



A theoretical review of conceptual model for E-CRM success in telecommunication companies

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Abstract

Electronic customer relationship management (E-CRM) is a modern tool to secure and maintain competitive advantage that focuses on customers. Telecommunication companies nowadays are attentive to the employees, in their effort to enhance job satisfaction through the development of E-CRM. This study aims to integrate theories for a development model to enhance employee satisfaction in telecommunication companies that employed the method of summarizing theoretical reviews. This study contributed to the knowledge in the domain of E-CRM and the success factors in organizations. Therefore, it is important to improve a readily available model that combines every theory that correlated with the current study. The adopted model in telecommunication companies ensures the successful adoption of E-CRM that affects employee satisfaction and enhances individual performance. Additionally, this study contributed to the improvement of an integrated model that combines technology, organization, and individual factors influencing telecommunication companies in developing countries.

Keywords: Employee Satisfaction; E-CRM; TAM Model; Success Factor; Technology; Human Factors; EUCE model.

1. Introduction

The globe including local organizations in developing countries [1]. Customer relationship management (CRM) with its existing deployment of technology, often described as electronic CRM (E-CRM), is most recognized as certain in modern business [2]. In comparison to CRM and its outcome in many organizations, E-CRM practice and adoption in Arab countries remain comparatively new, especially for telecommunication organizations, which are the key enablers of productivity across economies and societies. According to [3], telecommunication companies contribute significantly to the economies of developing countries as it provides wider business development opportunities and plays [3] a significant role in the rapid development environment especially in the developing countries over the previous decade. The number of contributors is increasing at a faster pace, partly due to the effective management at these companies. Hence, studies needed to investigate the utilization and successful adoption of E-CRM. In fact, with E-CRM telecommunication companies restructure and thus improve employee-performance. Al-Mamary [3] Attributed the problems in telecommunication companies to low employee satisfaction level. The factors that are significant in E-CRM processes can categorized into three: strategy of the Organization; technology and human that affect employee satisfaction such as training and top management support; technology, human, and perceived factors.

2. Background

Aspects of improvement to determine employee satisfaction in using a new system that explain the different structures. Generally acceptable frameworks have been developed, namely Technology Acceptance Model, TAM Davis [4] Theory of Planned Behavior,

TPB, Diffusion of Innovations, DOI Rogers [13], and the Unified Theory of Acceptance and Use of Technology, UTAUT Venkatesh et al. [14], Diffusion of Innovations (DOI) and Technology Acceptance Model (TAM). TAM is the model used for user acceptance testing and technology acceptance, in terms of perceived usefulness and ease of use that would influence user acceptance. The TAM model facilitates the handling of information system enterprise in the organizations by investigating the quality performance system Davis [4]. TAM is very significant for technology-leading diffusion theories. The two technology measurements, "perceived usefulness" and "perceived ease-of-use" may look simplified as they involve the factors that affect user satisfaction toward E-CRM system. Therefore, in developing countries, there may be many limitations such as time constraints and restricted knowledge of the system [5]. Since E-CRM is new in the world of technology, it is logical to investigate the TAM model further to perfectly understand user acceptance in an organization. The researchers used TAM and combined the identified variables to formulate their object model and then they re-confirmed that perceived usefulness is the top factor, which influences the adoption of E-CRM system. DeLone, and McLean [6], presented a summary of the study printed from 1981 to 1987 and built a classification of Information System (IS) successes based upon this survey. In a study in 1992, they determined six factors of IS success: system quality, information quality, use, user satisfaction, individual influence, and organizational influence [7]. In the E-CRM context, the primary system users are suppliers that are also internal users. [8] defined service quality as the support of users in the IS domain, often tested by the responsiveness, reliability, and empathy of the support organization. Meanwhile, net benefits is the extent that IS adding; to the successes of individuals, groups, organizations, enterprises, and countries. DeLone & McLean IS Model and the updated DeLone & McLean IS Model focused on important factors such as system quality, information quality, service quality,

system use, and user satisfaction [3]. In developing countries, system characteristics like information and quality have a significant and positive influence on the perceived usefulness of a technology. It was mentioned that system quality, information quality, service quality, user satisfy Action, training, system use, and individual impact are the important factors of E-CRM success [8]; [9]. In Egypt. Azzam[11] Agreed that service quality has a significant effect on the satisfaction of owners of Islamic microfinance products. According to Yee[12], in the context of South Africa, there are many factors influencing adoption success such as service quality, system quality, information quality, perceived usefulness, employee satisfaction, and others. DeLone & McLean is a suitable model that includes technology factor and system use factor that influences employee satisfaction in using E-CRM. System quality, in the internet environment, estimates the specific characteristics of E-CRM. Usability, availability, reliability, adaptability, and response time (download time) are some examples of qualities valued by E-CRM users.

3. Success factors

As the major part to improve the proposed conceptual model, the factors affecting E-CRM success will be determined. The success factors identified from the studies are as presented in Table 1. In addition, the success variables for this study were based on: i) the repeat of success factors in the research as in Table 1 that selected most of the frequent factors in technology acceptance and (ii) the connections between success factors and the cause of E-CRM failure.

3.1. Critical success factors E-CRM system

Many studies have been include these factors in their studies as a success factors. Table 1 shown the frequently studies includes these factors in their models and empirical studies.

Table 1: Frequency of E-CRM Success Factors in the Literature

| No | References | Frequency in LTR | Factors |
|----|--|------------------|------------------------|
| 1 | [13]–[21] | 9 | Service Quality |
| 2 | [12]; [19]; [20], [22]–[24];[25]; [13] | 10 | System Quality |
| 3 | [8] [20], [26]–[29] [30] | 7 | Information Quality |
| 4 | [21], [24], [31]–[39];[30];[40]-[41] | 18 | Top management Support |
| 5 | [22] [42]–[43] | 4 | Training Users |
| 6 | [44] [7][32] [45] ([46] | 5 | Ease of use |
| 7 | [7]; [38]; [41] –[47]; [48] | 6 | Computer Experience |
| 8 | [49]–[50] [38]; [41]; [38]; [51]; [35]; [47] | 10 | Self- Efficacy |
| 9 | [52]–[53]; [48]; [49]; [44]; [8] | 11 | Skills |
| 10 | [7] [54]–[55]; [42]; [48]; [35] | 9 | Perceived Usefulness |
| 11 | [48] [56]–[57] | 10 | Employee Satisfaction |

3.2. Critical success factors dimensions

As determined previously, the major elements of E-CRM are technology, organization, and individual. E-CRM success factors depend on these components Nikou [25]. The objective of the success factors in E-CRM is to ensure that each success factor genuinely related to the E-CRM. As such, it is necessary that the study bridge the existing gaps in E-CRM and contribute to the information system component in organizations. The objectives of the critical success factors are to study the influence of E-CRM adoption and workers performance within telecommunication companies, to provide insights into technology, organization, and

individual factors. Izzati[58], to study E-CRM's impact on employee satisfaction that relates to improved performance, and to investigate the influence of these factors on perceived usefulness and employee satisfaction toward improving employee performance and E-CRM adoption.

Table 2: Linking E-CRM Factors to Enhance E- CRM Success Adoption

| Factor | Technology | Organization | Individual | Moderator |
|------------------------|------------|--------------|------------|-----------|
| Service Quality | X | | | |
| System Quality | X | | | |
| Information Quality | X | | | |
| Top management Support | | X | | |
| Training Users | | X | | |
| Ease to Use | | | X | |
| Computer Experience | | | X | |
| Self- Efficacy | | | X | |
| Skills | | | X | |
| Perceived Usefulness | | | | X |
| Employee Satisfaction | | | | X |

4. Theoretical understanding

There are various theories in the scope of technology adoption and acceptance. As mentioned by Nienhuis [27] there are many theories related to the area of individual performance. E-CRM research meet special attention of the organizational factors associated with E-CRM success that become the drivers of E-CRM usage San-Martín[59]. Information systems are a basic tool that influence companies. There are a number of theories in the area of adopted and acceptable technology. A large number of research have investigated on how to successfully adopt E-CRM [60]– [61]. Notwithstanding all the studies, unsuccessful E-CRM adoptions remain high. Many researchers found that 60% of E-CRM adoption are viewed as unsuccessful in developing countries and only 40% are considered successful [62]; [63]. Previous researchers have determined critical success factors of E-CRM [48]; [64]–[68]. E-CRM faces hindrances such as organization, technology, and human factors that affect its implementation [69]. E-CRM system must have complete dimensions such as organization, technology, and individual factors. Based on the summary of the previous studies on E-CRM success factors, Chen[70] Mentioned that IT infrastructure is relatively weak in developing countries. According to Kim [71], many theories and models have been used in analysing the behaviour after a technology adoption such as Technology Acceptance Model2 (TAM2). The DeLone & McLean model is a criterion for the specific measurement for dependent factors in IS research.

