Critical success factors for assessing the effectiveness of E-CRM systems in online shopping: the mediating role of user satisfaction

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A B S T R A C T

The effectiveness of the E-CRM system was examined in this study, involving those with online shopping experience, specifically the regular customers of Carrefour in Jordan. Data were obtained through 550 distributed sets of questionnaires. Four trained and certified research assistants assisted the data gathering process. Data from 320 returned questionnaires were analyzed using Structural Equation Modeling (SEM). System quality, access to information, security, training and customer satisfaction were the examined factors towards the effectiveness of E-CRM systems. Results show positive impact of security, system quality, training, and access to information on user satisfaction, and user satisfaction affected the effectiveness of E-CRM. Nonetheless, the relationship between training and effectiveness of E-CRM on online shopping was not mediated by user satisfaction.

1. Introduction

Conscientious technology usage can facilitate firms in gaining a competitive edge, consequently and organizational success. Additionally, a firm's success or failure is also affected by the firm's customer relationship management (Nasruddin & Khalid, 2017) and firm's success can solidify customer relationships. In fact, as stated by (Cambra-Fierro et al., 2017), customers are key to business existence. Customer relationship management (CRM) have been found to positively impact customer satisfaction (Cooil et al., 2007), business progress (Day & Bulte, 2002), information access (Subira, 2017), security (Lee et al., 2006), system quality (Wang & Chen, 2011), and training (Simon & Werner, 1996).

Firms have been investing substantially in CRM system adoption, and as explained by (Mohammed et al., 2017). CRM blends technology, processes, and people, with the key purpose of understanding the customers of a given firm. Appositely, CRM's unified business strategy encompasses the systematic assimilation of marketing, sales, and services (Arman, 2014).

Chen and Popovich (2003) perceived CRM is a resultant of technological and organizational innovations that improve customer-centered operations. Additionally, the use of tools of IT like the Internet of Things (IoT) allows firms to more effectively and efficiently manage client connections (Ogutu, 2012; Yi, 2021; Al-Bashayreh et al., 2022). Bull, (2003) described Iota as valuable in classifying the customers and in excluding certain clients as well.

Equally, electronic commerce or e-commerce has been growing fast, and the same can also be stated for the development of Internet-based services (Papaioannou et al., 2014). This has allowed the Internet to create a platform for the delivery of CRM competencies by way of E-CRM "electronic customer relationship management", focusing on web-based interactions

between customers and businesses. Features of E-CRM adds to the success of e-commerce, as it adds values and provides personalized services and accurate and updated data.

All functions and types of CRM are present in E-CRM, and E-CRM employs a network environment equipped with the Internet, extranet, and intranet. Technology is applied by E-CRM in linking the externally located "marketing" methods with the company's internal resources, and the purpose is to understand and satisfy the needs of customers (Balakrishnan, 2015). Many types of industries are utilizing E-CRM and the rate and intensity of usage of the system are increasing. E-CRM application significantly alters firm structure, in addition to enhancing the communication between company staff and clients. The use of E-CRM has led to the formation of new business models.

Progression of technology has expanded CRM further, as can be exemplified by the presence of Web-based technologies, artificial intelligence (AI) and cloud computing (Liu et al., 2020). Hence, customer relationships can be improved, while firms could improve their performance, operations, and gain competitive advantages. Rodriguez et al. (2015) relevantly highlighted the need for businesses to develop processes and a framework so that they could provide value to clients and use technology optimally.

A system is generally developed to satisfy clients, and hence, a mechanism that analyses the levels of customer satisfaction needs to be included. It is therefore a responsibility of development managers to consistently increase the quality of client relationships. Hence, this study attempted to identify the aspect with the most significant impact on CRM. In doing so, some crucial variables were examined and analyzed in the delivery of E-CRM solutions for online purchasing.

