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Application of the updated DeLone and McLean IS success method to investigate e-CRM effectiveness

Elham Abdulwahab Anaam [1,*], Ali Ahmed H. Alyam [2], Yahya Ali Abdelrahman Ali [3], Mohammed Dauwed [4], Abdullah Alshahrani [5], Wael Jabbar Abed Al-Nidawi [6]

[1]*Faculty of Information Science and Technology, Universiti Kebangsaan Malaysia, Bangi, Malaysia*
[2]*Department of Information System, College of Computer Science and Information Systems, Najran University, Najran, Saudi Arabia*
[3]*Department of Information System, Faculty of Computer Science and Information System, Najran University, Najran, Saudi Arabia*
[4]*Department of Medical Instrumentations Techniques Engineering, Dijlah University College, Baghdad, Iraq*
[5]*Department of Computer Science and Artificial Intelligence, College of Computer Science and Engineering, University of Jeddah, Jeddah, Saudi Arabia*
[6]*Computer Techniques Engineering Department, Al-Mustaqbal University College, Hillah, Iraq*

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ABSTRACT

Information and communication technology has a significant influence on employee procedures. Businesses are investing in e-CRM technologies, yet it is difficult to assess the performance of their e-CRM platforms. The DeLone and McLean Information Systems Success framework can be modified to the current e-CRM assessment difficulties. The new framework's different aspects provide a concise framework for organizing the e-CRM key metrics identified in this study. The purpose of this study is to apply and verify that the Updated DeLone and McLean IS Model can be employed to explain e-CRM adoption among employees, along with the extended Updated DeLone and McLean Model with its five output factors, namely system quality, service quality, information quality, ease of use employee satisfaction. For this study, data was collected from 300 employees working on e-CRM and the data were analyzed using PLS-SEM. The experimental framework has a significant effect and shows that most of the hypotheses of the study are supported. Moreover, the framework contributes to the area of the success of e-CRM and individual performance.

1. Introduction

This article contends that, while emerging technologies emerge, the essential role of information technology (IT) has not been updated, and hence the technique for evaluating the success of information systems (IS) should not change. Despite numerous technical advancements, the variable of interest success and its fundamental indicates the relationship remains constant. The DeLone and McLean IS Success Model is a pre-existing achievement paradigm that has seen widespread use since its release in 1992 (DeLone and McLean, 1992). With the addition of new indicators, an improved version of the model can be used to evaluate e-CRM effectiveness (Wu and Wu, 2005). E-CRM is characterized as the use of the Internet to accommodate, successfully implement, and process financial activity for this paper There are numerous techniques to determine the success of an information system. Some researchers have investigated methods for this comprehensive research, and we choose to treat both intentions to use and other metrics of the system used as the same construct. Although D&M differentiated among purpose to use and system quality in their updated model, intention to use is primarily an individual difference framework. This is not a concept that fits with research that uses an organizational method of data analysis. Additionally, splitting the use concepts into two distinct sets of factors (intention to use and usage) complicates an already complicated study in the explanation of the findings and analysis. This comprehensive literature review identified three

* Corresponding Author.
Email Address: anaamelham@gmail.com (E. A. Anaam)
https://doi.org/10.21833/ijaas.2023.02.016
Corresponding author's ORCID profile:
https://orcid.org/0000-0002-1497-5509

goals for expanding current knowledge of the previous research on this topic.

a) The D&M model was studied in two different contexts: The person level of evaluation and the organizational level of analysis, in order to determine whether the unit of analysis under consideration is a border requirement for assessing success.
b) Despite previously available literature or conceptual that only looked at a subset of the relationship issues in the original D&M theory, this review looked at all of the relationships in the updated IS success model (DeLone and McLean, 2003).
c) The precise measurements employed by researchers for each of the D&M model's variables were investigated. Both the previous and modified simulations include.

1.1. Contribution of study

a) The study has methodological contributions by improving the framework to integrate D&M theory with employee satisfaction.
b) Based on the empirical result the study's contribution in determining the theory knowledge in relevance to employee satisfaction and individual performance research.
c) The current study had taken such a strive and focused on employee satisfaction and individual performance which have significantly determined critical success factors in D&M theory.