4.1. Delone and McLean's model

There are several models in IS studies focusing on the use of information systems [72] [73]. Some studies focused on the conception of IS adoption (UTAUT, UTAUT2, act) whereas the others focused on the Information System successes (DeLone and McLean model). Among these, [6] reviewed the various IS successes comprehensively and suggested a six-factor IS success model as a taxonomy as well as a framework for investigating the relevant dependent variables in IS studies. DeLone, and McLean [6], comprehensively evaluated the various IS success measures and suggested a six-factor IS success model as a classification and model for measuring the complex-dependent variables in IS research. This study suggests that the DeLone and McLean is renewed IS success model enabled the updated measurement of the system successes in the E-CRM domain which means that this model measures the quality of the system and the efficiency in the organization. In addition, it is considered suitable for this study that has effect on the individual level [30]. DeLone and McLean's

model has extreme attentiveness between research in different areas but in the E-CRM system viewpoint, are only a few studies conducted to investigate the effectiveness of these factors in terms of employee satisfaction in telecommunication companies in developing countries. Therefore, there is a need to examine the success model that can be applied to the E-CRM context. Subsequently, this study aims to identify the influence of technological factors on perceived usefulness in terms of employee satisfaction to increase individual performance by using E-CRM and successfully adopting the system. Based on the research survey, this study confirms the factors that give impact to information quality, system quality, and service quality that are the core components of E-CRM in terms of employee satisfaction and thus helps provide an experimental summary on the individual performance.

4.2. Technology acceptance model (TAM)

The TAM model identified users the technology from two main sides like perceived usefulness (related to the feature) and perceived ease of use such as complexity [74]. The feature is both dependent and independent factors [74]. The major variables in TAM model that impacted user acceptance are perceived usefulness (PU) and perceived ease of use (PEOU) [74]. Venkatesh and Hameed [34]; [75] developed a model by providing new factors which may impact the Perceived Usefulness and intention of use factor. Ease of Use: defined as acceptable of a system for a private class of users carrying out particular tasks in a special environment. Ease of Use influences user performance and satisfaction [76]. Ease of use is one of the concepts in the information system research [4]; [76]. Venkatesh [77] claimed ease of use has an effect on the initial user acceptance. Perceived Usefulness: is the level of belief which user will enhance the performance of technology [74]. The users and perceived ease of use information found to influence perceived usefulness and perceived ease of use. The ease of use has more affected than perceived usefulness [74]; [78]. The researcher mentioned that behaviour cannot be taken as a final goal but as a way to a more primary objective. TAM is still the most empirically examined adoption model, therefore, chosen as a good guideline theory toward understanding the impacting factors for E-CRM adoption in telecommunication companies.

4.3. Technology acceptance model (TAM3)

Davis [4], defines TAM model for the measurement of individual behaviour toward system use through two factors, perceived usefulness and perceived ease of use. Perceived usefulness is determined when the users believe that work performance improved by using a system. Perceived ease of use is described as the degree to which an individual believes that using a particular system would be free from physical and mental effort. Venkatesh [34], reported that "Perceived usefulness is such a fundamental driver of usage intentions, it is important to understand the determinants of this construct and how their influence changes over time with increasing experience using the system". Wu [79] mentioned that the testing used the original technology acceptance model for E-CRM, which yielded a very poor predictive value. Computer self-efficacy improves predictability and enhances the use of E-CRM system. Some studies reported the influence of self-efficacy toward perceived usefulness in the context of E-CRM system [80], [81].

4.4. End-user computing effectiveness model (EUCEM)

EUCE model defined in 1980 to specifically measure development success whereas Igbaria to influence perceived usefulness and perceived ease of use. The ease of use has more affected than perceived usefulness (Martins, et al, developed EUCEM in 1990. EUCEM model was developed based on five variables to examine success attributed by top management. Etezadi & Farhoomand [82]. Igbaria [83] defined organization support as the top management support whereas mentioned that managerial support involves top

management support and the necessary resource allocation. This is measured by looking at the top management support toward E-CRM system, MIS employee support, and system and resource utilization. Top management support is the critical success factor and significant part for E-CRM system adoption. Training, on the other hand, is measured through variables such as college courses, external training, in-house training, and self-based training [83]. Al-Mamary [3], mentioned that training is a very significant factor to enhance employee awareness of the system usability in telecommunication companies in addition to computer experience variable, which is based on the personal experience of using application systems and different computer languages. EUCE model focuses on the significant factors such as top management support, training, and experience impact on user satisfaction; however, it views satisfaction as the main component of system success. Marcu [84], mentioned that employee performance is influenced by top management support and training in telecommunication companies in developing countries. The advantage of the EUCE model includes user training, computer experience, and organization support (top management support), which influence user satisfaction, as such, this model is related to the problems in E-CRM adoption in telecommunication companies.

5. Conceptual models

The conceptual model of this study has been proposed based on the critical success factors and adoption theories. In which the TAM theory supports perceived usefulness and ease of use; DeLone and Torkzadeh support the technology factors in terms of system quality, service quality, and information quality as well as employee stratification; and TAM3 supports computer experience and self-efficacy. In addition, EUCE supports top management and training. The skills factor has been found as one of the success factors which most of the studies reported that this factor has an effect on employee satisfaction and perceived usefulness in the use of e-CRM performance. Figure 1 shows the proposed model of this study.

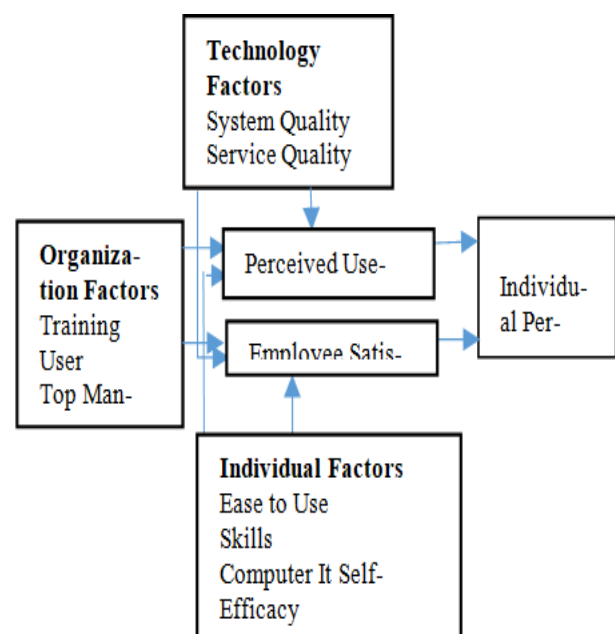


Fig. 1: Proposed Model.

5.1. Theories adopted in conceptual model

Table 3: Theories Adopted in Conceptual Model

| Author's | Theory | SyQ | SQ | IQ | TR | TMS | ES | SK | EX | PU | ES | Common factors |
|--------------------------|--|-----|----|----|----|-----|----|----|----|----|----|--|
| DeLoone & McLean | DeLoone & McLean IS Success Model 2014 | X | X | X | | | | | | X | | Technology and Human |
| Davis 1989 | technology acceptance model (TAM) | | | | | | X | | | X | | Perceived ease of use + Perceived usefulness |
| Igaribara 1990 | End-User Computing Effectiveness Model | | | | X | X | | | X | | | Organization |
| Venkatesh and Davis 2000 | technology acceptance model (TAM3) | | | | | | X | | | X | | perceive usefulness |
| Literature Review | LR | | | | | | | X | | | | skills |

SYQ= System quality, SQ = Service Quality, IQ= Information Quality, TMS= Top management Support, TR= Training, US= User System, SK= Skills, CIE= Computer It-Efficacy, EX= Experience, PU= Perceived Usefulness, ES= Employee Satisfaction.