Notably, E-CRM is a new phenomenon, and thus, studies on the subject were still too few. This study bridged this gap by exploring the efficiency of E-CRM in online shopping sites, specifically focusing on its implementation, and use potential. As most studies on E-CRM were focusing on analytical and operational E-CRM, this study examined E-CRM implementation tactics in online shopping sites.

The implementation of E-CRM in Jordan and in other developing countries is still low, but the situation is gradually changing, as many customers have been demonstrating interest towards the system. The use of E-CRM in online purchasing platforms was the key focus of this study.

Following the introduction, the progression of this paper is as follows: Section two presents the literature review. Section three discusses the hypotheses development and research model, followed by the study methodology that is given in Section four. Section five presents the details of the discussion and its implication. This study concludes with section six which comprises a conclusion on the study limitations and new avenues for forthcoming research.

2. Literature review

Technology is now a vital and practical life element, and in modern civilization, Qiao et al. (2021) have described technology as the most distinguishing element. In this regard, the advent of IT facilitates businesses in customer relationship management, as it allows businesses to observe and evaluate customer behavior and responses towards specific sales, marketing, and service activities, and make improvements as necessitated (e.g., decrease financial risk) (Chen & Sivakumar, 2021). In the context of online transactions, E-CRM fosters consumer satisfaction, customer loyalty, website support, and client assistance (Ma & Bennett, 2021; Hammouri et al., 2021). In their study, Mousavian and Ghasbeh (2017) described E-CRM as a policy with the application of marketing, sales, and a unified streaming website for the purpose of finding, acquiring, and retaining customers. Accordingly, the most recent E-CRM related studies are discussed in this section.

In their study in the banking sector, (Kumar et al., 2021) examined the mediating role of customer experience in the relationship between customer happiness and E-CRM. Using AMOS and structural equation modeling (SEM) in their data analysis, the authors concluded the mediation of customer experience on the aforementioned relationship (customer happiness & E-CRM). Mofokeng (2021) examined the effect of online shopping qualities on consumer happiness and loyalty among online buyers, with e-commerce experience as moderating variable. SEM was used in data analysis, and the results led to the conclusion that customer happiness was determined by a number of factors including product delivery, perceived security, information quality, and product diversity.

In another study, Gao and Li (2019) examined the impact of seller's website quality on buyer's sense of their presence, which consequently affects website recognition and purchase intent. From the results, the authors mentioned the factor of social presence to have a positive linkage to information and service quality. The authors further mentioned that the TaoBao data-based conceptual model, system and service quality had positive linkage to telepresence. Also, the authors found that the improvement of content and service quality improved, while system quality remained the same, and website identification was increased. Moreover, website identification and purchasing intent were found to be positively affected by social presence. On the other hand, telepresence affected website identification, but not purchase intention.

Involving a leading retail bank operating in Kenya, Mang'unyi et al. (2018) examined the mediating role of customer satisfaction in E-CRM and customer loyalty relationships. From the data analysis results, the authors concluded a statistically significant relation between E-CRM in shopping websites transaction characteristics and customer pleasure that became a

predictor of customer loyalty. It should be noted that in this study, the interaction factor was only to determine the features of E-CRM and customer happiness, and based on the path analysis, customer happiness did not seem to discernibly mediate the link between E-CRM and customer loyalty.

E-CRM features on hotel websites were examined by Tian and Wang (2017). Specifically, the authors wanted to find out the value of E-CRM as a signal to transmit information on the service quality of a hotel that is intangible in nature. The study results demonstrated the ability of CRM in assisting the less discernible hotels in reaping the benefits in the online purchase environment that is increasingly competitive.
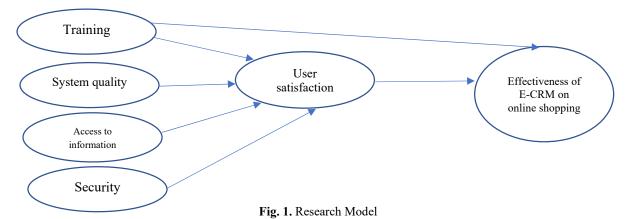
Utilizing users of bank websites in Iran's Guilan province as the study respondents, Mousavian and Ghasbeh (2017) examined E-CRM and the risks related to e-banking business relationships. The findings show that all the examined risks were related to website usage of customers and the efficiency of the dimension of E-CRM. In a related study, (Jamali et al., 2017) explored the effect of the implementation of E-CRM on customer loyalty and e-satisfaction and concluded a positive and significant impact of the E-CRM system on both customer loyalty and customer satisfaction.

