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E-CRM on Customer Retention in E-Commerce: Mediation of Customer Loyalty

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A B S T R A C T

Customer Relationship Management (CRM) helps businesses maintain long-term relationships with consumers while increasing profitability. CRM has evolved into electronic CRM or E-CRM, because of rapid improvements in Internet penetration. Electronic consumer relationships have become a crucial success factor for any company to maintain and preserve a competitive advantage. Previous studies have found that retaining existing customers is less costly than acquiring new customers. The main purpose of this study is to investigate the impact of Electronic Customer Relationship Management (E-CRM) of e-commerce websites on customer retention and to examine the mediating effect of customer loyalty on the relationship between E-CRM and Customers retention. A quantitative study was conducted where primary data was collected using an online structured questionnaire. The sample was drawn from e-commerce users who experienced E-CRM. SPSS software was used for hypotheses testing. Results of the study proved that E-CRM technologies of e-commerce websites have significant effect on customer retention and the relationship is partially mediated by the customer loyalty. Moreover, the direct impact of E-CRM is higher than the indirect impact of customer loyalty on customer retention. This study highlighted the importance of implementing E-CRM strategies to retain existing customers and the synergistic effect of both E-CRM and customer loyalty to build the relationship. Further, this study stressed the need of identifying the black-box between E-CRM and Customer Retention.

Keywords: customer loyalty, customer retention, E-commerce, E-CRM

1. Introduction

Customer Relationship Management (CRM) is a strategy that supports organisations to continue a lifetime relationship with customers and maximising profits and applying customer-centred strategies (Blery & Michalakopoulos, 2006). Organisations have

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discovered that, it is less expensive to retain existing customers than attempting to gain new customers (Martey, 2014). Moreover, a large loyal customer base helps to survive in the competitive market (Salazar et al., 2007). Therefore, organisations should focus to develop more customer-centric strategies to survive in the competitive business world and to attract and retain customers (Al-Talafih & Al-Radaideh, 2017). Due to dramatic changes in internet penetration, CRM has changed into electronic CRM or E-CRM (Al-Talafih & Al-Radaideh, 2017). Implementation of E-CRM gain significant outcomes such as high profitability, build long-term relationships with the customers and lower the costs of operations (Fjermestad & Nicholas, 2001). It also helps to increase market awareness, ability to customise the services, customer loyalty, increase sales and provide a platform to compete with large-scale organisations in the global market (Khaligh et al., 2012; Harrigan et al., 2010). Most of the organisations are moving for web-based customer services to minimise operational costs and deliver a real-time service to improve customer's convenience and satisfaction (Fjermestad & Romano, 2003). In the past, organisations used traditional ways to cooperate with customers by employing direct mail, sponsorship, public relations, press releases, exhibitions, merchandizing, word-of-mouth, personal selling. According to Lee- Kelley et al., (2003) E-CRM implies marketing activities with having an objective to locate, build and improve long-term customer relationships to improve individual business capabilities. To sustain and to retain the competitive edge, electronic customer relationship has become a key success factor of any organisation. Boston Consulting Group (2019) discovered that 65% of customers who purchase online from a specific e-commerce website will never make a repeat purchase. Therefore, the need of customer retention is essential in the E-commerce industry.

1.1. Research problem

Previous studies on the online retail industry, have revealed the positive effects of implementing E-CRM. Feinberg and Kadam (2002) concluded that there is a positive relationship between an e- CRM enabled website and customer satisfaction. Furthermore, E-CRM is directly related to customer loyalty of the internet customers in e-retail organisations (Lee- Kelly et al., 2003). In the Sri Lankan context Velnampy and Sivesanm (2012) stated that the proportion of the impact of CRM on the customer was low in mobile service providing companies in Sri Lanka. There is a positive relationship between customer relationship management (CRM) practices and customer satisfaction in the private higher education institutions in Sri Lanka (Adikaram, 2016). Randeni and Wanninayake (2011) disclosed that some CRM strategies and practices enhance customer loyalty towards telecommunication brands towards sustainable growth. Although research on interactions between CRM and customer satisfaction has been conducted extensively, only a few have investigated about E-CRM towards customer loyalty (Rostami et al., 2014; Feinberg & Kadam, 2002). Additionally, there are contradictory findings regarding E-CRM in Sri Lanka (Velnampy & Sivesan, 2012). None of the researchers have attempted to examine the mediating effect of customer loyalty on Electronic Customer Relationship Management (E-CRM) and customer retention. Therefore, the purpose of this research is to explore the impact of Electronic Customer Relationship Management (E-CRM) technologies of e-commerce on customer retention and to examine the mediating effect of customer loyalty. Most of the earlier studies did not identify the importance of retaining the existing customer in the e-commerce industry. It is necessary to focus on customer retention and loyalty as it is the basis of the success of the organisation.