2. Literature review

2.1. Related work

Allozi et al. (2016) presented the model of E-customer processes to enhance the ecustomer retention mediating by electronic knowledge repository. The resulting study was electronic knowledge of the e-CRM process would add value to automated customer retention. Moreover, the study has measured e-CRM's impact on customer retention and has focused on customer dimension while e-CRM had a multi-dimensional effect. Dubey and Srivastava (2016) identified service quality's effect on customer loyalty in the Indian communication sector. The result of the study was service quality, tangibility, and assurance have meaningful and positive impacts on customer relationship management. And intangibility has a significant effect on customer loyalty. According to the founding of the structure model, responsibility, tangibility, empathy, assurance, and reliability are considering the central part of service quality. Still, this study limited and failed to investigate Satisfaction and so far from measuring e-CRM performance. Hosseini (2013) developed a reliable and valid model for the measurement of mobile communication service quality. The results of the study considered that customers have an essential role in evaluating pricing plans and service convenience and achieving customer satisfaction. According to the study, funding has focused on service quality's impact on customer satisfaction. Still limit of the course was a failure to support responsiveness and empathy of service quality on satisfaction. Al-Weshah et al. (2018) investigated the role of customer relationship management (CRM in Jordanian communication companies' presentations. Each CRM dimension (SQ, customer information quality, system usage, and user relief) has an important influence on Jordanian communication companies' presentation.

According to a result study founding study focusing on performance through the current research measures CRMs based on four dimensions, namely, SQ, information quality, system usage, and user satisfaction to increase their market share in the marketplace by integrating technology, procedures, and customer. Overall, performance measures from different dimensions but the study so far and no evidence to support that e-CRM influences employee satisfaction. The study did not find any significant results and was limited to the test that contributes to enhancing e-CRM and DeLone and McLean and user satisfaction dimensions because of the study.

2.2. Updated DeLone and McLean model

DeLone and McLean (2003) comprehensively evaluated the various IS success measures and suggest a six-factor IS success model as a taxonomy and model for evaluating the difficult dependent variables in IS research. Information quality is the quality of information created by a system (DeLone and McLean, 2003). While Kim et al. (2015) defined the advantage of the services process and the quality of the system performance process. Some authors attempt to examine information quality by using another method (Salaün and Flores, 2001). Information quality is relevant to the effectiveness and employee satisfaction who use ISs (Joshi and Sharma, 2015). Service Quality: The updated model of IS success added service quality to the old model and mentioned the critical effect of service quality on IS success. Information quality and SQ may use to estimate the performance of the system itself, while, service quality is the greatest important notice of the overall IS performance. The researchers highlighted the significance of perceived information quality in e-CRM in several service advantages. DeLone and McLean (2003) described service quality as the general provision delivered through services. Besides, the organization affects an individual effect. Furthermore, the output dimension of the updated model is most relevant to e-CRM success. The net benefit dimension is the very critical dimension that investigates the total balance of the ECRM influence in the organization. The net benefit of the DeLone and McLean (2003) model is determined through the context aims of the e-CRM analysis. The researchers believe that the DeLone and McLean (2003) updated

IS success model may be adapting to system success determination in the e-CRM environment. The reason that a model is initially created is to ease controlling IS activities in the organization by determining the quality of a provided system (Fig. 1).