5.1.1. Technology factors

a) Service Quality

Garrido and Pandit [72][85] identified service quality as the methods of obtaining success among competing services, especially businesses that offer almost the same services. According to [86] the quality of service is one of the main factors in technology that measure user satisfaction. Satisfaction and service quality have positive significant effect toward employee satisfaction [87]. The aim of E-CRM is to improve profitability and revenue. One of the advantages of service quality is improving the best understanding of the relevance of service quality (E-CRM) that leads to companies' competitiveness. Cook, & Thompson, [88] stated that the success or failure of business organization relates to service quality factors. Some studies have reported that service quality has influence on employee satisfaction and toward perceived usefulness [89]–[90]; [45]; [87]. Previous studies focused on service

quality as the most important aspect of technical factors and has important relationships between service quality and employee satisfaction [91]; [45]; [92] researchers expected to mitigate negative factors whereby some of them indicated that system quality. The aim of E-CRM is to enhance profitability and revenue. User satisfaction based on E-CRM service quality that contributes to the improved performance and understanding of E-CRM in telecommunication companies. User satisfaction and service quality have a significant relationship in E-CRM in which user satisfaction depends on service quality.

b) System Quality

System quality contains the eligible features (ease of use and system flexibility and reliability) of an information-system [30]. Typical measures of the system quality in previous studies include response time, ease of-use, flexibility and stability [93]-96]; [48]; [71]; [18]; [64]; [66]; [40]. Wang and Liao [95], mentioned ease of use and appearance as system qualities that allow organizations to present good products and services and these qualities found to have a positive effect on system use. Thus, organizations gain competitive advantage by contributing more value to customers and improving customer satisfaction. The quality of E-CRM system influences organization advantages through its impact on user satisfaction and performance. By enhancing overall E-CRM system quality, the has direct and positive influence on employee satisfaction [96].

c) Information Quality

According to previous studies [93], [97]–[103] information quality can be measured as follows: accuracy, timeliness, completeness, understanding, and accessibility. According to previously published studies, system quality defined as the degree of information processing quality in the E-CRM environment when managing services and reaching information for telecommunication channels. Many researchers [13], [32], [46], [51], [104], [105] reported that information quality has positive importance on employee satisfaction and perceived usefulness. This study will identify the impact of perceived usefulness in relation to employee satisfaction Ay-yash [[106] stated that information quality is an advantage in a system that has significant effect on perceived usefulness, which will in turn influence the acceptance of a technology.

5.1.2. Organization factor

a) Top Management Support

Top management support is one of the factors, which gives good influence to warrant the success of E-CRM adoption in an organization. The researchers confirmed that top management support and decision is the powerful influence toward successful E-CRM adoption [107]. According to Tarafdar[108], when senior managers develop important standards in support of information technology, they strongly advocate the use of information systems within that organization [109]. There is an established relationship between top management support and the success of IT systems. Chinje [62], found that top management support, involvement, and understanding in E-CRM is the most powerful factor behind E-CRM success. E-CRM function considered a strategic resource and companies are likely to downscale on operational elements to give way to E-CRM. E-CRM deemed as meeting its objectives when top management seen as encouraging employees to use E-CRM and devising a mechanism to assess its effectiveness. This study will define top management support as "the extent of top management that understands the importance of the system and is able to ensure sufficient allocation of resources to support and encourage the end-users to use electronic customer relationship management systems". It is has a significant role based on the time spent on directing executive committees or supervising executive teams Ghobakhloo & Hong [110].

b) Training

Training is the main component of E-CRM adoption as it ensures that employees have all the required aptitudes to use the new e-CRM system [111]. Telecommunication companies influence employee participation in terms of performance and effort to facil-

itate their adoption of E-CRM system. Olupot [112] mentioned that training is the major contributor toward positive impact on employee performance. It performance with similar characteristics [113]. Saeed et al. indicated that the main issue in telecommunication companies is employee satisfaction level. Yusof [114], reported that the user training plays a significant role in ensuring that users understand, use the system, and help to manage exchange process effectively [2]. Additionally, Yahaya [115], mentioned that training need to be addressed. According to Bradford & Florin [75] the level of employee training has positive relationship with implementation success. This study will define the frequency of internal and external training provided to E-CRM end-users in view that training increase user awareness.

5.1.3. Individual factors

a) Ease of Use

System quality relates to the level of user perception in using a system. Akter [116], defined system quality as the awareness level of system use. Some researchers mentioned there are three system items: efficiency, reliability, and privacy, which constitute user perception toward E-CRM system quality. Reliability determines the level of [116] E-CRM platform, which is available anytime and anywhere. It is also define as the ease of using E-CRM platform. Privacy means the level of information security in using E-CRM platform. According to Jackson .et.al [35], perceived usefulness is a fundamental determinant of system use. There are theories that perceived usefulness as significantly correlated with system use. Wang [95] stated the main factors that contribute to successful adoption of E-CRM are employee satisfaction, system use, and perceived usefulness. Many studies mentioned the impact of system use on employee satisfaction in other areas such as electronic record information system, e-learning, and cloud computing [117];[33]; [118]; [95].

b) Skills

Lumpur and View [119], defined skills as an educated strength of accomplishing something; a created fitness or capacity. Kuan [120], identified that skills is the result of training. From the previous definition, skills are one of the features that helps the success of any user system [106]. On the other hand, Kuan [121] [122], mentioned that skills help employee improve and integrate E-CRM technology with management process. Rahimparvar [123], mentioned that skills enhance employee satisfaction and acceptance toward performance services. Gefen [124], stated that skills provide direct impact on employee satisfaction. In other studies, it was found that organizations that focused on employee E-CRM experience will eventually become efficient and have strong customer relationship [123][22]. Munkvold [115], cited that skills are the individual factor that has strong significance to the system success. Previous studies found strong relationship between organization success level and employee skill level ([125]; [126][127] mentioned that skills are part of human factors that have great significance to employee satisfaction. [128] supported the idea that skills lead to higher employee satisfaction. [129] and [130] also mentioned that employees have sufficient skills to know what help can be expected from the system. [131] [132] reported that skills have a significant relationship with employee satisfaction. Skills are one of the success factors for E-CRM system [133]

c) Computer self-efficacy

Computer self-efficacy is the most basic factor for computer abilities and computer use Avlonitis and Taylor [134][135][134] demonstrated that personal computer is an individual aspect of capacity to oversee and execute undertaking to accomplish tasks. Self-adequacy is not a measure of expertise; rather, it reflects what people trust they can do with the skills they have. Research findings from previous examinations propose a positive connection between self-adequacy and user views Hu and Speier [113][67]. Research discoveries from past investigations proposed a positive connection between self-efficacy and user convictions [113]. Users who have self-efficacy would value the system better and thus be more involved. Divided self-efficacy into three dimensions:

magnitude, strength, and generalizability. The extent of self-efficacy alludes to the level of difficulty that one deems achievable. Self-efficacy quality relates to the level of confidence toward judgment. It likewise mirrors the opposition of self-efficacy to clear data. Generalizability of self-efficacy demonstrates the degree to which the view of self-efficacy is limited to a specific event. Several researchers predicted its usage by investigating perceived usefulness and employee satisfaction factors. Lack of computer self-efficacy leads to more negative individual understanding toward a technology [67]. Employees with high computer self-efficacy will have better view of E-CRM system as wells as better perceptions toward its success. Speier and Bennett [67][136] examined self-efficacy in general rather than specifically in task and found positive relationship among self-efficacy and employee satisfaction. D'Ambra [54] found that self-efficacy is likely to relate to perceived usefulness.

d) Computer experience

Computer experience relates to the extent of experience in using application system. Jaber [1] referred the experience to efficiency success metrics that highlight employee satisfaction and employee lifetime value. Hart [137], mentioned that the level of experience contributes to E-CRM positive effect from authoritative learning point of view. They noticed that the utilization of and involvement in E-CRM enhanced the organization's capacity to acquire powerful outcomes with this activity, expanding efficiency and advantages of E-CRM with time expansion since its implementation. Karim and Hung [138][139], mentioned that there is a relationship between computer experience and employee satisfaction. Kim, and Yang; Park and Kim [107][140][71] indicated that experiences have a positive effect on employee satisfaction. Hart [137], indicated that experience affects the success of E-CRM system. There is little evidence examining how employees learn from their experiences in developing, adopting, and managing E-CRM. Reports showed there is a significant relationship between employee and experience that contributes to the success of E-CRM system.

5.1.4. Perceived usefulness

Perceived usefulness refers to employee perception that use of new technology will improve their satisfaction .While Hart Okorie Awa [141], indicated that perceived usefulness provides personal features into how actual use and intention to use are influenced. On the other hand, Hart Okorie Awa [141], reported to the perceived usefulness is determined from influence of external variables. Perceived usefulness has strong correlation with employee satisfaction, which, in turn, influence system success [4]. Whereas perceived usefulness is concerned with performance as a consequence use. In this sense, the perceived usefulness can be affected by various factors such as system use, skills, computer self-efficacy and experience of using E-CRM system. According to Scherer and Ayyash [142][106], perceived usefulness is positively related to self-efficacy and the skill using system. On the other hand, the researchers reported a positive correlation between perceived usefulness, self-efficacy and kinds of skills. [142] mentioned that low level of self-efficacy with higher levels of perceived usefulness cause problem for the adoption of successful of ECRM system. Satisfaction is an individual evaluation of the different experiences. To satisfy employee, their' needs and values on E-CRM system functions [76],[70]. As stated, a positive experience of using system lead to greater user satisfaction [70]. Similarly, the perceived usefulness of the system's using influence subsequent use and user satisfaction [70]. Therefore, perceptions of usefulness and employee satisfaction must be taken from the employee' point of view. Because a system that perform important tasks is perceived to be more useful, it is expected that the E-CRM system should enhance and improve the performance of related tasks, and hence encouraging user satisfaction . The more useful the system, the more likely the user will be satisfied. To this end, the usefulness of the system plays a vital role in satisfying the user of a system [134].