2. Theoretical perspective

The main research question in this study aims to examine the impact of E-CRM strategies on customer retention and the mediation effect of customer loyalty. Stimulus Organism Response (SOR) gives the theoretical support to examine the relationship between E-CRM and customer retention through customer loyalty. The SOR theory asserts that different elements of the environment serve as stimuli, influencing people's psychological states and causing them to react behaviorally (Mehrabian & Russell, 1974). The *stimulus* is represented by a set of qualities that impact the customers' perception and internal state (Loureiro, 2015). The characteristics of E-CRM which consumers engage and form their judgments, are referred to as stimuli in this study. The *organism* refers to the internal processes in between inputs and the final responses of consumers (Islam & Rahman, 2017) which means customer loyalty might be affected by the E-CRM features. The customer's desired action is known as the *response*. As a response to customer loyalty, customers may retain in the e-commerce website. Some studies have claimed that websites that have good attributes can influence its customers to spend more time on the website (Islam et al., 2020). It is thus reasonable to develop the argument on the theoretical foundation of the stimuli organism response theory and the existing literature.

2.1. Conceptualization and hypothesis development

2.1.1. Customer relationship management (CRM)

Customer Relationship Management (CRM) is a strategy that can support organisations to build lifetime relationships with customers and increase profits through a management system and applying customer-centric strategies (Blery & Michalakopoulos, 2006). Due to increasing pressure on profitability, organisations in different industries are motivated to invest in CRM in retail websites (Chan & Lam, 2009). Peppard (2000) investigated that many organisations have understood the significance of CRM and its ability to gain competitive advantage. Prior research examined that organisations adopt CRM as a strategy to acquire new customers, increase the lifetime value of the customers, sales growth, customer satisfaction (Peppard, 2000; Kennedy, 2006; Yim et al., 2004). Additionally, it is argued that organisations can attain long term profitability by moving to CRM since it retain customers (Ryals & Knox, 2001; Sheth & Shah, 2003) and loyalty (Rowely, 2004; Khaligh et al.,2012). Furthermore Shaw (1999) identified in his research, CRM as a technique to attain an optimum balance between organisation and customer satisfaction and to gain maximum profit. To continue a profitable relationship with customers, CRM offers all traditional communication channels and front-office applications that support to integrate and analyse about the customer. Due to dramatic changes in internet penetration, CRM has changed into electronic CRM or e-CRM to capture new customers, find their online behaviours and preferences, and customize the services. (Qasem A. Al-Radaideh, 2017; Chan & Lam, 2009).

2.1.2. Electronic customer relationship management (E-CRM)

Greenberg (2001) indicated that E-CRM is similar to managing customer relationship but via internet. (Reichheld et al., 2002) argued that E-CRM is not only a software or technology, but it also brings business processes with consumer strategies in line with the aid of technology and software. E-CRM focuses on attracting and sustaining customers who are profitable to the organisation and aims to reduce less profitable customers (Fjermestad & Nicholas, 2001). Dyche (2001) stated that two main types of E-CRM: Operational E-CRM and Analytical E-CRM. Operational E-CRM interact with customers via organisation's defined contact points such as website, email, telephone, direct sales point etc. Analytical E-CRM focuses on customer data analysis to improve decision making using data warehouse systems, customer

profiling, reporting, analysis, and data mining. Implementation of E-CRM gain significant outcomes such as high profitability, build long-term relationships with the customers and lower the costs of operations (Fjermestad & Nicholas, 2001). It also helps to increase market awareness, customer loyalty, increase sales and provide a platform to compete with large-scale organisations in the global market (Khaligh et al., 2012; Harrigan et al., 2010).