In Malaysia, and utilizing user input, Ismail and Hussin (2016) examined the impact of E-CRM aspects on customer satisfaction towards the airline E-ticket services. From the study results, the authors concluded that most Malaysians were satisfied with airline E-services. The authors further indicated that customer happiness could result in customer loyalty, and a development of a long-term relationship between both the consumer and the company. In another study by Miremadi et al. (2012) involving financial institutions and banks, the competitive advantages of E-CRM were examined. From the results, the authors mentioned the factors of accessibility, timeliness, convenience, and trust and service quality as the major benefits of E-CRM. Additionally, the authors indicated that E-CRM usage offers marketing, cutting-edge technological development, channel propagation, strategic considerations, and division of client segments.

In a bank operating in Thailand, Sivaraks et al. (2011) examined the impacts of E-CRM implementation as perceived by clients and concluded the feasibility of E-CRM implementation in increasing the quality of bank–customer relationship. The authors indicated that bank customers would recognize the attributes of the new service with E-CRM implementation. Similarly, Feinberg and (Kadam, 2002) explored the relationship between E-CRM and customer satisfaction through examining the existence of E-CRM attributes on retail websites. Specifically, the authors tried to find out if the various attributes of E-CRM had linkage to customer satisfaction. There were 42 E-CRM features identified, and the results showed a relationship between customer happiness and the number of E-CRM attributes on a website. The authors found a linkage between some elements of E-CRM and satisfaction. Additionally, the amount of E-CRM did not seem to relate to the website and sales or profit of retailers.

3. Research model and hypotheses development

In the determination of factors impacting E-CRM success, a new approach was proposed in this study, as illustrated in the following Fig. 1. Additionally, six hypotheses were proposed, and the techniques employed in data collection and instrument development are detailed in this section.

Fig. 1. Research Model

3.1 System quality

User-system interaction is the main focus of system quality (Tushman et al., 2002), and a valuable system can offer users exceptional performance and benefits (Manafi et al., 2013; Almajali et al., 2022). The performance of the system features are evaluated by user based on her/his experience with the system, and user system experience is reflected by perceived system quality (Jaiswal & Dhar, 2015). In IS success model, system quality is key determiner of IS effectiveness. Notably, technology seems to underpin the post-adoption behaviors and intents (Mascareno et al., 2020; Iswanto et al., 2020; Almajali & Dahalin, 2010). As such, the following hypothesis was proposed:

H₁: *System quality positively affects user satisfaction.*

3.2 Access to information

Correct use of information will expand the knowledge of the company, and through sound management towards high-quality data, the company could achieve competitive advantage (Tushman et al., 2002). As explained by Fernandes (2018), system performance is quantifiable via contentment, desire to use, and real system usage by user, and according to Melchor and Julian (2008), information quality and the level of satisfaction of users are among the main elements to be measured. (Moore, 2001) relevantly mentioned the effect of inflexible IS on user satisfaction considering that IS that is difficult to use will cause reduction in the general effectiveness of the work. Hence, IS should be fashioned to be useful (Manoppo, 2020; Almajali et al., 2021; Al-Okaily, 2021; Hutahayan, 2019) mentioned that user satisfaction towards is measurable via harmonized relationships with information quality, staff users of IS, and the dependability of IS in facilitating user in their task completion. As such, this study proposed the hypothesis below:

H₂: *Access to information positively affects user satisfaction.*

3.3 Security

Security is a serious issue in both the economy and e-commerce. Qashou and Saleh (2018) indicated in their study that higher levels of perceived security could result in increased trust and consumer satisfaction. Meanwhile, Ernest and Lin (2007) found that high-level client satisfaction may increase the potential of increased transactions. The fact that businesses carry a significant amount of information creates a sense of insecurity among customers. Hence, in order to solidify consumer interactions and increase system quality, online transactions personalization has been an effective strategy. Likewise, Manoppo, 2020) reported that personal information increases the concerns towards privacy and security, and some studies found that it imparts an adverse effect on purchase intentions of customers.

Despite the efficiency of symmetric cryptosystem, Cheng et al. (2021) and Lv and Liu (2021) mentioned that the privacy and security that it provides is still flawed. In the E-CRM business, there has been a dramatic increase in security concerns among customers, which has been preventing them from utilizing the system. According to Dash and Mohapatra (2016), the third parties that attain the data of customers do not control the security, and merchants that exploit customer data are violating the privacy of customers. Without assurance of privacy, customers may not be willing to share their data, and this will reduce published data usability. Chen et al. (2021), Wang and Liu (2021), Almajali (2021), Aws (2021) and Hence et al., (2018) indicated that e-retailers should show their intent and competency in securing customer's personal information and data in order to increase the willingness of customers to engage in online transactions, as clients with concerns over security risks have been found to report satisfaction of lower level. The following hypothesis was thus proposed:

H₃: *Security positively affects user satisfaction.*

3.4 User satisfaction

User satisfaction can be described as the response of the user towards the outcome of IS usage. Here, high-level satisfaction results in the optimal use of E-CRM and direct interaction between user and management. As found, users contented towards E-CRM show better performance, as opposed to those who felt otherwise. Tushman et al. (2002) relevantly found a link between user satisfaction and user reaction or perspective towards system interactions and output consumption, resulting in optimal usage of the system. In this study, satisfaction was evaluated following Haron et al. (2020), through the use of five elements as follows: content, correctness, format, timeliness, and ease of use. The hypothesis below was hence formed:

H₄: User satisfaction positively affects the effectiveness of E-CRM in online shopping.

3.5 Training

Training programs provide training to the new and current employees with the purpose of imparting them with the skills that result in efficient task performance (Alavi & Leidner, 2001). Training increases the knowledge, skills and abilities of employees, while also altering and improving their job performance and perception (Almajali et al., 2016; Almajali, 2021; Almajali & Masa'deh, 2021). Training also increases user satisfaction (Bradley & Lee, 2007). In companies that implement CRM systems, it was found that superior or inferior training affects user satisfaction towards system use.

Companies with CRM applications mostly did not have structuring and processing that fit the tools, configuration and information types of the implemented system (Krumbholz & Maiden, 2001). This implies the need for CRM implementing firms to modify their key processes to align with CRM requirements. Confusion and errors may also occur as the implementation of the CRM system often calls for major company change. It is thus important that users are well equipped to embrace the change. (Dezdar & Ainin, 2011) accordingly mentioned that CRM obliges companies to have additional training to bridge the gap between the presently owned knowledge, and the knowledge to be owned in CRM system operation. Thus, the hypotheses below were proposed:

H₅: *Training has a positive impact on user satisfaction.*

H₆: *Training has a positive impact on the effectiveness of E-CRM in online shopping.*

3.5.1 Mediating effect of user satisfaction on the relationship between training and effectiveness of E-CRM on online shopping

In examining the relationship between training and job performance, Zhu et al. (2010) concluded partial mediation of user satisfaction, and this was further justified by the partial mediation of job performance. Additionally, training and user satisfaction were directly linked, with the presence of a mediating link with user satisfaction. The following hypothesis was thus formed:

H₇: *User satisfaction plays a mediating role in the relationship between training and effectiveness of E-CRM in online shopping.*

The affecting factors on the effectiveness of E-CRM systems in online shopping were examined through reviewing the extant literature. As found, the effectiveness of E-CRM has been examined from various perspectives whereby various features affecting user satisfaction towards E-CRM were highlighted.