5.1.5. Employee satisfaction

Employees are the important assets of organizations and play a significant role in their success [143],[76]. Some researchers have defined satisfaction as positive feelings or aggressive responses; whereas others defined it as the gap between expected gain and the actual gain [76]. Measuring employee satisfaction through some individual factors such as skills, experience, computer efficiency and system use offers an indication of how successful the E-CRM system [76]; [143]; [144]; [76]. For example, [145] identified employee satisfaction has positive impact on the successful use of CRM in telecom company. In the context of Telecom Company, the E-CRM considered the prime element of organization success; therefore, employee satisfaction and experience of using ECRM are the main construct of ECRM [146]–[147]. Therefore, this study's research model assesses the direct impact of skills, experience, system use, and computer self-efficiency on employee satisfaction. In addition, the study will examine the indirect effect of independent variable on satisfaction.

5.1.6. Individual performance impact

Janssen and Van Yperen (2004) identified the difference between responsibility performance results and innovative performance results in which responsibility performance results considered in determining business targets and objectives. There are researchers who identified individual performance in E-CRM critical success factor [101] Individual impact is tested through performance of job efficacy and quality of service in work [148]. Individual performance is measured by individual productivity and efficiency awareness [149]. There are different ways to measure individual performance impact and they vary between researchers. This study measured three items (effectiveness, productivity, and performance) for employee's individual performance impact in relation to E-CRM system.

6. Conclusion

The objective of this study is to identify the theories that become the component in employee satisfaction toward E-CRM system. The theories based on three other theories. The current theories have confirmed the effect of E-CRM by determining the main factors that influence the relationship between E-CRM and employee satisfaction. Continued enhancements to achieve the important level of employee satisfaction have generally confirmed. Based on the theories, this study identified three main dimensions: technology, organization and individual factors, which affect employee satisfaction, and consequently, individual performance. These three dimensions have important influence on employee satisfaction. The aim of this study is to develop a model for E-CRM and understand the significance of employee satisfaction toward a successful E-CRM system that will enhance individual performance in telecommunication companies.

7. Result

The study identified the factors from the three domains that contribute to the success of E-CRM system in the context of developing countries. Although E-CRM system adoption in telecommunication companies may not be feasible due to the influence of employee satisfaction on service quality, it does have an influence on employee satisfaction and organization profitability. To successfully adopt E-CRM system, telecommunication companies need to integrate E-CRM-based technology to improve individual performance; however, the success is very much dependent on employee satisfaction. The study therefore identified three key gaps in user satisfaction that affect individual performance.

References

- [1] F. N. Jaber and L. Simkin, "Understanding customer relationship management (CRM) adoption in an Arab Middle Eastern context," *Behav. Inf. Technol.*, vol. 36, no. 10, pp. 1020–1036, 2017. <https://doi.org/10.1080/0144929X.2017.1332098>.
- [2] W. T. V. and J. G.-B. Óscar Gonzalez-Benito, "CRM Technology: Implementation Project and Consulting Services as Determinants of Success," *Int. J. Inf. Technol. Decis. Mak.*, vol. 16, no. 02, pp. 421–441, 2017. <https://doi.org/10.1142/S0219622017500067>.
- [3] Y. H. Al-Mamary, A. Shamsuddin, N. A. A. Hamid, and M. H. Al-Maamari, "Issues Related to Employees at Telecommunication Companies in Yemen and the Role of Management Information Systems in Solving It," *Int. J. Hybrid Inf. Technol.*, vol. 12, pp. 377–390, 2015. <https://doi.org/10.14257/ijhit.2015.8.12.29>.
- [4] F. Davis, "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *MIS Q.*, vol. 13, no. 3, pp. 319–340, 1989. <https://doi.org/10.2307/249008>.
- [5] R. S. Winer et al., "MASTER' S THESIS Customer Relationship Management," *Eur. Manag. J.*, vol. 28, no. 2, pp. 153–167, 2010.
- [6] E. R. DeLone, W. H. and McLean, "Information systems success: The quest for the dependent variable," *Inf. Syst. Res.*, vol. 3, no. 1, pp. 60–95, 1992. <https://doi.org/10.1287/isre.3.1.60>.
- [7] S. Petter, W. DeLone, and E. Mclean, "Measuring information systems success: models, dimensions, measures, and interrelationships," no. December 2006, pp. 236–263, 2008.
- [8] S. Petter, W. DeLone, and E. R. McLean, "Information Systems Success: The Quest for the Independent Variables," *J. Manag. Inf. Syst.*, vol. 29, no. 4, pp. 7–62, 2013. <https://doi.org/10.2753/MIS0742-1222290401>.
- [9] C. Adalikwu and J. Adalikwu, "Electronic Customer Relationship Management and Consumer Behavior," pp. 139–146, 2013.
- [10] N. El Essawi and R. A. El Aziz, "Determining the main dimensions that affect e-customer relationship management readiness in the Egyptian banking industry," vol. 6, 2012.
- [11] Z. Ahmad Mohammad Azzam and A. Professor, "The Impact of Customer Relationship Management on Customer Satisfaction in the Banking Industry –A Case of Jordan," *Eur. J. Bus. Manag.*, vol. 6, no. 32, pp. 2222–2839, 2014.
- [12] R. W. Y. Yee, A. C. L. Yeung, and T. C. E. Cheng, "The impact of employee satisfaction on quality and profitability in high-contact service industries," *J. Oper. Manag.*, vol. 26, no. 5, pp. 651–668, 2008. <https://doi.org/10.1016/j.jom.2008.01.001>.
- [13] Y. M. Wang, Y. S. Wang, and Y. F. Yang, "Understanding the determinants of RFID adoption in the manufacturing industry," *Technol. Forecast. Soc. Change*, vol. 77, no. 5, pp. 803–815, 2010. <https://doi.org/10.1016/j.techfore.2010.03.006>.
- [14] J. Fjermestad and N. C. Romano, "Electronic customer relationship management: Revisiting the general principles of usability and resistance – an integrative implementation framework," *Bus. Process Manag. J.*, vol. 9, no. 5, pp. 572–591, 2003. <https://doi.org/10.1108/14637150310496695>.
- [15] N. Ab Hamid, A. Cheng, and R. Akhir, "Dimensions of E-CRM: An Empirical Study on Hotels' Web Sites," *J. Southeast Asian Res.*, vol. 2011, pp. 1–15, 2011. <https://doi.org/10.5171/2011.820820>.
- [16] S. G. Aungst and D. T. Wilson, "A primer for navigating the shoals of applying wireless technology to marketing problems," *J. Bus. Ind. Mark.*, vol. 20, no. 2, pp. 59–69, 2005. <https://doi.org/10.1108/08858620510583650>.
- [17] S. Teixeira, B. A. Agrizzi, J. G. P. Filho, S. Rossetto, and R. de L. Baldam, "Modeling and automatic code generation for wireless sensor network applications using model-driven or business process approaches: A systematic mapping study," *J. Syst. Softw.*, vol. 132, pp. 50–71, 2017. <https://doi.org/10.1016/j.jss.2017.06.024>.
- [18] M. M. Yusof, "A case study evaluation of a Critical Care Information System adoption using the socio-technical and fit approach," *Int. J. Med. Inform.*, vol. 84, no. 7, pp. 486–499, 2015.
- [19] B. Mattiullah, "Examining Success of Land Record Information Systems (LRMIS) in Pakistan: Validating an incorporated IS success model," *Eur. Sci. J.*, vol. 12, no. 2, pp. 258–289, 2016. <https://doi.org/10.19044/esj.2016.v12n2p258>.
- [20] A. Dubey and A. K. Srivastava, "Impact of Service Quality on Customer Loyalty- A Study on Telecom Sector in India," *IOSR J. Business Manag.*, vol. 18, no. 2, pp. 45–55, 2016.
- [21] J. Y. L. Thong, "Resource constraints and information systems implementation in Singaporean small businesses," *Omega*, vol. 29, no. 2, pp. 143–156, 2001. [https://doi.org/10.1016/S0305-0483\(00\)00035-9](https://doi.org/10.1016/S0305-0483(00)00035-9).