2.1.3. E-CRM in e-commerce
Implementation of E-CRM gain significant outcomes such as high profitability, build long-term relationships with the customers and lower the costs of operations (Fjermestad & Nicholas, 2001). It also helps to increase market awareness, ability to customize the services, customer loyalty, increase sales and provide a platform to compete with large-scale organisations in the global market (Khaligh et al., 2012; Harrigan et al., 2010). Most of the retailers have e-commerce websites with at least some E-CRM technologies such as member login, chat support, newsletter, FAQs, site customization, product preview, product customization etc. (Feinberg & Kadam, 2002). E-commerce websites should provide denser information of the products that sell on its website to customers than traditional brick and mortar businesses and it allows to gather customer data and information effectively via e-commerce website (Liang & Huang, 2000). Lee-Kelly et al. (2003) emphasized that little empirical investigation has been conducted on customer relationship management and customer loyalty within the context of the internet, or e-commerce. The integration between e-commerce and E-CRM manages the relationship with organisation to increase customer loyalty (Chong et al., 2011).

2.1.4. Customer retention
According to Kotler et al. (2008) customer retention is organisations' capability to keep the existing customer base through sustaining good relationships. Prior researchers have argued that customer retention can be expressed when the relationship of between the customer and the organisation is permanent. Furthermore, continuous relationship with the customer is based on decisions made by the customers than efforts that made by the organisation (Simon, 2013). Many researchers have demonstrated the importance of customer retention since attracting a new customer is expensive than retaining an existing customer. Studies have identified attracting a new customer costs five times than retaining an existing customer and an increase of 5% of a retaining customer can generate 60% of the profit of the businesses (Gillies et al., 2002). In other words, high customer retention causes high organisational growth (Khaligh et al., 2012; Martey, 2014). Research e has investigated the importance of retaining customers of the organisation. By considering the empirical studies, it identified that the greater relationship with the customer, the more enhances the customer retention. Based on that first hypothesis (H1) was developed

> *H1*: Electronic Customer Relationship Management (E-CRM) significantly influences customer retention.

2.1.5. Customer loyalty
Customer loyalty comprises commitment, feelings, and purchase intention which are based on the customer preferences., if there are loyal customers, they will become less price-sensitive, inexpensive to serve, spend more time with the company, and pass on their positive feeling to others (Kumar & Shah, 2004). Hence, E-CRM needs to play a significant role in facilitating and maintaining the relationship with increasing customer loyalty (Fouladivanda et al., 2013). Many researchers (Reichheld & Schefter, 2000; Galbreath, 2002; Yang & Peterson, 2004) concluded that goal of E-CRM is to win customer loyalty. Customer's

behaviour on repeat purchase, including advocacy, referrals, willingness to spend more, less price sensitivity and pay premium price, commitment and trust, intention of repurchase in the future is identified by the behavioural loyalty (Fouladivanda et al., 2013; Martey, 2014). Loyal customers who have a positive attitude on the organisation are less price-sensitive and have less tendency to switch to other competitive organisations (Azila & Noor, 2011). Yang & Peterson (2004) investigated that loyalty is a significant component for a long-term relationship between the customer and the service provider in the telecommunication industry. Drawing the insight from this, researchers hypothesised (H2) that,

> *H2:* The relationship between Electronic Customer Relationship Management (E-CRM) and customer retention is mediated by customer loyalty.

2.1.6. Conceptualization

The conceptual model of this research study has three variables, of which the independent variable was E-CRM technologies, the dependent variable was customer retention, and the mediating variable was customer loyalty (Figure 01).
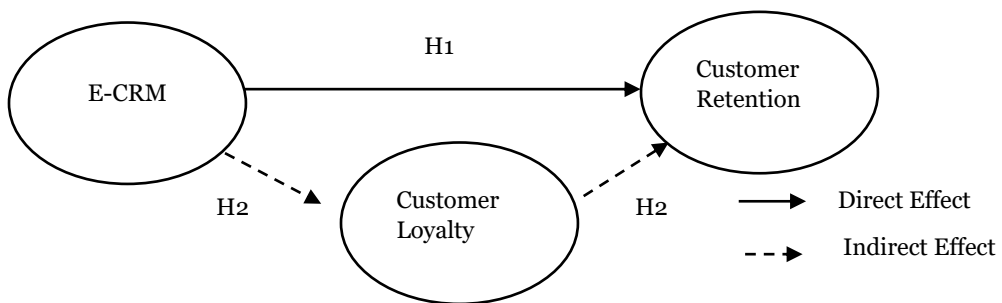