4. Research method

4.1 Sample and data collection

Customers in Jordan with online shopping experience made up the study population, and Carrefour customers became the study sample. Carrefour is a French international hypermarket, and in Jordan, this hypermarket is the first and largest. Carrefour began its operation in Jordan in 2006. Simple random sampling technique was applied, involving twelve Carrefour hypermarkets in Amman, which is the capital of Jordan. Self-administered questionnaires were distributed all week, and this allowed the researchers to gather information on the varied purchasing patterns and crowds. The activity process took place in May 2021, and four credible research assistants were hired to assist the researchers. Regular Carrefour customers were invited to partake in the survey, and a total of 550 sets of questionnaires were distributed. From the amount, 320 were returned (58.1% response rate).

4.2 Measures

The study constructs were measured. Specifically, the construct of security was measured with four items following (Liu et al., 2008); the construct of access to information was measured with four items following (Coltman & Dolnicar, 2004); the construct of system quality was measured with seven items following (Yang & Fang, 2004); the construct of training was measured with five items following (Simon, 1996; Werner, 2004); the construct of user satisfaction was measured with four items following (Liu et al., 2008); and the construct of the effectiveness of E- CRM online shopping was measured with five items following (Leekelly et al., 2003). In order to facilitate respondents in answering the questionnaire and increase the accuracy of answers, each construct item was equipped with a 5-point Likert scale (from scale 1 to denote "strongly disagree" to scale 5 to denote "strongly agree"). Also, the questionnaire was in Arabic language, considering that the respondents were all Arab native speakers. The questionnaire was originally in English, and using the back-to-back translation method, it was translated into Arabic by the researcher and a translator. Altogether, there were 29 items measuring 6 study constructs of the proposed study model. Pilot study was carried out before the actual survey, involving 30 respondents. During this study, the items in the questionnaire were checked for problems like ambiguity, confusion, language errors and so forth. After pilot study, some items were corrected, based on the feedback provided by the respondents. The actual survey was carried out and the results of the descriptive analysis were as follows: males made up the majority of respondents at 62.5% (200 males), while the remaining 37.5% (120) were females. In terms of age, 20 respondents (23.1%) belonged to the group of under 20, 20.1% of respondents were between the age of 20 and 29, 25.3% were between the age of 30 and 39, 10.1% were between the age of 40 and 49, and 21.4% were over 49. With respect to education, 2.7% of respondents obtained a diploma, 50.1% obtained a bachelor's degree, 31.1% obtained a master's degree and 16.1% were PhD holders.

4.3 Data analysis

Following Anderson and Gerbing (1988), the obtained data were analyzed in two steps. The first step involved the evaluation of the measurement model, while the second step involved the evaluation of the structural model. Covariance-based structural equation modelling (SEM) was used, run with AMOS version 22.

4.3.1 Analysis of the measurement model

AMOS software version 22 was used in testing the study hypotheses. The fitness of data with the estimated measurement model was determined using Confirmatory Factor Analysis (CFA). Structural Equation Modelling (SEM) was next used, with path analysis with latent variables (see: Kline, 2011; Hair et al. 2007; Bagozzi & Yi, 1988). The fitness of the model was ascertained using robust statistics tests, and in this study, the tests used were (refer Table 1): x^2/ degrees of freedom (df), Goodness-of-Fit Index (GFI), the Incremental Fit Index (IFI), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA). As can be viewed in Table 1, the preliminary CFA model did not demonstrate tolerable fit, and so, items TR4 and SQ7 were removed to improve the model fit. The obtained results were as

follows: chi-square (x^2/df) value of the model = 1.56, IFI = 0.90, TLI = 0.88, GFI = 0.87, CFI = 0. 84 and RMSEA = 0.061. Hence, adequate fit was achieved (Kline, 2011; Hair et al., 2007; Newkirk & Lederer, 2006).