- [22] J.-L. Hsiao, W.-C. Wu, and R.-F. Chen, "Factors of accepting pain management decision support systems by nurse anesthetists," *BMC Med. Inform. Decis. Mak.*, vol. 13, no. 1, p. 16, 2013. <https://doi.org/10.1186/1472-6947-13-16>.
- [23] L. Eboli, Y. Fu, and G. Mazzulla, "Multilevel Comprehensive Evaluation of the Railway Service Quality," *Procedia Eng.*, vol. 137, pp. 21–30, 2016. <https://doi.org/10.1016/j.proeng.2016.01.230>.
- [24] C. Pinion et al., "The impact of job control on employee perception of management commitment to safety," *Saf. Sci.*, vol. 93, pp. 70–75, 2017. <https://doi.org/10.1016/j.ssci.2016.11.015>.
- [25] S. H. Nikou, H. Bin Selamat, R. C. M. Yusoff, and M. M. Khiabani, "Electronic Customer Relationship Management, Customer Satisfaction, and Customer Loyalty: A Comprehensive Review Study," *Int. J. Manag. Econ. Invent.*, vol. 2, no. 12, pp. 1133–1144, 2016. <https://doi.org/10.18535/ijmei/v2i12.02>.
- [26] I. C. Chang, H. G. Hwang, M. C. Hung, M. H. Lin, and D. C. Yen, "Factors affecting the adoption of electronic signature: Executives' perspective of hospital information department," *Decis. Support Syst.*, vol. 44, no. 1, pp. 350–359, 2007. <https://doi.org/10.1016/j.dss.2007.04.006>.
- [27] J. Nienhuis, "Using Change Management to Improve CRM User Acceptance," pp. 1–78, 2014.
- [28] R. Asadifard, S. H. Tabatabaiean, J. B. Sofi, and M. R. Taghva, "A model for investigating the stability factors in formal science and technology collaborative networks: A case study of Iran," *Technol. Forecast. Soc. Change*, vol. 122, pp. 139–150, 2017. <https://doi.org/10.1016/j.techfore.2016.07.039>.
- [29] M. K. Kim, M. C. Park, and D. H. Jeong, "The effects of customer satisfaction and switching barrier on customer loyalty in Korean mobile telecommunication services," *Telecomm. Policy*, vol. 28, no. 2, pp. 145–159, 2004. <https://doi.org/10.1016/j.telpol.2003.12.003>.
- [30] S. Petteer, W. DeLone, and E. McLean, "Measuring information systems success: Models, dimensions, measures, and interrelationships," *Eur. J. Inf. Syst.*, vol. 17, no. 3, pp. 236–263, 2008. <https://doi.org/10.1057/ejis.2008.15>.
- [31] R. Feinberg and R. Kadam, "E-CRM Web service attributes as determinants of customer satisfaction with retail Web sites," *Int. J. Serv. Ind. Manag.*, vol. 13, no. 5, pp. 432–451, 2002. <https://doi.org/10.1108/09564230210447922>.
- [32] R. Hannachi, "Information Quality in Customer Relationship Management," vol. 15, no. 6, 2015.
- [33] É. Maillat, L. Mathieu, and C. Sicotte, "Modeling factors explaining the acceptance, actual use and satisfaction of nurses using an Electronic Patient Record in acute care settings: An extension of the UTAUT," *Int. J. Med. Inform.*, vol. 84, no. 1, pp. 36–47, 2015. <https://doi.org/10.1016/j.ijmedinf.2014.09.004>.
- [34] V. Venkatesh and F. D. Davis, "A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies," *Manage. Sci.*, vol. 46, no. 2, pp. 186–204, 2000. <https://doi.org/10.1287/mnsc.46.2.186.11926>.
- [35] T. Zhou, "Examining the critical success factors of mobile website adoption," *Online Inf. Rev.*, vol. 35, no. 4, pp. 636–652, 2011. <https://doi.org/10.1108/14684521111161972>.
- [36] S. A. Jackson and H. W. Marsh, "Development and Validation of a Scale to Measure Optimal Experience: The Flow State Scale," *J. Sport Exerc. Psychol.*, vol. 18, no. 1, pp. 17–35, 1996. <https://doi.org/10.1123/jsep.18.1.17>.
- [37] M. Mirmohammady and M. Beheshtifar, "Investigating the Relationship between Customer Relationship Management and Information Literacy with Job Performance of Tejarat Bank Branches in Kerman," no. 12, pp. 29–37, 2016.
- [38] C. Liu and K. P. Arnett, "Exploring the factors associated with Web site success in the context of electronic commerce," *Inf. Manag.*, vol. 38, no. 1, pp. 23–33, 2000. [https://doi.org/10.1016/S0378-7206\(00\)00049-5](https://doi.org/10.1016/S0378-7206(00)00049-5).
- [39] U. Šebjan, S. Bobek, and P. Tominc, "Factors influencing attitudes towards the use of CRM's analytical tools in organizations," *Organizacija*, vol. 49, no. 1, pp. 28–41, 2016. <https://doi.org/10.1515/orga-2016-0004>.
- [40] A. A. Mohammed, B. B. Rashid, and S. B. Tahir, "Customer relationship management (CRM) technology and organization performance: Is marketing capability a missing link? An empirical study in the Malaysian hotel industry," *Asian Soc. Sci.*, vol. 10, no. 9, pp. 197–212, 2014. <https://doi.org/10.5539/ass.v10n9p197>.
- [41] P. B. Seddon and B. Seddon, "of the and Extension A Respecification Model of IS Success and McLean DeLone," vol. 8, no. 3, pp. 240–253, 2014.
- [42] C. Tam and T. Oliveira, "Understanding the impact of m-banking on individual performance: DeLone & McLean and TTF perspective," *Comput. Human Behav.*, vol. 61, pp. 233–244, 2016. <https://doi.org/10.1016/j.chb.2016.03.016>.
- [43] S. Venkatraman, R. P. Sundarraj, and R. Seethamraju, "Healthcare Analytics Adoption-Decision Model: A Case Study," *PACIS 2015 Proc.*, vol. 51, 2015.
- [44] J. D'Ambra, C. S. Wilson, and S. Akter, "Application of the task-technology fit model to structure and evaluate the adoption of E-books by Academics: Application of the Task-Technology Fit Model to Structure and Evaluate the Adoption of E-Books by Academics," *J. Am. Soc. Inf. Sci. Technol.*, vol. 64, no. 1, pp. 48–64, 2013. <https://doi.org/10.1002/asi.22757>.
- [45] Y. Yang, T. F. Stafford, and M. Gillenson, "Satisfaction with employee relationship management systems: The impact of usefulness on systems quality perceptions," *Eur. J. Inf. Syst.*, vol. 20, no. 2, pp. 221–236, 2011. <https://doi.org/10.1057/ejis.2010.69>.
- [46] H. Mueller and T. Nyfeler, "Quality in patent information retrieval - Communication as the key factor," *World Pat. Inf.*, vol. 33, no. 4, pp. 383–388, 2011. <https://doi.org/10.1016/j.wpi.2011.06.012>.
- [47] L. M. Erlirianto, A. Holil, N. Ali, and A. Herdiyanti, "The Implementation of the Human , Organization , and Technology – Fit (HOT – Fit) Framework to evaluate the Electronic Medical Record (EMR) System in a Hospital," *Procedia - Procedia Comput. Sci.*, vol. 72, pp. 580–587, 2015. <https://doi.org/10.1016/j.procs.2015.12.166>.
- [48] T. Zhou, Y. Lu, and B. Wang, "Integrating TTF and UTAUT to explain mobile banking user adoption," *Comput. Human Behav.*, vol. 26, no. 4, pp. 760–767, 2010. <https://doi.org/10.1016/j.chb.2010.01.013>.
- [49] T. Van Nguyen and C. H. Pham, "The Critical Success Factors for Implementation of Electric Customer Relationship Management in the Commercial Bank of Viet Nam," *Int. J. Financ. Res.*, vol. 7, no. 5, 2015.
- [50] N. Urbach, S. Smolnik, and G. Riempp, "An empirical investigation of employee portal success," *J. Strateg. Inf. Syst.*, vol. 19, no. 3, pp. 184–206, 2010. <https://doi.org/10.1016/j.jsis.2010.06.002>.
- [51] M. B. Ajoye, "INFORMATION SYSTEMS USER SATISFACTION : A SURVEY OF THE POSTGRADUATE SCHOOL PORTAL," no. December, 2014.
- [52] M. Almotairi, "Evaluation of the Implementation of CRM in Developing Countries," p. 165, 2010.
- [53] G. A. Al-Weshah, E. Al-Manasrah, and M. Al-Qatawneh, "Customer relationship management systems and organizational performance: Quantitative evidence from the Jordanian telecommunication industry," *J. Mark. Commun.*, vol. 7266, pp. 1–21, 2018. <https://doi.org/10.1080/13527266.2018.1449007>.
- [54] J. D'Ambra and C. S. Wilson, "Use of the world wide web for international travel: Integrating the construct of uncertainty in information seeking and the Task-Technology Fit (TTF) model," *J. Am. Soc. Inf. Sci. Technol.*, vol. 55, no. 8, pp. 731–742, 2004. <https://doi.org/10.1002/asi.20017>.
- [55] J. X. Zhou, M. J. Arnold, A. Pereira, and J. Yu, "Chinese consumer decision-making styles: A comparison between the coastal and inland regions," *J. Bus. Res.*, vol. 63, no. 1, pp. 45–51, 2010. <https://doi.org/10.1016/j.jbusres.2009.01.010>.
- [56] S. Alshawi, F. Missi, and Z. Irani, "Organisational, technical and data quality factors in CRM adoption - SMEs perspective," *Ind. Mark. Manag.*, vol. 40, no. 3, pp. 376–383, 2011. <https://doi.org/10.1016/j.indmarman.2010.08.006>.
- [57] M. G. Aboelimged, "International Journal of Information Management Predicting e-readiness at firm-level : An analysis of technological , organizational and environmental (TOE) effects on e-maintenance readiness in manufacturing firms," *Int. J. Inf. Manag.*, vol. 34, no. 5, pp. 639–651, 2014. <https://doi.org/10.1016/j.ijinfomgt.2014.05.002>.
- [58] N. Izzati, M. Adnan, and D. I. Jambari, "Mutual Understanding Determinants for Effective Communication in Business and IT Strategic Alignment Planning," *Ijaseit*, vol. 6, no. 6, pp. 914–921, 2016.
- [59] S. San-Martín, N. H. Jiménez, and B. López-Catalán, "Los beneficios del CRM móvil para la empresa desde la perspectiva del marketing relacional y el modelo TOE," *Spanish J. Mark. - ESIC*, vol. 20, no. 1, pp. 18–29, 2016.
- [60] F. B. ALHussan, F. B. AL-Husan, and C. C. Y. Fletcher-Chen, "Environmental factors influencing the management of key accounts in an Arab Middle Eastern context," *Ind. Mark. Manag.*, vol. 43, no. 4, pp. 592–602, 2014. <https://doi.org/10.1016/j.indmarman.2014.02.008>.
- [61] A. Payne and P. Frow, "A Strategic Framework for Customer," *J. Mark.*, vol. 69, pp. 167–176, 2005. <https://doi.org/10.1509/jmkg.2005.69.4.167>.

