioural purchases of the targeted client (Chan, 2020). The epidemic of the 2019 novel coronavirus disease (COVID-19) has driven people with

infection and thousands of deaths in the COVID-19 scenario and hotels are especially predisposed to reduced tourism and travel along with a slowdown in economic activity (Hoisington, 2020.) By way of customer safeguarding behaviour in the situation of COVID-19, it is so noteworthy for marketers to be aware of these developing trends in this unequalled period of anticipation of consumer needs as well (Courtney, 2020).

### ***Customer Relationship Marketing***

The hospitality sector is largely public-based, so in the hotel sector, relationship marketing is one of the ways to achieve a justifiable competitive advantage (McIlroy, 2000). Therefore, upholding long-term relationships with customers is stronger than ever because a significant increase in the number of loyal customers results in a significant increase in the profitability of the hotel (Kim, 2002). Christopher in 1991 also recognized a model that represents an integrative form of service quality, customer service, and relationships economics (Christopher, 1991). According to him, the key task of relationship marketing is to take three functional activities, i.e., customer service, quality, and marketing in closer proximity (Fig. 2).

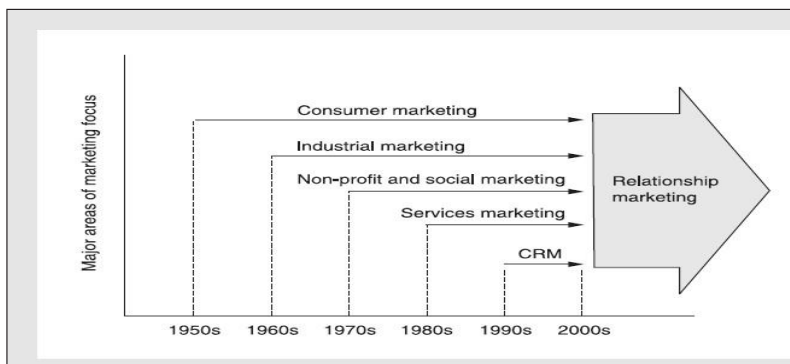


Source: (Christopher, 1991), Relationship Marketing, Oxford: Butterworth-Heinemann.

**Fig. 2: Relationship Marketing, Customer Service and Quality**

The hotel industry is primarily a service industry in which relationship

marketing plays an exciting role in building brand loyalty (Maja, 2010). Opportunities created by promise, which is also inclined towards prior experience, references by friends, and relatives and brand image Later, each guest walks into the moment of truth with an expectation that outlines the value of a guest (Doyle, 2001). The evolutionary journey of product-focused consumer marketing from the 1950s to the customer-focused relationship marketing of the 2000 era has been explained by the progressive trend in the marketing approach and demonstrates the shift from market segmentations to CRM (Gustafsson, 2005). Relationship marketing is a shift in emphasis from the need to conduct transactions to the need to cultivate long-term customer relationships. (Ballantyne, Relationship Marketing: Looking Back, Looking Forward. Marketing Theory, 2003) set up a model that represents an integrative form of service quality, customer service, and financial relationships. He demonstrated that the key challenge of relationship marketing is to bring three functional activities, namely customer service, quality, and marketing, much closer together (Fig. 3).



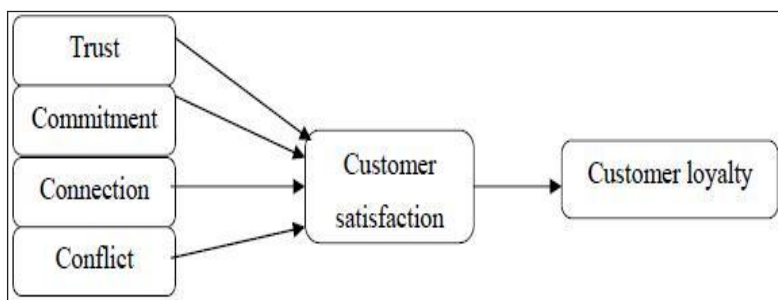
Source: (Ballantyne, Relationship Marketing: Looking Back, Looking Forward. Marketing Theory, 2003).

**Fig. 3: Major Areas of Marketing Focus**

### ***CRM in Hotel***

CRM has been applied to hotel businesses to boost profits and improve, and the effect of its implementation on hotels' competence confirms that CRM provides an excellent opportunity for hotel businesses to recover their performance in terms of customer value, customer loyalty, and benefit (Lin, 2006). In addition, a working CRM programme of a hotel will possibly

increase the inclusive profitability (Gummesson, 2011). The different dimensions of CRM together with trust, commitment, connection, and conflict control (shown in Fig. 4) have a positive impact upon customer satisfaction and loyalty (Rezvani, 2011).