Figure 01: Conceptualized Model

3. Methodology

The study was carried out as a quantitative study in Sri Lanka, where e-commerce users are affected by E-CRM. This study is to test the hypotheses either to confirm or reject the theory. Therefore, the study followed a deductive reasoning approach. Deductive reasoning approach is a process that provides a logical generalization to a known fact by arriving at a rational conclusion (Sekaran, 2003). The population chosen for the study was based on the people who purchase products/services through e-commerce websites. The respondents who are targeted for the research are all e-commerce users who are in Sri Lanka. The population is unknown since the online purchasers cannot be identified exactly. The sample of 384 is drawn from e-commerce users in Sri Lanka. As the population is unknown, the preferred sample size has been identified through the $Z^2P(1-P)/D^2$ formula with a confidence level of 95%, a precision rate of +5% and a 50% degree of variability. The five-point Likert scale was used as the appropriate scale that ranges from 1 (Never) to 5 (Always) to measure all the constructs. E-CRM was measured by using sixteen items adapted from the study done by Feinberg, Kadam, Hokama, & Kim (2002). Customer loyalty and customer retention were measured by using five items adapted from the studies of Bobalca & Ciobanu (2012) and Balasubramanian & Rajendran, (2018) respectively. Since the researchers' regression model has one independent variable, one dependent variable and a mediating variable, regression with mediation was the most applicable method for analysis. Prior to the regression analysis, the data set was checked to ensure that the regression assumptions were not violated. For this purpose, four main tests were carried out recommended by Sekaran (2003): (1). Testing for normality, (2). Testing for linearity, (3). Testing for homoscedasticity, and (4). Testing for the

independence of observation. Normality was assessed through normal probability plots (Q-Q plots) and normal distribution was accepted as all the sample values are clustered around the diagonal lines. To test normality, Z-Test was applied using skewness and kurtosis. Results revealed that these values remain in between the range of -2.58 and +2.58, which is an acceptable range for the normality. Since all the scatterplot diagrams show straight lines, the assumption of linearity was satisfied. Homoscedasticity means that a similar variance of errors across all levels of the independent variables (Osborne & Waters, 2002). Researchers concluded the assumption of Homoscedasticity as satisfied since the scatter plots show an even distribution. The fourth assumption, the independence of observation which indicates that there is no relationship between variables, was measured by Durbin Watson statistic. As a rule of thumb Durbin Watson in the range of 1.5 to 2.5 are comparatively normal (Field, 2009). The value obtained for Durbin Watson for the current study is 1.688. To collect data 388 questionnaires were distributed, out of them 341 were returned and 121 questionnaires were rejected because they were incomplete and not suited for the analysis. Overall, 220 questionnaire responses were utilized in the analysis. The sample profile of the survey is shown in Table 1.

Table 1: Sample Profile

Category	Characteristics	Amount of sample	Percentage (%)
E – Commerce Usage	Yes	220	90%
	No	24	10%
Gender	Male	91	42%
	Female	128	58%
Age	Under 20	32	15%
	20-29	97	44%
	30-39	50	23%
	40-49	21	10%
	50 or above	20	9%
Income	Less than Rs.50,000	98	45%
	Rs.50,000 – Rs.99,000	41	19%
	Rs.100,000 – Rs.149,999	14	6%
	Rs.150,000 – Rs.199,999	8	4%
	Rs.200,000 or above	12	5%
	Not applicable	47	21%

Source: Author Compiled

4. Data analysis

4.1. Reliability & validity

Cronbach's alpha & factor analysis were calculated to measure construct reliability and validity. All the variables display a good internal consistency between questions. E-CRM has a Cronbach's Alpha of 0.809 while loyalty and retention have 0.785, 0.735 respectively. Since the Cronbach's Alpha of all the variables is above 0.6, it shows that all of them have high reliability. To test the validity, researchers assessed KMO, and Bartlett's test and communalities. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) measures the sampling adequacy which should be greater than 0.6 to validate the questionnaire (Tabachnick & Fidell, 2007; Hair et al.,2010). The results show that KMO value is 0.628 which satisfies the requirement. Communalities require to be higher than 0.3 (Tabachnick & Fidell, 2007). It explains that a higher communality value strengthens the relationship between variables. Current study results show all the variables support the factor by indicating more than 0.3 extraction.