- [62] N. B. Chinje, "Customer Relationship Management (CRM) Implementation within the Banking and Mobile Telephony Sectors of Nigeria and South," no. September, 2013.
- [63] A. Day, S. N. Crown, and M. Ivany, "Organisational change and employee burnout: The moderating effects of support and job control," *Saf. Sci.*, vol. 100, pp. 4–12, 2017. <https://doi.org/10.1016/j.ssci.2017.03.004>.
- [64] J. Ranjan and V. Bhatnagar, "Information Management & Computer Security A holistic framework for mCRM – data mining perspective A holistic framework for mCRM – data mining perspective," *Inf. Manag. Comput. Secur. Ind. Manag. & Data Syst. Learn. Organ. J. Enterp. Inf. Manag.*, vol. 17, no. 5, pp. 151–165, 2009.
- [65] A. Negahban, D. J. Kim, and C. Kim, "Unleashing the Power of mCRM: Investigating Antecedents of Mobile CRM Values from Managers' Viewpoint," *Int. J. Hum. Comput. Interact.* vol. 32, no. 10, pp. 747–764, 2016. <https://doi.org/10.1080/10447318.2016.1189653>.
- [66] T. W. Gruen, J. O. Summers, and F. Acito, "Relationship Marketing Activities, Commitment, and Membership Behaviors in Professional Associations," *J. Mark.*, vol. 64, no. 3, pp. 34–49, 2000. <https://doi.org/10.1509/jmkg.64.3.34.18030>.
- [67] C. Speier and V. Venkatesh, "of Sales Adoption," *J. Mark. Assoc.*, vol. 66, no. 3, pp. 98–111, 2012. <https://doi.org/10.1509/jmkg.66.3.98.18510>.
- [68] T. Griffin, T. Curtis, and D. Barrere, "CRM in Russia and U.S. -- Case Study from American Financial Service Industry," *J. Technol. Res.*, vol. 1, no. April, pp. 2–15, 2009.
- [69] D. Finnegan and L. Willcocks, "Knowledge sharing issues in the introduction of a new technology," *J. Enterp. Inf. Manag.*, vol. 19, no. 6, pp. 568–590, 2006. <https://doi.org/10.1108/17410390610708472>.
- [70] J. V. Chen, R. J. M. Jubilado, E. P. S. Capistrano, and D. C. Yen, "Factors affecting online tax filing - An application of the IS Success Model and trust theory," *Comput. Human Behav.* vol. 43, pp. 251–262, 2015. <https://doi.org/10.1016/j.chb.2014.11.017>.
- [71] C. Kim, I.-S. Lee, T. Wang, and M. Mirusmonov, "Evaluating effects of mobile CRM on employees' performance," *Ind. Manag. Data Syst.*, vol. 115, no. 4, pp. 740–764, 2015. <https://doi.org/10.1108/IMDS-08-2014-0245>.
- [72] A. Garrido-Moreno and A. Padilla-Meléndez, "Analyzing the impact of knowledge management on CRM success: The mediating effects of organizational factors," *Int. J. Inf. Manag.*, vol. 31, no. 5, pp. 437–444, 2011. <https://doi.org/10.1016/j.ijinfomgt.2011.01.002>.
- [73] M. Kim, J. Eun Park, A. J. Dubinsky, and S. Chaui, "Frequency of CRM implementation activities: a customer-centric view," *J. Serv. Mark.*, vol. 26, no. 2, pp. 83–93, 2012. <https://doi.org/10.1108/08876041211215248>.
- [74] F. Sönmez, "Technology Acceptance of Business Intelligence and Customer Relationship Management Systems within Institutions Operating in Capital Markets," *Int. J. Acad. Res. Bus. Soc. Sci.*, vol. 8, no. 2, pp. 400–422, 2018. <https://doi.org/10.6007/IJARBSS/v8-i2/3882>.
- [75] M. A. Hameed, S. Counsell, and S. Swift, "A conceptual model for the process of IT innovation adoption in organizations," *J. Eng. Technol. Manag. - JET-M*, vol. 29, no. 3, pp. 358–390, 2012.
- [76] N. Jafari Navimipour and Z. Soltani, "The impact of cost, technology acceptance and employees' satisfaction on the effectiveness of the electronic customer relationship management systems," *Comput. Human Behav.*, vol. 55, pp. 1052–1066, 2016. <https://doi.org/10.1016/j.chb.2015.10.036>.
- [77] V. Venkatesh, "Determinants of perceived ease of use: Integrating control, intrinsic motivation and emotion into the Technology Acceptance Model," *Inf. Syst. Res.*, vol. 11, no. 4, pp. 342–365, 2000. <https://doi.org/10.1287/isre.11.4.342.11872>.
- [78] R. B. and C. Lillian, *Journal of Research in Interactive Marketing*. 2015.
- [79] I. L. Wu and K. W. Wu, "A hybrid technology acceptance approach for exploring e-CRM adoption in organizations," *Behav. Inf. Technol.*, vol. 24, no. 4, pp. 303–316, 2005. <https://doi.org/10.1080/0144929042000320027>.
- [80] U. Šebjan, S. Bobek, and P. Tominc, "Organizational Factors Influencing Effective Use of CRM Solutions," *Procedia Technol.*, vol. 16, pp. 459–470, 2014. <https://doi.org/10.1016/j.protcy.2014.10.113>.
- [81] K. Al-Momani, N. Azila, and M. Noor, "E-Service Quality, Ease of Use, Usability and Enjoyment as Antecedents of E-CRM Performance: An Empirical Investigation in Jordan Mobile Phone Services," *Asian J. Technol. Manag.*, vol. 2, no. 2, pp. 50–63, 2009.
- [82] B. Kositanurit, K. M. Osei-Bryson, and O. Ngwenyama, "Re-examining information systems user performance: Using data mining to identify properties of IS that lead to highest levels of user performance," *Expert Syst. Appl.*, vol. 38, no. 6, pp. 7041–7050, 2011. <https://doi.org/10.1016/j.eswa.2010.12.011>.
- [83] M. Igbaria, "End-user computing effectiveness: A structural equation model," *Omega*, vol. 18, no. 6, pp. 637–652, 1990. [https://doi.org/10.1016/0305-0483\(90\)90055-E](https://doi.org/10.1016/0305-0483(90)90055-E).
- [84] N. Marcu and G.-M. Meghisan, "Marketing Culture and Employee Responsibility Influence on Mobile Telecommunications Companies' Turnover," *Procedia Econ. Financ.*, vol. 22, no. November 2014, pp. 277–281, 2015.
- [85] A. Pandit and S. Vilches-montero, "Journal of Retailing and Consumer Services Are reward cards just a business deal? The role of calculative versus emotional card commitment in driving store loyalty," *J. Retail. Consum. Serv.*, vol. 31, pp. 355–360, 2016. <https://doi.org/10.1016/j.jretconser.2016.05.001>.
- [86] A. Ahani, N. Z. A. Rahim, and M. Nilashi, "Forecasting social CRM adoption in SMEs: A combined SEM-neural network method," *Comput. Human Behav.*, vol. 75, pp. 560–578, 2017. <https://doi.org/10.1016/j.chb.2017.05.032>.
- [87] L. M. Erlirianto, A. H. N. Ali, and A. Herdiyanti, "The Implementation of the Human, Organization, and Technology-Fit (HOT-Fit) Framework to Evaluate the Electronic Medical Record (EMR) System in a Hospital," *Procedia Comput. Sci.*, vol. 72, pp. 580–587, 2015. <https://doi.org/10.1016/j.procs.2015.12.166>.
- [88] C. Cook and B. Thompson, "Reliability and validity of servqual scores used to evaluate perceptions of library service quality," *J. Acad. Librariansh.*, vol. 26, no. 4, pp. 248–258, 2000. [https://doi.org/10.1016/S0099-1333\(00\)00114-2](https://doi.org/10.1016/S0099-1333(00)00114-2).
- [89] I. Ahmad and A. R. Chowdhury, "Electronic Customer Relationship Management (eCRM) - customers' perception of value from eCRM features on airline e-ticketing Websites," pp. 1–98, 2008.
- [90] M. Hosseini-zadeh, "A Framework for e-CRM Implementation in Health Service Industry of a Developing Country," vol. 4, no. 8, pp. 20–26, 2015.
- [91] Abdulfattah, "The effect of electronic customer relationship on customer satisfaction a study in web banking in Saudi Arabia," Phd thesis, 2012.
- [92] Z. Yang, M. Jun, and R. T. Peterson, "Scale development and managerial implications Measuring customer perceived online service quality Scale development and managerial," 2010.
- [93] C. Ho and Y. Wu, "Benchmarking performance indicators for banks," *Benchmarking An Int. J.*, vol. 13, no. 1/2, pp. 147–159, 2006.
- [94] F. Abdulfattah, "University of Huddersfield Repository CUSTOMER SATISFACTION A STUDY ON WEB BANKING IN," 2012.
- [95] Y. S. Wang and Y. W. Liao, "The conceptualization and measurement of m-commerce user satisfaction," *Comput. Human Behav.*, vol. 23, no. 1, pp. 381–398, 2007. <https://doi.org/10.1016/j.chb.2004.10.017>.
- [96] A. Kennedy, "Electronic Customer Relationship Management (eCRM): Opportunities and Challenges in a Digital World," *Irish Mark. Rev.*, vol. 18, no. 1, pp. 58–69, 2006.
- [97] D. L. Goodhue and R. L. Thompson, "Task-Technology Fit and Individual-Performance," *Mis Q.*, vol. 19, no. 2, pp. 213–236, 1995. <https://doi.org/10.2307/249689>.
- [98] R. Heeks, "Health information systems: Failure, success and improvement," *Int. J. Med. Inform.*, vol. 75, no. 2, pp. 125–137, 2006. <https://doi.org/10.1016/j.ijmedinf.2005.07.024>.
- [99] J. Malá and E. Černá, "FACULTY OF MATERIALS SCIENCE AND TECHNOLOGY IN TRNAVA INFORMATION QUALITY, ITS DIMENSION AND THE BASIC CRITERIA FOR ASSESSING INFORMATION QUALITY," no. 1, pp. 86–93, 2012.
- [100] J. Dubihlela and P. Molise - Khosa, "Impact of e-CRM Implementation on Customer Loyalty, Customer Retention and Customer Profitability for Hoteliers along the Vaal Meander of South Africa," *Mediterr. J. Soc. Sci.*, vol. 5, no. 16, pp. 175–183, 2014.
- [101] M. Kuegler, S. Smolnik, and G. Kane, "What's in IT for employees? Understanding the relationship between use and performance in enterprise social software," *J. Strateg. Inf. Syst.*, vol. 24, no. 2, pp. 90–112, 2015. <https://doi.org/10.1016/j.jsis.2015.04.001>.
- [102] Y. Harb, "Electronic Customer Relationship Management (e-CRM) in Zain Company," 2008.
- [103] H. Ri, P. V. Lq, L. Egxo, D. D. Lql, and V. E. D. D. F, "5d]lodq Segxo .dglu," vol. 211, pp. 1216–1222, 2015.
- [104] S. Grandhi and R. Chugh, "Strategic Value of Mobile CRM Applications: A Review of Mobile CRM at Dow Corning and DirecTV," *Int. Proc. Comput. Sci. Inf. Technol.*, vol. 36, no. Iciiim, pp. 388–393, 2012.