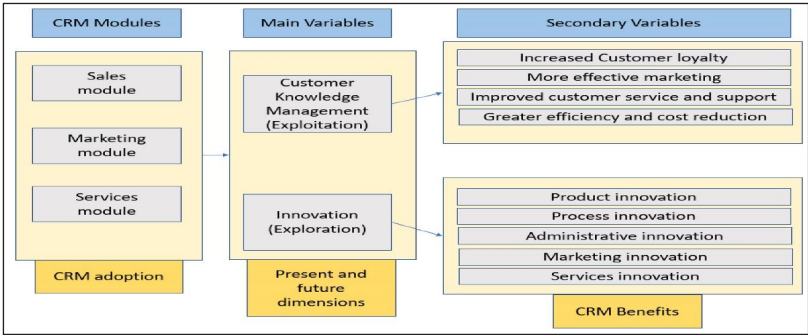
Source: (Rezvani, 2011), Australian Journal of Basic and Applied Sciences, 5 (9), pp. 1547-1553.

**Fig. 4: CRM Elements**

A decisive position in hotels, CRM applications have a healthy prominence in identifying and retaining the foremost profitable customers and improving the profitability of less profitable customers (Wang, 2012). Hotel businesses that have implemented CRM reap greater benefits as a result of finding and retaining the most profitable clients and developing long-term relationships with them (Wu, 2012). Another matter is the lack of researcher's cared to find the relationship between CRM and customer satisfaction (Sivesan, 2012).

As a result of the prevalent array of exponential developments in the data environment, a sophisticated and ever-evolving technique for customer relationship marketers to grasp online customer relationships, such as global distribution system, central reservation system, e-commerce, social networking, online communities, mobile and augmented reality, is now available in various organizations such as hotels (Kuo, 2017). CRM supports enterprises like hotels to overcome challenges such as revenue decline, organizational challenges, misalignment of goals and policies in this ever-changing hotel service situation, provides hoteliers with an ability to support and delight guests in creative ways through information systems, artificial

intelligence, and robotics (Huang, 2020).



Source: (Hermenegildo Gil-Gomez, 2020) Economic Research-Ekonomska Istraživanja.

**Fig. 5: CRM Benefit Map in Terms of IS**

CRM has been extensively viewed as a business activity related to developing and retaining customers through improved satisfaction and loyalty with the support of information systems. This research model may be the basis for a more precise methodology to measure the impact and benefits of applying information systems on CRM, understood, as we will contend, both in terms of sustainable business models and innovation (Hermenegildo Gil-Gomez, 2020). CRM can now be a well-planned IS aimed at digital transformation and long-term business model innovation during a pandemic. The impact of information systems on CRM has piqued global interest, with research conducted primarily in developed countries. Another issue is a lack of attention paid by researchers to determine the impact of information systems on CRM in hotels of Delhi/NCR. So, the hypothesis was:

*H1: IS has a significant impact on CRM in hotels at Delhi/NCR during COVID-19.*

**Information System Usage in Hotels**

The information systems in hotels indicates an alternate service concept (Kuo, 2017) and an evolving research field (Tuominen, 2016), (Buhalis, 2002) highlights the modern integration of other organizations and service providers in modern ‘eTourism’ and recognized the link of existing technologies such as global distribution system (GDS) and central reservation system (CRS) serving the current distribution model with travel operators and agents, but also branded the new ‘eMediaries’ assisting e-commerce; this being the internet, interactive digital TV, mobile devices and mobile commerce (‘mCommerce’).

Hotels can connect with their customers by offering their products on portals and collecting and analysing customer pattern data via customer knowledge marketing, which is a technique for managing relationships between consumers and businesses (Davenport, 2020). Instructions have investigated the use of information systems in hotels like GDS and CRS from a variety of perspectives, claiming that novel services utilizing robots could boost hotels' long-term competitiveness (Kuo, 2017). Concerning the impact of information systems and robotics on travellers' experience, potential directions for research on customer experience in human-robot interaction have been predictable (Tung, 2018). Indeed, more hotels are likely to use unmanned systems and use the IS to provide fully contactless CRM (Huang, 2018).