4.2. Descriptive statistics

Descriptive statistics provide a snapshot of the mean value, the standard deviation for all three constructs of E-CRM, customer loyalty and customer retention. The mean value of E-CRM (3.90) was the highest and the mean value of customer retention (3.76) was the lowest. Customer loyalty scores a mean value of 3.83. The standard deviation of customer loyalty reports a value of 0.419 which was the highest while E-CRM and customer retention indicate a value of 0.321 and 0.355 individually.

4.3. Hypothesis testing

To test the hypotheses of the study, the direct relationship between E-CRM and retention was assessed to test H1 and subsequently, the mediating effect of loyalty on ECRM-retention was evaluated to test H2. The mediation analysis was conducted with Hayes & Preacher (2008) SPSS Indirect Macro process output for simple mediation. The summary of the results of path analysis are demonstrated in table 1. All two hypotheses from H1 to H2 were supported with significant values. Hence, acceptance of H1 and H2 reveals that both E-CRM and loyalty significantly influence customer retention and it validates direct effect. To test the mediation effect of loyalty, the bootstrapping technique was performed. In supporting H2, it confirms both the direct effect (0.3340, p<0.05) of E-CRM on retention and the indirect effect (0.1624, p<0.05) of loyalty on E-CRM-retention are significant. The indirect impact of loyalty has a partial mediation effect on this relationship. Table 2 represents the summary of the direct and indirect relationship of E-CRM and Customer Retention. The model summary of E-CRM and customer loyalty on customer retention and model summary of E-CRM on customer loyalty are depicted in Table 3 and Table 4, respectively.

Table 2: The Summary of Direct Effect and Indirect Effect Between E-CRM and Retention

H	Hypothesized relationship	Path coefficient	*p* values	Hypothesis Results	Mediation decision
H₁	E-CRM ➡ RET	0.3340	0.0000	Supported	-
H₂	E-CRM ➡ LOY ➡ RET	0.1624	0.0000	Supported	Partial Mediation

Source: Mediation Output results of MACRO PROCESS V.34 SPSS -Author Compiled

According to findings, the total effect of the structural model is demonstrated in Figure 2. The total effect of E-CRM on customer retention can be depicted as 0.4964, $P<0.05$.
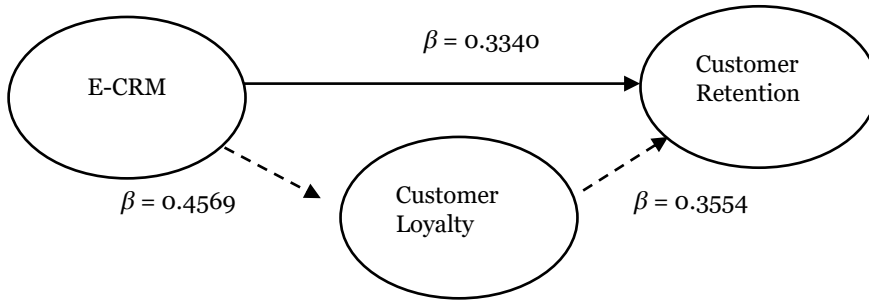

Figure 2: Total Effect Model

Table 3: Model Summary of E-CRM and Customer Loyalty on Customer Retention

	R	R-sq	MSE	F	Dfi	df2	p
	.5964	.3557	.0820	59.8926	2.0000	217.0000	.0000

Model	Coeff.	SE	T	P	LLCI	ULCI
constant	1.0968	0.2565	4.2759	.0000	.5912	1.6023
ECRM	.3340	.0643	5.1936	.0000	.2073	.4608
LOY	.3554	.0493	7.2018	.0000	.2581	.4527

Source: Primary Data

Table 4: Model Summary of E-CRM on Customer Loyalty

	R	R-sq	MSE	F	dfi	df2	p
	.3506	.1229	.1545	30.5465	1.0000	218.0000	.0000

Model	Coeff.	SE	t	P	LLCI	ULCI
constant	2.0476	0.3236	6.3282	.0000	1.4099	2.6854
ECRM	.4569	.0827	5.5269	.0000	.2940	.6198

Source: Primary Data

4.3.1. Direct effect of E-CRM on Customer retention

Table 5 shows the effect of the direct relationship between E-CRM and customer retention using SPSS process macro. It reveals that all the variables became significant with the direct effect of E-CRM on customer retention of a beta value of 0.3340 with 0.000 significance.