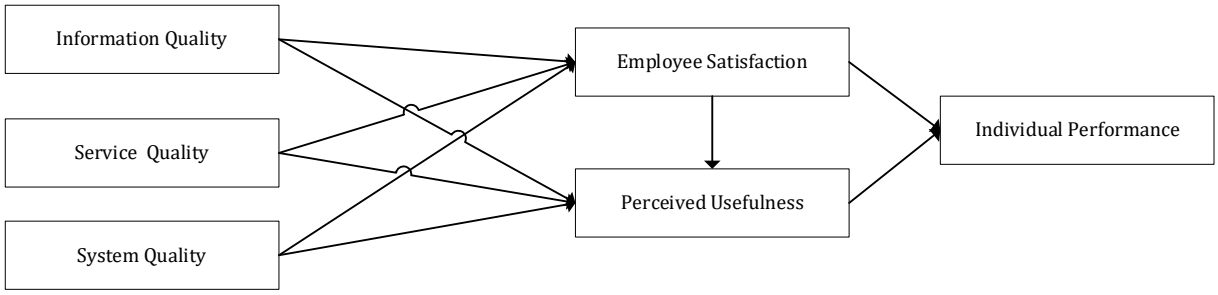


Fig. 1: DeLone and Mclean method

Additionally, discussion of the primary concern of IS success and efficiency in a place of work (DeLone and McLean, 2003). Moreover, DeLone and McLean (2003) have estimated the applicability of IS efficacy at the individual level. However, very few kinds of research have been conducted to assess the efficiency of the e-CRM system. A lack of examination of whether the traditional IS success model may be useful to the e-CRM environment. Consequently, this study proposes to define the relation between e-CRM quality and individual achievement in a communication company context depending on the model of DeLone and Mclean IS success that explains the relation between quality and net benefits. Moreover, it created the variables for information quality, SQ, and service quality which are the core advantage of e-CRM. Also, the research affords an empirical analysis of the influences of these three kinds of quality on individual performance in the e-CRM scope.

3. Research framework

The theoretical part identified framework development (Fig. 2). Some studies related to communication companies mentioned that e-CRM adoption affects many factors. These factors of acceptance are classified into three various significant situations that are technology, organization, and individual.

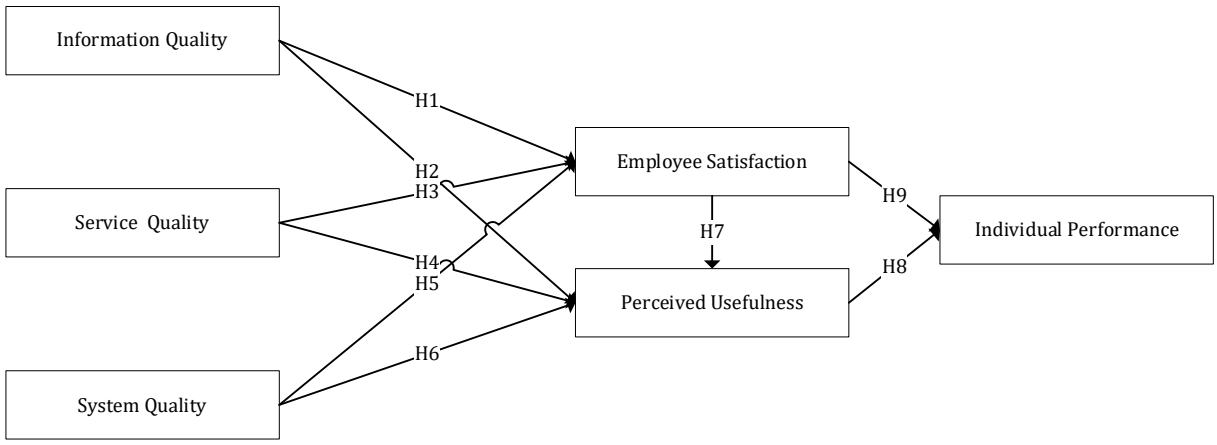


Fig. 2: Research framework

A. Service quality: Pandit and Vilches-Montero (2016) identified service quality as the method of obtaining success among competing services, especially in terms of firms that contribute almost the same services. According to Huang et al. (2019), the quality of service is one of the major factors in technology that measures user satisfaction. Satisfaction and service quality have a significant influence on employee satisfaction (Yusof et al., 2008). While to determine the success or failure of business organizations should investigate service quality factors. Some studies have reported service quality singularly is impacted employee satisfaction and perceived usefulness (Yusof et al., 2008). Based on previous studies mentioned, there is a significant relationship between service quality and employee satisfaction. Thus, service quality is a central part of technology factors. (Abdulfattah, 2012; Yang et al., 2010). As one of the e-CRM technology is service quality understanding, profitability, and user satisfaction are considered the main advantage. Also, those factors have a role significant in the responsible service of e-CRM with system users that measure the satisfaction of employees through service quality, which is part of technology.