Table 1

Measurement model fit indices

Model	χ^2	Df	P	x^2/df	IFI	TLI	GFI	CFI	RMSEA
Initial Estimation	1220.110	433	0.00	2.817	0.78	0.72	0.74	0.71	0.122
Final model	501.145	321	0.00	1.56	0.90	0.88	0.87	0.84	0.061

Minimum recommended value x^2/df=1, IFI=0.80, TFI=0.80, CFI=0.80, GFI=0.80, RMSEA=0.05

The internal consistency of the items was determined using Cronbach's Alpha, and following Hair et al. (2014), the value of 0.6 and above should be achieved in order to affirm internal consistency. Item's factor loading can also be used in determining the internal consistency, and (Creswell, 2009) proposed a minimum value of 0.6, which is in line with (Bagozzi & Yi, 1988), in determining the internal consistency with the use of composite reliability measurement. Average Variance Extracted (AVE) can also be used in determining the internal consistency. Bagozzi and Yi (1988) and Creswell (2009) proposed a minimum value of 0.5. Table 2 presents all results. As shown, Cronbach's Alpha value was greater than 0.7, and indicators of factor loadings were greater than 0.50. This demonstrates convergent validity of all construct items. The achieved AVE values were all greater than 0.50. This also affirms convergent validity (Bagozzi & Yi, 1988; Hair et al., 2014).

Table 2

Confirmatory factor analysis and Cronbach's Alpha results for the measurement model

Constructs and Indicators	Factor Loadings	Cronbach's Alpha	Composite Reliability*	AVE**
Security (SE)		0.843	0.88	0.90
SE1	0.664			
SE2	0.711			
SE3	0.701			
SE4	0.521			
Access to information (AI)		0.941	0.75	0.84
AI1	0.622			
AI2	0.666			
AI3	0.733			
AI4	0.706			
System Quality (SQ)		0.801	0.81	0.82
SQ1	0.625			
SQ2	0.641			
SQ3	0.636			
SQ4	0.530			
SQ5	0.561			
SQ6	0.690			
Training (TR)		0.951	0.86	0.69
TR1	0.710			
TR2	0.637			
TR3	0.569			
User satisfaction (US)		0.904	0.79	0.83
US1	0.522			
US2	0.510			
US3	0.644			
US4	0.511			
effective of E- CRM online shopping (EF)		0.903	0.77	0.89
EF1	0.841			
EF2	0.722			
EF3	0.791			
EF4	0.740			
EF5	0.541			

Table 3

Correlations of constructs

Constructs	SE	AI	SQ	TR	US	EF
SE	0.90					
AI	0.441	0.81				
SQ	0.560	0.521	0.86			
TR	0.520	0.430	0.511	0.90		
US	0.640	0.530	0.549	0.509	0.87	
EF	0.501	0.610	0.540	0.550	0.591	0.94

Table 3 displays the means, standard deviations, AVEs, and the square of correlations of the study constructs. As demonstrated, the relationships between construct pairs seemed smaller when compared to the square root of the AVE estimates of the two constructs. This demonstrates discriminant validity (Hair et al., 2014). Skewness and Kurtosis tests were performed to ascertain the normality of the construct items, and all obtained values were within the - 1.0 to +1.0 range, and

based on Bagozzi and Yi (1988), the values were normal. As can be concluded from the test results, the items in the measurement model were reliable and valid. Hence, the structural model can be evaluated as the next step.

4.3.2 Analysis of the structural model

SEM analysis results are displayed in Table 4, and the results led to the following deductions: system quality has significant positive and direct impact on user satisfaction (P = 0.001) supporting H1; access to information has significant positive and direct impact on user satisfaction (P =0.014) supporting H2; security has a positive significant impact on user satisfaction (p = 0.007) supporting H3; user satisfaction has a positive and significant direct effect on effective of E- CRM in online shopping (P = 0.050) supporting H4; training affects user satisfaction (P = 0.008) supporting H5; and training has a significant positive direct effect on effective of E- CRM on online shopping (P = 0.022) supporting H6.