The development of the IS has helped to underpin the interaction between business and its consumers in several ways, providing an insight into the rapidity and growth of e-commerce between businesses and organizations (Shainesh, 2019). Amid a pandemic, online communications have emerged as a dominant mode of exchange for hotel businesses and consumer services. As a result, nurturing online relationships defined as relational exchanges mediated by Internet-based networks connected with GDS and CRS presents companies with both challenges and opportunities (Li, 2019). The outbreak of COVID-19 may thus be foreseeable to accelerate the infiltration of the IS into the hospitality industry. Real-time intuition and knowledge infrastructure that anticipates customer desires and wishes are momentous for marketers and ensure positive supportive interaction with customers. Brands can provide real-time assurance and a sense of connection. RevPAR (revenue per available room) in the United States, Europe, and Asia will continue to fall as leisure and business travel is postponed or cancelled due to COVID-19 (Courtney, 2020). Despite fresh achievements, researchers should dive deeper into the applications of service delivery, service creation, and hotel refit information systems (Huang, 2020). More explicitly, diverse types of information systems (mechanical, thinking, and feeling) could open distinct research streams at the intersection of health crises and hotel management in the light of the COVID-19 pandemic. Hoteliers should try to find to attach huge data facilities to determine or maintain competitive advantages through adapted customer service (Mariani, 2020). Similarly, the drivers and barriers to IS adoption are concentrated in a variety of hotel services as well as specific customer segments. Service interactions appear to be either simplified or complicated by data system applications (Mariani, 2020). The success of these innovations is heavily reliant on individual customers' attachment to the system and the success of these innovations is heavily reliant on individual customers' attachment to the system (Wen, 2020).



The outbreak of COVID 19 is expected to accelerate the diffusion of the IS in CRM in the hospitality industry. There has been an increase in the involvement of traveler demand since the outbreak of COVID-19 (Wen, 2020). CRM systems based on information systems have been used in a variety of industries, including hotels. CRM delivers analytical, operational, and direction capabilities: analytical capabilities increase profitability from customer relationships, operational capabilities cut across the customer value process, and direction capabilities rely on planned skills and reflect the keenness of long-term support. Despite recent achievements, researchers should delve deeper into the implementation of service delivery, service development, and service interaction information systems in hotels (Huang, 2020).

To summarize our final theoretical discussion, represents the benefits of CRM implementation, both in terms of the current use (customer information) and prospective study (impact), based on the CRM's impact on hotels in this pandemic. The study's goal was to find out how a hotel uses information systems to improve CRM effectiveness. In this pandemic, this study could investigate the impact that information systems have on CRM in hotels. Another problem with information systems is a scarcity of researchers who have concentrated on determining the relationship between IS and CRM, as well as how to incorporate CRM practices into customer satisfaction in the hotel industry. So, the hypothesis was:

*H2: Information Systems is significantly used by hotels at Delhi/NCR for CRM during COVID-19.*

## **Research Methodology and Data Collection**

A survey instrument in the form of a close-ended questionnaire was developed to collect the main data for the study. A systematic quasi-random sampling method was taken to select the respondents of the study. This sampling method was chosen as it permits analysis of possible selection bias or error. The respondents are users connected with hotels across Delhi/NCR based on HAI membership. Of the sixty hotels across Delhi/NCR contacted for respondents, one hundred and eighty-six respondents connected with fifty-one hotels were chosen as a sample of the study. The questionnaire refers to the impact of IS on CRM to specifically examine the effect of CRM practices on customer satisfaction and retention in this pandemic.

The study was conducted in three mapping stages, the analysis stage, and the concluding stage. The first stage (mapping stage) of the study identified the theoretical framework of the study through the review of the literature and examined several strategies and areas in the hotel industry through a small review. In the second stage (analysis stage), the study identified better-known strategies through the study and scrutinized previous studies based on selected known secondary strategies used in hotels. The researcher has proposed the 7 better-known relations into one term i.e., CRM, and another seven with IS in hotels. Lastly, at the concluding third stage, all the strategies were compared and analysed. Recommendations and future needs were identified at the end of this study. In this research, we have used a Five-point scale; Strongly Disagree (1), Somewhat Disagree (2), neither agree nor disagree (3), Somewhat Agree (4), and Strongly Agree (5). The questionnaire is broken down into sections. Each one reflects the objectives and hypothesis of the research. Testing for content validity is an important aspect of increased rigor in scientific research in the modern positivist paradigm. A strong evidence of convergent validity which is relevant here. A reliability test is done before applying factor analysis with the help of SPSS 25.0. Testing of the reliability of the scale is used as it shows the extent to which a scale produces consistent results if measurements are made repeatedly. Correlation and regression analysis has been employed to measure relationship, impact, and contribution among the dependent and independent variables.