- [105] B. A. Akinnuwesi and S. O. Olabiyisi, "Participation, Software Development Project, Software Developer, End-Users, Software Systems 1. I," pp. 1–25, 2013.
- [106] M. M. Ayyash et al., "Understanding consumers' continuance intention towards mobile purchase: A theoretical framework and empirical study - A case of China," *Comput. Human Behav.*, vol. 5, no. 3, pp. 3865–3875, 2015.
- [107] K. H. Kim, C. S.; Zhao, W. H. and Yang, "An Empirical Study on the Integrated Framework of e-CRM in Online Shopping: Evaluating the Relationships Among Perceived Value, Satisfaction, and Trust Based on Customers' Perspectives," *J. Electron. Commer. Organ.*, vol. 6, no. 3, pp. 1–19, 2008. <https://doi.org/10.4018/jeco.2008070101>.
- [108] M. Tarafdar and S. R. Gordon, "Understanding the influence of information systems competencies on process innovation: A resource-based view," *J. Strateg. Inf. Syst.*, vol. 16, no. 4, pp. 353–392, 2007. <https://doi.org/10.1016/j.jsis.2007.09.001>.
- [109] M. R. Kamal, D. Singh, V. Singh, and K. Ahmad, "Factors Influencing Interdepartmental Information Sharing Practice In Electronic Government Agencies," no. July, pp. 4–6, 2012.
- [110] M. Ghobakhloo and S. Hong Tang, "The role of owner/manager in adoption of electronic commerce in small businesses," *J. Small Bus. Enterp. Dev.*, vol. 20, no. 4, pp. 754–787, 2013. <https://doi.org/10.1108/JSBED-12-2011-0037>.
- [111] J. Suursalmi, "Applying change management theory to CRM implementation : Case study on Organisation X," 2016.
- [112] C. Olupot and J. Noguera, "STUDY ON THE FACTORS AFFECTING ADOPTION OF ELECTRONIC CUSTOMER RELATIONSHIP MANAGEMENT INFORMATION SYSTEMS IN UGANDAN SMES," vol. 3, no. 2, pp. 37–47, 2014.
- [113] P. J. H. Hu, T. H. K. Clark, and W. W. Ma, "Examining technology acceptance by school teachers: A longitudinal study," *Inf. Manag.*, vol. 41, no. 2, pp. 227–241, 2003. [https://doi.org/10.1016/S0378-7206\(03\)00050-8](https://doi.org/10.1016/S0378-7206(03)00050-8).
- [114] M. M. Yusof and K. A. B. D. Aziz, "EVALUATION OF ORGANIZATIONAL READINESS IN INFORMATION SYSTEMS ADOPTION : A CASE STUDY," vol. 4, no. 2, pp. 69–86, 2015.
- [115] J. H. Yahaya, "The success factors and barriers of information technology implementation in small and medium enterprises : an empirical study in Malaysia Abdul Razak Hamdan and Aziz Deraman Yusmadi Yah Jusoh," vol. 21, no. 4, pp. 477–494, 2016.
- [116] S. Akter, J. D'Ambra, and P. Ray, "Development and validation of an instrument to measure user perceived service quality of mHealth," *Inf. Manag.*, vol. 50, no. 4, pp. 181–195, 2013. <https://doi.org/10.1016/j.im.2013.03.001>.
- [117] J. Lian, D. C. Yen, and Y. Wang, "International Journal of Information Management An exploratory study to understand the critical factors affecting the decision to adopt cloud computing in Taiwan hospital," *Int. J. Inf. Manage.*, vol. 34, no. 1, pp. 28–36, 2014. <https://doi.org/10.1016/j.ijinfomgt.2013.09.004>.
- [118] V. Arvidsson, J. Holmström, and K. Lyytinen, "Information systems use as strategy practice: A multi-dimensional view of strategic information system implementation and use," *J. Strateg. Inf. Syst.*, vol. 23, no. 1, pp. 45–61, 2014. <https://doi.org/10.1016/j.jsis.2014.01.004>.
- [119] M. Rahmat, K. Ahmad, S. Idris, N. Faridatul, and A. Zainal, "Relationship between employability and graduates ' skill," vol. 59, no. 2011, pp. 591–597, 2012.
- [120] K. K. Y. Kuan and P. Y. K. Chau, "A perception-based model for EDI adoption in small businesses using a technology-organization-environment framework," *Inf. Manag.*, vol. 38, no. 8, pp. 507–521, 2001. [https://doi.org/10.1016/S0378-7206\(01\)00073-8](https://doi.org/10.1016/S0378-7206(01)00073-8).
- [121] K. J. Trainor, "Relating Social Media Technologies to Performance: A Capabilities-Based Perspective," *J. Pers. Sell. Sales Manag.*, vol. 32, no. 3, pp. 317–331, 2012. <https://doi.org/10.2753/PSS0885-3134320303>.
- [122] A. Rapp, K. J. Trainor, and R. Agnihotri, "Performance implications of customer-linking capabilities: Examining the complementary role of customer orientation and CRM technology," *J. Bus. Res.*, vol. 63, no. 11, pp. 1229–1236, 2010. <https://doi.org/10.1016/j.jbusres.2009.11.002>.
- [123] N. Rahimiparvar, "eCRM FEATURES THAT AFFECT CUSTOMER ATTITUDE TO LOYALTY : A CASE STUDY OF A SAMPLE OF 402 UNIVERSITY STUDENTS ENROLLED IN INTERNATIONAL PROGRAMS IN," pp. 36–51, 2002.
- [124] D. Gefen, "Reflections on the dimensions of trust and trustworthiness among online consumers," *ACM SIGMIS Database*, vol. 33, no. 3, pp. 38–53, 2002. <https://doi.org/10.1145/569905.569910>.
- [125] P. Charoensukmongkol and P. Sasatanun, "Social media use for CRM and business performance satisfaction: The moderating roles of social skills and social media sales intensity," *Asia Pacific Manag. Rev.*, pp. 1–10, 2017.
- [126] T. H. Nguyen and T. S. Waring, "The adoption of customer relationship management (CRM) technology in SMEs," *J. Small Bus. Enterp. Dev.*, vol. 20, no. 4, pp. 824–848, 2013. <https://doi.org/10.1108/JSBED-01-2012-0013>.