Table 4
Path coefficients and significances

Proposed Research Paths	Coefficient Value β	t-value	p-value	Sig.
H1: SQ → US	0.122	3.155	0.001	Supported
H2: AI → US	0.198	5.444	0.014	Supported
H3: SE → US	0.137	3.512	0.007	Supported
H4: US → EF	0.566	5.355	0.050	Supported
H5: TR → US	0.301	4.321	0.008	Supported
H6: TR → EF	0.404	6.111	0.022	Supported

This study tested the mediating effect of user satisfaction on the relationship between training and effectiveness of E-CRM in online shopping, and Table 5 presents the result which shows a mediating effect of user satisfaction on the proposed relationship, supporting H7. According to Hair et al. (2010), full mediating effect is concluded when the indirect effect is larger than the direct effect, but not otherwise.

Table 5
Results of mediating hypothesis

Hypothesis	From	mediation	To	Direct effect	Indirect effect	Evidence
H7	TR	US	EF	0.002	0.165	Mediation

5. Discussion and implication

Some indicators and methods have been used in evaluating E-CRM systems, and a system can be affected by user satisfaction, and user satisfaction has been linked to the system's use efficiency. An effective system attracts customers and fosters user satisfaction. Relevantly, the critical success factors of the effectiveness of E-CRM system was examined in this study, in relation to user satisfaction, and among the examined factors were: system quality, access to information, security, training and customer satisfaction. The mediation of user satisfaction on the relationship between training and the effectiveness of E-CRM systems was examined, involving several online shopping sites.

Result on the first hypothesis shows a positive and significant impact of system quality on user satisfaction. It shows that a quality system will positively impact satisfaction, and this increases the potential of future purchasing. Providing additional value and professional services to customers could increase customer satisfaction and customer loyalty. Additionally, system quality facilitates businesses in their operations and customer data usage in increasing user satisfaction. Hence, when choosing IS for an online shop, system quality is crucial as it boosts performance and pleases the customers, leading to user satisfaction. In assuring the effectiveness of the E-CRM system, quality information is very important, and in online shopping, customers expect that the information about a given product is comprehensive and accurate, the product is widely available, and the product is appropriately presented. Website design is the most vital aspect of system quality, and most buyers decide on the purchase based on the visual description of the product. In E-CRM context, the increase in system quality value will increase user satisfaction.   As relevantly reported by Tian and Wang (2017), system quality significantly affects customer satisfaction.

Result of the second hypothesis proves a positive significant impact of access to information on user satisfaction. This implies the effectiveness of customer-oriented strategies in attracting customers to use E-CRM systems. Additionally, IT in online stores appears to be more innovative and better at information access, by easing customer relationships, and by providing better services which make online purchasing faster and more efficient. Additionally, the provision of service and information via the website of the IT implementing company is time and cost effective. For online purchasers, it is thus important for them to know if their selected technology is able to support all sales and service delivery operations. Equally, business management could alter the business development strategies through IS. In a related study, GAO and Li (2019) reported that access to information significantly affected customer satisfaction.

Result of the third hypothesis affirmed the positive significant impact of security on user satisfaction. This implies the need to assure privacy of data to prevent misuse. Using modern technologies, security procedures could help businesses protect

private information of customers. As shown, secured IS development in online shopping sites results in the development of appropriate facilities for customer transfer. In an E-CRM system, security is very important. Online shopping sites should assure that electronic security aspects are addressed to assure the security of customers, promptly and effectively resolve customers' problems, and provide customers with a secure online purchase environment. Pertinently in their study, Mousavian and Ghasbeh (2017) found that customer satisfaction had a positive and significant impact on privacy.