## **Data Analysis**

In Table 1 the total number of respondents is 186 out of which a greater number of users of information systems stands in the age group of 19-35 years with 80.1% followed by 36-50 years wherein 15.5%. Rest up to 18 and above 50 years stands to 2.2% in both the cases. Students and service class from the occupation are more aware of the usage and impact of IS for CRM which is 42.5% and 41.9% followed by businessman or professional with 14.1%, homemaker 1%, and farming .5% respectively. In the case of education, graduates, undergraduates, and postgraduates are the most used with percentage of 40.9, 34 and 21.5 followed by others 3.6 % respectively. In the case of gender male respondents are more in number than the female which stands for 67.9% and 32.1%. Similarly, the unmarried respondent is more in percentage than married i.e., 52.1, and 47.9 respectively.

Table 1: Respondents’ Demographics

Age in years			Occupation			Education			Gender		
Variables	F	%	Variables	F	%	Variables	F	%	Variables	F	%
Up to 18	4	2.2	Businessman /professional	26	14.1	U n d e r - graduate	64	34.0	Female	61	32.1
19-35	149	80.1	Farming	1	0.5	Graduate	76	40.9	Male	125	67.9
36-50	29	15.5	Home Maker	2	1.0	Post -graduate	40	21.5	Marital Status		
Above 50	4	2.2	Service class	79	42.5	others	6	3.6	Married	60	52.1
			Student	78	41.9				Unmarried	126	47.9
N	186	100.0		186	100		186	100		186	100

% = percentage of respondent.

**Table 2: Component of CRM Matrix<sup>a</sup>**

Factors	FL	M	SD
<b>1. CRM</b>			
IS based CRM helps in analyzing customer satisfaction level in hotels during the pandemic.	0.752	3.56	1.08
IS based customers databases have an effective role in CRM.	0.727	3.55	1.05
Customer loyalty through IS based CRM possible in the hotel industry during the pandemic.	0.689	3.6	1.136
IS in a hotel can deal with CRM queries.	0.686	3.52	1.131
IS is used to build relationships with customers for marketing.	0.794	3.56	1.08
IS based CRM can affect customer retention in hotels in a pandemic.	0.802	3.51	1.097
IS based CRM helps in retaining customer trust in the hotel.	0.836	3.56	1.134
<b>2. IS</b>			
IS benefits in the identification of customers in hotels during a pandemic.	0.73	3.59	1.095
IS applied as a tool to improve customer relationship performance in hotels.	0.692	3.53	1.051
IS is being used as a tool to improve CRM in hotels.	0.817	3.65	1.066
IS promote effective customer service delivery in hotels.	0.733	3.65	1.076
CRM-based IS helps customers to retain themselves.	0.738	3.6	1.046
IS helps with efficient marketing service for customers.	0.781	3.69	1.064
IS playing a pivotal role in the development of CRM plans.	0.829	3.63	1.079

Extraction Method: Principal Component Analysis.

a. 2 components extracted. IS & CRM

KMO Value: 0.917(greater than 0.5)

Bartlett's Test of Sphericity: Sig at .000

In Table 2 FL is depicted as factor loading, M as means and SD as standard deviations of 2 components i.e., CRM and IS. Kaiser-Meyer-Olkin Measure of Sampling Adequacy value depicted is 0.917 which is above 0.5 closest to 1 with high significance wherein value of .6 is a suggested minimum. The extracted factors are information system and customer relationship marketing.

Bartlett's Test of Sphericity - here in Table 2 p-value is less than .05, reject the null hypothesis that this is an identity matrix. Therefore, *IS has no impact on CRM in hotels at Delhi/NCR during COVID-19* stands rejected.

**Table 3: Eigenvalues, Variance and Reliability Matrix of Each Factor**

Factors	Mean	Std. Deviation	Variance	Eigenvalues	Cronbach's Alpha
CRM	3.6091	0.84313	57.645	8.07	0.881
IS	3.5499	0.83734	14.171	1.984	0.896

In Table 3, the variables are standardized, which means that each variable has a variance of 1, and the total variance is equal to the number of variables used in the analysis, in this case, 14 in number as conducted principal components analysis on the correlation matrix. CRM and IS are two components that were extracted i.e., 8.07 and 1.984 having an eigenvalue greater than 1. The Cronbach alpha estimated for CRM 0.881 and Information systems is 0.896. As the Cronbach's alpha in this study was all much higher than 0.6, the constructs (CRM & IS) were therefore deemed to have adequate reliability.