Table 5: Direct effect of E-CRM on Customer Retention

Effect	SE	t	P	LLCI	ULCI	c_ps	c_cs
.3340	.0643	5.1936	.0000	.2073	.4608	.9405	.3022

Source: Primary Data

4.3.2. Indirect effect of customer loyalty on e-CRM and customer retention

The Macro bootstrap technique was used to test the mediation hypothesis, which is a powerful method for testing the statistical significance of indirect effect (Mallinckrodt, Abraham, Wei, & Russell, 2006). As recommended by Hayes and Preacher (2008), estimates of this study are based on 5000 bootstrap samples, drawn by replacing of the original sample of 220 respondents. 95% Bias-Corrected and Accelerated Confidence Intervals (BC & ACIs) were applied to test the significance of the indirect and the total effects (Hayes & Preacher, 2008). If the upper and lower level of the BC & ACI differ from zero, it can be demonstrated as the indirect effect of the mediation is statistically significant (Hayes & Preacher, 2008). Table 6 shows that the indirect effect of customer loyalty on customer retention is significant. Thus, the relationship between E-CRM and customer retention is mediated by customer loyalty.

Table 6: Indirect effect of Customer Loyalty

	Effect	BootSE	BootLLCI	BootULCI
LOY	.1624	.0348	.0985	.2368

Source: Primary Data

Table 6 represents that there is a 0.1624(β) effect of customer loyalty on customer retention. The research was conducted to check whether customer loyalty mediates E-CRM- customer retention more than its direct relationship. Nevertheless, the mediating effect is not synergistic than the direct effect as anticipated. Thus, it can be concluded that customer loyalty partially mediates the relationship between E-CRM and customer retention.

5. Discussion

This study has examined the influence of E-CRM Technologies on customer retention and the mediating role of customer loyalty. The findings have empirically proven that E-CRM has a significant impact on customer retention. Based on the research model, it was ascertained the relationship between E-CRM and customer retention is not a simple and direct. It was found that the relationship is partially mediated by customer loyalty whereby E-CRM affects customer loyalty and then impacts customer retention. Hence, all hypotheses (H1, H2) were accepted. The findings resonate with past studies indicating E-CRM is directly related to customer loyalty of the internet customers (Lee- Kelly et al., 2003) and the integration between e-commerce and E-CRM manage the relationship with organisation to increase customer loyalty (Chong et al., 2011). Researchers agree with the notion of Fournier et al. (1998) that loyal customers can increase customer retention through a collaborative

relationship between the customer and the organisation. In accordance with the findings, researchers found that E-CRM is a crucial factor to create customer loyalty which eventually helps to achieve customer retention. Even though the indirect effect is significant, it is not synergistic as assumed. Since the indirect influence of loyalty on the E-CRM - Retention relationship is only a partial mediation and has a smaller magnitude effect ($\beta = 0.1624$) than the direct effects. In conclusion, both E-CRM and loyalty are crucial significant drivers of customers retention. As stated by Senge (2006), most marketing theories and practices focus on attracting new customers rather than retaining existing customers. Thus, marketers and other personals put minimum endeavour to retain the customers in their organisations which means marketers may not consider E-CRM as a main strategic tool to retain existing customers. The research findings of the current study recommend e-commerce websites to implement E-CRM technologies which in turn retrieve customer retention through loyalty. Further this finding may help in the future to reveal the "black box" between E-CRM and customer retention as it continues to build more theoretical models.

6. Conclusion

E-commerce encourages customers to buy products that fulfil their needs and wants by lowering the searching cost. Increasing competition and the rise of customer expectations of today's volatile business environment, motivate e-commerce companies to pay attention in identifying, understanding, nurturing, and keeping their profitable existing customers. It is critical for the marketers in the e-commerce industry to identify areas that need to improve as the customer expectations on online purchasing has been growing exponentially for years. The result of the current study recommends marketers of e-commerce websites to rethink current marketing strategies and to assess E-CRM strategies that can help to retain existing customers through loyalty. Many marketers are using promotional campaigns to attract new customers to their e-commerce websites. Thus, marketers spend much to attract new customers and put minimum endeavour to retain the existing customers in their organisations. As the research found E-CRM has a direct impact on customer retention and a partial mediation of customer loyalty on customer retention, marketers should consider E-CRM as a main strategic technique in marketing. Therefore, to receive the maximum benefit of the synergistic effect of E-CRM and customer loyalty on customer retention, the research findings recommend e-commerce websites to identify the applicability of E-CRM for customer retention and should come up with innovative ways to implement E-CRM strategies for their e-commerce websites.

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