- [127] F. Makoza and W. Chigona, "The livelihood outcomes of ICT use in microenterprises: The case of south africa," *Electron. J. Inf. Syst. Dev. Ctries.*, vol. 53, no. 1, pp. 1–16, 2012. <https://doi.org/10.1002/j.1681-4835.2012.tb00374.x>.
- [128] J. Sinisalo, "Article information," 2008.
- [129] T. V. Mumford, M. A. Campion, and F. P. Morgeson, "The leadership skills strataplex: Leadership skill requirements across organizational levels," *Leadersh. Q.*, vol. 18, no. 2, pp. 154–166, 2007. <https://doi.org/10.1016/j.leaqua.2007.01.005>.
- [130] C. Olupot, M. G. Kituyi, and J. Noguera, "Factors Affecting the Adoption of Electronic Customer Relationship Management Information Systems in SMEs," vol. 7, no. 2, pp. 25–45, 2014.
- [131] W. J. Orlikowski, "Using Technology and Constituting Structures: A Practice Lens for Studying Technology in Organizations," *Organ. Sci.*, vol. 11, no. 4, pp. 404–428, 2000. <https://doi.org/10.1287/orsc.11.4.404.14600>.
- [132] A. Parasuraman, V. a Zeithaml, and L. L. Berry, "A Conceptual Model of Service Quality and Its Implications for Future Research," *Am. Mark. Assoc.*, vol. 49, no. 4, pp. 41–50, 1985.
- [133] K. Lumpur and P. B. View, "The Impact of Knowledge Management on Customer Relationship Management," no. January 2006, 2015.
- [134] G. J. Avlonitis and N. G. Panagopoulos, "Antecedents and consequences of CRM technology acceptance in the sales force," *Ind. Mark. Manag.*, vol. 34, no. 4 SPEC ISS, pp. 355–368, 2005.
- [135] P. Taylor, O. Kwon, K. Choi, and M. Kim, "User acceptance of context-aware services : self- efficacy, user innovativeness and perceived sensitivity on contextual pressure User acceptance of context-aware services : self-efficacy, user innovativeness and perceived sensitivity on contextual press," no. November 2014, pp. 37–41, 2008.
- [136] J. Bennett, P. L. Perrewé, G. C. Kane, S. P. Borgatti, and W. Performance, "Management information systems research center, university of minnesota," vol. 35, no. 4, pp. 1063–1078, 2017.
- [137] S. Hart, G. Hogg, and M. Banerjee, "Does the level of experience have an effect on CRM programs? Exploratory research findings," *Ind. Mark. Manag.*, vol. 33, no. 6, pp. 549–560, 2004. <https://doi.org/10.1016/j.indmarman.2004.01.007>.
- [138] F. Karimi, D. C. C. Poo, and Y. M. Tan, "Clinical information systems end user satisfaction: The expectations and needs congruencies effects," *J. Biomed. Inform.*, vol. 53, pp. 342–354, 2015. <https://doi.org/10.1016/j.jbi.2014.12.008>.
- [139] S. Y. Hung, W. H. Hung, C. A. Tsai, and S. C. Jiang, "Critical factors of hospital adoption on CRM system: Organizational and information system perspectives," *Decis. Support Syst.*, vol. 48, no. 4, pp. 592–603, 2010. <https://doi.org/10.1016/j.dss.2009.11.009>.
- [140] C. Park and Y. Kim, "A framework of dynamic CRM: linking marketing with information strategy," *Bus. Process Manag. J.*, vol. 9, no. 5, pp. 652–671, 2003. <https://doi.org/10.1108/14637150310496749>.
- [141] Hart Okorie Awa, "Article information," 2015.
- [142] R. Scherer, F. Siddiq, and T. Teo, "Becoming more specific: Measuring and modeling teachers' perceived usefulness of ICT in the context of teaching and learning," *Comput. Educ.*, vol. 88, pp. 202–214, 2015. <https://doi.org/10.1016/j.compedu.2015.05.005>.
- [143] M. A. Dauwed, J. Yahaya, Z. Mansor, and A. R. Hamdan, "Human factors for IoT services utilization for health information exchange," *J. Theor. Appl. Inf. Technol.*, vol. 96, no. 8, pp. 2095–2105, 2018.
- [144] G. J. Krishna and V. Ravi, "Evolutionary computing applied to customer relationship management: A survey," *Eng. Appl. Artif. Intell.*, vol. 56, pp. 30–59, 2016. <https://doi.org/10.1016/j.engappai.2016.08.012>.
- [145] A. K. Y. Law, C. T. Ennew, and D. Mitussis, "Adoption of Customer Relationship Management in the Service Sector and Its Impact on Performance," *J. Relatsh. Mark.*, vol. 12, no. 4, pp. 301–330, 2013. <https://doi.org/10.1080/15332667.2013.846204>.
- [146] A. V. Gavrilov, I. I. Bezukladnikov, and M. V. Kavalero, "The Problem of Management and Monitoring in Distributed Telecommunication Systems," pp. 140–143, 2017. <https://doi.org/10.1109/EICOnRus.2017.7910513>.

- [147] C. F. Chen and F. S. Chen, "Experience quality, perceived value, satisfaction and behavioral intentions for heritage tourists," *Tour. Manag.*, vol. 31, no. 1, pp. 29–35, 2010. <https://doi.org/10.1016/j.tourman.2009.02.008>.
- [148] P. B. Seddon, "A respecification of the DeLone and McLean model of IS Success," *Inf. Syst. Res.*, vol. 8, no. 3, pp. 240–253, 1997. <https://doi.org/10.1287/isre.8.3.240>.
- [149] R. M. Fuller, A. R. Dennis, R. M. Fuller, and A. R. Dennis, "Performance in Repeated Tasks Does It Matter? The Impact of Task-Technolog Fit and Appropriation on Team Performance in Repeated Tasks," vol. 20, no. 1, pp. 2–17, 2018.