**Table 4: Regression Analysis Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.912 <sup>a</sup>	0.832	0.831	0.34447

a. Predictors: (Constant), IS.

Table 4 shows the coefficient of determination (R square) 0.832, which means 83.2 % variation, the dependent variable (CRM) is explained by the independent variable (IS). According to Table 4 which describe the criteria for the correlation between independent variables and dependent variable, it can be interpreted that independent variables (IS) have a high correlation with the dependent variable (CRM) for 91.2%, and from the coefficient of determination that is the square of the correlation coefficient (R<sup>2</sup>) in table is equal 0.831 that showed 83.1% of the variation that impacts on CRM is described by the independent variables (IS), while the remaining 100% - 83.1% = 16.9% are explained by other variables which is not described in this research.

**Table 5: ANOVA**

<b>Model</b>		<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
1	Regression	107.877	1	107.877	909.149	.000 <sup>b</sup>
	Residual	21.833	184	0.119		
	Total	129.71	185			

a. Dependent Variable: CRM.

b. Predictors: (Constant), IS.

Table 5 tries to test overall goodness of fit of a fitted regression model. From the above table it can be concluded that the fitted model is significant as P-value of F statistics is 0.00 and it is less than the level of significance ( $\alpha = 5\%$ ).

From ANOVA test or F test Table 5 above, it is shown that the value of F count is 909.149 with 0.000 probability. Since the F count is  $909.149 > F$  table ( $\alpha = 0.05$ ) 4.36, then H2 in this research is accepted and the regression model used to predict the CRM (dependent variable) or in other words, the independent variables i.e., IS have significantly used for CRM (dependent variable) in the hotel during COVID-19. Thus, we may conclude that the hypothesis (H2) stating that the information systems is significantly used by hotels at Delhi/NCR for CRM during COVID-19.

**Table 6: Coefficient**

<b>Model</b>		<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
		<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
1	(Constant)	0.281	0.111		2.526	0.012
	IS	0.906	0.030	0.912	30.152	0.000

Table 6 helps to determine the regression equation; the column Unstandardized Coefficients and its sub column 'B' provides the regression coefficients. The first one is constant or y intercept and second one is the regression coefficient of CRM (Y) on IS(X). Hence the regression equation using coefficient table is  $\hat{Y} = 0.281 + 0.906 X$ .

The regression coefficient of CRM on IS found to be 0.906 which implies that CRM is having an impact on IS. Also, the regression coefficient is significant as p-value (0.00) is less than the level of significance level ( $\alpha = 5\%$ ).

**Table 7: Correlation Analysis for Information Systems on CRM in the Hotel**

Variables		IS	CRM
Correlation	IS	1.000	0.912
	CRM	0.912	1.000
Sig. (1-tailed)	IS		0.000
	CRM	0.000	

Significant at; \*P < 0.05, \*\*P< 0.01.  
Scale; Strong (r>.5), Moderate (r=5), Weak (r < .5).

The Table 7 shows the correlation of the relationship between Information systems used in hotels and CRM. Results indicate that Information systems are strongly but positively correlated with impact on CRM. The correlation was significant. Therefore correlation (matrix) analysis was applied to identify the impact among these variables and results are revealed in the Table 7. Results revealed a significant correlation between CRM and customer satisfaction. Correlation between IS and CRM was positively correlated and has a significant impact. In hypotheses testing p -value is less than 0.05 which is at 1% of the significant level. Therefore, hypothesis (H1) is accepted as there is a significant impact on CRM in hotels at Delhi/NCR during COVID-19.

**Table 8: Data Validity**

		N	%
Cases	Valid	186	100
	Excluded <sup>a</sup>	0	0
	Total	186	100.0

a. Listwise deletion based on all variables in the procedure.

In Table 8: A survey of 186 respondents’ associated hotels across Delhi/ NCR based on HAI membership through structured questions done in the survey where 186 are valid.