Satisfaction of customers significantly and positively affects the effectiveness of E-CRM systems. For an organization, their survival is in part determined by its ability in transforming and preserving their quality. Among online shopping sites, E-CRM significantly affects the company's competitiveness. Technology incorporating management and a system with the ability to satisfy customers through the E-CRM system will generate competitive advantage for online shopping companies. E-CRM systems are considered as effective when the user feels satisfied with the functionality during and after the purchase. Management of online shopping sites should thus be aware of the functions in the side and focus on relevant aspects during and after the purchase. The site needs to be consistently improved and updated, and issues relating to security/privacy, and other matters including modes of payment, delivery, tracking, monitoring, support, and customer service should be monitored and consistently improved.

Result of the fifth hypothesis affirmed the positive and significant impact of training on user satisfaction, in line with Rabaai (2009) who reported the importance of training in IT implementation projects. According to the author, training helps users in getting acclimatized with the new system, and it also facilitates organization in transforming itself for IT implementation of IT. The benefits of a CRM system could be reaped through educating, training, and updating the people during implementation (Dorobat & Nastase, 2010).

The results of the sixth hypothesis affirmed the mediation of user satisfaction on the relationship between training and effectiveness in E-CRM systems on online shopping. Satisfied users could complete their tasks quicker, making them more productive. Also, studies involving big companies have reported that user satisfaction improves performance.

It was concluded in this study that the perception of customers on a system provider's quality was positively affected by the following factors: the perception of customers towards the system's privacy, training, quality, and access to information of online shopping websites. As also reported by Mang'unyi et al. (2018) and Sivaraks et al. (2011), user satisfaction and effectiveness of E-CRM are positively linked. It is thus necessary for organizations to strengthen consumer interaction to enhance their corporate identity (Zhuang et al., 2021).

6. Conclusion, limitations and future research

Web-based strong technology and Internet facilities can increase the quality of business, leading to customer satisfaction. Many customers today chose to connect with their service providers through electronic means, and so, many businesses today are shifting to online stores in providing their customers the required products and services. In this regard, the use of E-CRM offers customers with various types of services in accordance with their needs and demands, in addition to opening doors for more growth. Tariq et al. (2019) further added that it may impart organizations with a competitive advantage.

Customer behavior usually changes with time, and firms should expect this, and make the needed adjustment. In other words, firms should be well prepared to accommodate customer changes. With the introduction of various information technologies, firms could almost instantaneously establish and preserve their competitive advantage. Also, firms should facilitate customers identifying their own needs and compare these needs with the services they receive from the firm, as this will allow firms to personalize its E-CRM system. Not only that, but firms should also identify the ideal E-CRM system as perceived by their customers, by eliciting feedback from the customers. This allows them to make improvements as necessitated to their present system and perhaps supersede the expectations of the customers. A research panel or test could be carried out to find out the tastes and opinions of customers, and what could be done to improve the current E-CRM system of the online stores. In improving the effectiveness and quality of E-CRM systems, future studies should consider methods like deep algorithms (Zhong et al., 2021), particle swarm intelligence, evolution of cooperation (Lv & Song, 2022), and architecture of cobweb-based redundancy for clustered faults (Ni et al., 2020) & (Almajali et al., 2022).

Several limitations should be considered, first of which, concerns the study location. Since this study was carried out in one location only, the findings may not be applicable to other locations. Additionally, data were obtained from only one sample unit because of the time and financial constraint, and thus, the results may lack comprehensiveness. Thirdly, the variables used in this study in describing the effective factors on effectiveness of E-CRM may be insufficient, and thus, more variables may be included in future studies. Considering the discussed limitations and other factors, this study suggested the use of more in-depth interviews with e-commerce professionals and users in future studies on E-CRM as it may present firms with more comprehensive knowledge and views about E-CRM. Secondly, future studies may consider taking the longitudinal approach to enrich the findings further. Lastly, the link between customer data analysis and the effectiveness of E-CRM should be examined more in-depth, and this could generate more comprehensive information to online retailers specifically.

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