B. System quality: SQ contains the available features (ease of use, system flexibility, and system reliability) of an information system (DeLone and

McLean, 1992; Petter et al., 2008). The typical measurement of the SQ in previous literature involves response time, ease of use, flexibility, and stability (Abdulfattah, 2012; Kabak and Dogac, 2010; Kim et al., 2015; Yusof, 2015). Wang and Liao (2007) presented ease of use and appearance as SQ that allows organizations to offer better goods and services and was found to have a significant influence on system usage. Hence, the organization's competitiveness is contributing more value to customers and raising customer satisfaction. As the system, the quality of an e-CRM system influences the organization's advantages from the impact on user satisfaction and the performance of an employee. By enhancing the overall e-CRM SQ, the researcher expects to mitigate negative factors. Some researchers indicated that SQ has a direct and significant influence on user satisfaction.

C. Information quality: Previous studies stated to include and measure information quality by desirable characteristics (accuracy, timeliness, completeness, understanding, and accessibility (Dubihlela and Sandada, 2014; Heeks, 2006; Mala and Černá 2012; Yusof et al., 2008). According to previously published studies, SQ is defined as the standard of information processing quality in the e-CRM environment when managing services and reaching information for communication channels. On the other hand, many researchers (Akinnuwesi et al., 2013; Mueller and Nyfeler, 2011) reported that information quality has a positive sign on employee satisfaction and perceived usefulness. There is a positive relationship between information quality and user satisfaction, as mentioned in previous studies).

D. Perceived usefulness: Perceived usefulness is the level of an employee using new technology and improving employee satisfaction. Awa et al. (2015) realized that usefulness is the level that an individual expects using an e-CRM system to improve employee job achievement. Perceived usefulness is determined by individual performance as a level of satisfaction within an organization's context (Ghobakhloo and Hong, 2014). This study defines perceived usefulness, as "the level of end-user believes that using ECRM systems enables them to perform tasks more quickly, and makes the job easier to do." Additionally, the current study investigates the perceived usefulness effect on the satisfaction of employees by using the e-CRM system.

E. Employee satisfaction: According to Navimipour and Soltani (2016), user satisfaction has an important role in influencing the relationship between service quality and e-CRM. Employee satisfaction is a critical factor in the achievement of all work. Service quality affects employee satisfaction in using the e-CRM system (Bin-Nashwan and Hassan, 2017). Employees are regarded as essential assets that severely impact success (Anaam et al., 2021a). Characteristics of e-CRM employees, including experience of system, training, attitudes, and intention toward the e-CRM system. Lack of training and skills in e-CRM system usage in communication companies will output in limited use of a system and limited success in the benefits of the order (Anaam et al., 2022). This case will lead to a lack of ECRM success adoption in communication companies and successful adoption need training and experience and a high level of skills of system employees (Anaam et al., 2018). To avoid the limited success of the e-CRM system, the organization should provide employees with training and share experiences with the usage of the e-CRM system. Many studies proposed that skills and knowledge have a positive effect on e-CRM adoption (Alnassar, 2014). Improving the user experience of using the e-CRM system can positively affect success adoption, which, may increase the knowledge via training and education level. Some studies examined the influence of online banking on end-user satisfaction (Ghobakhloo et al., 2012; Anaam et al., 2020a). The previous studies study focused on customer satisfaction. Establish that ease of use and accuracy have influences on customer satisfaction in online banking, this study is dependent on the EUCS model to analyze those factors. Additionally, the resulting study experience of the user has affected success in online banking. However, many of the researchers have been descriptive that the employee satisfaction and usage system is problematic for adoption success. One of the components of e-CRM is service quality which drives employee satisfaction. Information quality, SQ, and service quality perceived usefulness affect employee satisfaction (Yusof et al., 2008). Rigo et al. (2016) claimed that the main factors in e-CRM strategy are technology because Information Technology (IT) usually brings important assistance to improve business and organizational developments. Training had a positive influence on employee satisfaction (Evanschitzky et al., 2012). Consequently, the existing research focused on the employee satisfaction effect as a dependent variable. Also, organizational factors (training, excellent management support). And technology factors (SQ, information quality, and service quality) for evaluating the effect of the instant and indirect impact on the success of the e-CRM.