**A Generalization of the Research Work**

The study’s findings revealed that the outbreak period has an impact on Information systems and hotel-customer relationships. Many features, such as the rapid aggregation of multi-source big data and the rapid visualization of information on CRM in the hotel industry, have been made possible by

information systems (Huang, 2020). Long-term customer relationships are critical in the hotel industry for maintaining consistency in an increasingly volatile market. The shifting hotel customer relationship environment provides an opportunity for hoteliers to better serve and delight guests in creative ways through information systems and robotics (Huang, 2018). There is room for scholars in the wake of the COVID-19 pandemic, to improve understanding of the IS and to advance literature in this area (Huang, 2020). In the aftermath of the COVID-19 pandemic, there is a lot of room for scholars to improve their understanding of the IS and advance literature in this field. CRM is an effective management technique that can be used to influence sales potential and optimize the customer's standing in the hospitality industry, transforming this asset into a key competitive advantage by retaining those customers with the highest value and profitability (Shainesh, 2019). Given these advancements in hotel marketing and management practices, future research should investigate the role that process automation, perceptive insight, and involvement may play in assisting hotels in overcoming the challenges raised by public health crises, as well as examine how hotels can use Information systems to mitigate the impact of epidemics. Then the use of Information systems in expanding within the hotel sector, the field of business intelligence, and large-scale data-driven scrutiny should be forward-thinking within the hotel sector because the data is the basis on which artificial intelligence is erected (Mariani, 2020).

## **Conclusion and Managerial Implications**

This research clearly expressed the importance of the functionality of the information systems used in the hotel and CRM in this pandemic and contributed to enhancing the conceptual understanding of core points. Information systems have a significant impact on CRM in hotels at Delhi/NCR. However, the proportion of impact on CRM was high level. CRM has a significant effect on customer satisfaction and the importance of using information systems to implement marketing strategies. The findings highlight that the importance of well-designed CRM processes and the perspectives of customers in relationship marketing can be adopted vigorously in the hospitality industry with the help of IS. The results imply that users of the hotel are aware of the different effects of IS on each stage of CRM. Therefore, usage helped to appropriate strategies for the knowledge of the customer and generate and reinforce satisfaction and commitment in hotels.

Information systems-based CRM is one of the areas with the most expression in the field of marketing, recognized not only by academics but also by practitioners. Its application in the hotel is ever more visible and viable. However, the proportion of benefits of IS in hotels, and its implications



for customer marketing in this COVID-19 situation was small. The reason that most hotels are using information systems is still trying to build trust among their customers. According to this research, hotels use information systems able to handle CRM queries which have far-reaching implications soon. The present work is an open book of information for newcomers in the hotel sector. This study is an auxiliary information tool to consider as one of the elements of service delivery for the hotel.

### ***Limitations and Directions of Future Research***

This research has been successfully applied to what has been learned from the literature with support from the hotel market in India in the pandemic situation. Other cities in India provide hospitality services but were not included in this study, and the remaining marketing links were not considered. Also, it is of practical and theoretical importance to extend customer behaviour intentions and consider constructs such as CRM and customer satisfaction into consideration to provide more useful suggestions for hotel service providers.

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## Appendix 1: Component of CRM Matrix<sup>a</sup>

Factors	FL	M	SD
IS based CRM helps in analyzing customer satisfaction level in hotels during the pandemic.	0.752	3.56	1.08
IS based customers databases have an effective role in CRM.	0.727	3.55	1.05
Customer loyalty through IS based CRM possible in the hotel industry during the pandemic.	0.689	3.6	1.136
IS in a hotel can deal with CRM queries.	0.686	3.52	1.131
IS is used to build relationships with customers for marketing.	0.794	3.56	1.08
IS based CRM can affect customer retention in hotels in a pandemic.	0.802	3.51	1.097
IS based CRM helps in retaining customer trust in the hotel.	0.836	3.56	1.134
IS benefits in the identification of customers in hotels during a pandemic.	0.73	3.59	1.095
IS applied as a tool to improve customer relationship performance in hotels.	0.692	3.53	1.051
IS is being used as a tool to improve CRM in hotels.	0.817	3.65	1.066
IS promote effective customer service delivery in hotels.	0.733	3.65	1.076
CRM-based IS helps customers to retain themselves.	0.738	3.6	1.046
IS helps with efficient marketing service for customers.	0.781	3.69	1.064
IS playing a pivotal role in the development of CRM plans.	0.829	3.63	1.079
Extraction Method: Principal Component Analysis.			
a. 2 components extracted.			
KMO Value: 0.917(greater than 0.5) Bartlett's Test of Sphericity: Sig at .000			