F. Individual performance: Individual performance is mostly utilized to denote organizational achievement. It is considered the achievement objective. Govindan et al. (2013) stated a successful organization is based on perfect performance throughout employee working could be measured. Kianto et al. (2016) presented that individual influence is a function of both the use system and employee satisfaction, which in turn displays how IT gathers value from individual performance. It indicates that

employee satisfaction, a fundamental variable, has a strong influence on the individual effect which uses the system. DeLone and Meclone (1992) reported that both usage and user attitudes affect the US influence on individual performance. Anaam et al. (2020b) and Dauwed et al. (2018) stated that e-CRM performance conducted has converged on e-CRM performance from the customer perspective. Many researchers identified that individual performance is the critical success factor for e-CRM (Kuegler et al., 2015). Chang (2014) said that the employee is one of a component of the success of e-CRM in the organization. However, long-term employee retention is based on performance attitudes toward the organization. Evaluating employee performance is based on a relationship between the organization and employee attitudes. The individual impact is tested through performance job efficacy and quality of service at work (DeLone and McLean, 2003). Unique performance is measured by awareness of individual productivity and efficiency. Employee performance is determined based on employee satisfaction and the perceived usefulness of the system (Anaam et al., 2021b). Satisfaction and usefulness have wide adoption in investigating the attitude of the employees toward the organization. Employee satisfaction is not only established by the relationship with the organization but also created by using the system (Mohammadi and Wit, 2019). There are different ways of measuring individual performance impact among researchers. This study estimates three items (effectiveness, productivity, and performance) for the individual performance impact of the employee on the e-CRM system.

4. Hypothesis design

H1, 2: Service quality (SQ) has a positive influence on Perceived Usefulness (PU) and Employee Satisfaction.

This hypothesis is supported by researchers such as Jun et al. (2004) confirming that the quality of the system has an essential association with usefulness. Additionally, Sönmez (2018) examined SQ's impact on customer satisfaction and supported that perceived service quality had a significant effect on user satisfaction. Chinje (2013) also reported that SQ had a significant influence on user satisfaction. Some studies reported that SQ is an important influence on PU and EM. Raza et al. (2012) claimed that SQ has an important influence on perceived usefulness and employee happiness.

H3, 4: Influence of Service Quality (SQ), Perceived Usefulness (PU), and Employee Satisfaction (ES).

SQ depends on the user's needs while using the system. Additionally, Anaam et al. (2020a) described that SQ is obtained through the interaction of users through work. DeLone and McLean (2003) recommended that SQ has led to high user satisfaction. Wang et al. (2015) and Poelmans and Reijers (2009) claimed that SQ has an important influence on PU and ES. Many studies claimed that SQ has a considerable influence on satisfaction as indicated in DeLone and McLean's model (Anaam et al., 2018; Alatawi et al., 2013). Depend on the theories and Literature review.

H5, 6: Influence of Information Quality (IQ) on Perceived Usefulness (PU) and Employee Satisfaction (ES).

Chang et al. (2005) confirmed that IQ has a significant impact on PU. On the other hand, Wang et al. (2015) claimed that staff satisfaction has an important influence on PU and IQ. Alshibly (2015) suggested that IQ positively influences PU and satisfaction. Anaam et al. (2021a) recommended that enhance IQ will cause improvements in ES. Yusof (2015) also claimed that the information has a significant influence on ES. Alshibly (2015) suggested that IQ positively influences PU. Moreover, Anaam et al. (2021b) verified that information quality has a positive effect on perceived usefulness. Nikou and Economides (2016) confirmed that information quality has a significant impact on the satisfaction of the CRM system.

H6, 7: Effect of Perceived Usefulness (PU) and Employee Satisfaction (ES) on Individual Performance (IP).

Anaam et al. (2021a) confirmed that (PU) had a strong direct influence on ES. Park (2011a) confirmed that (PU) has a positive influence on (ES). Anaam et al. (2020a) confirmed that usefulness had an important positive influence on (ES). Landrum et al. (2008) confirmed that usefulness positively correlated with (ES). Park (2011b) confirmed that PU has a significant influence on performance. Navimipour and Soltani (2016) supported that employee satisfaction had an important influence on IP through effectiveness. Al-Weshah et al. (2018) argued that user satisfaction has a positive influence on performance.

5. Result

5.1. Skewness and Kurtosis

Skewness (≤2.0) and Kurtosis (≤2.0) values equal to or below 2 indicate the symmetry of the normal distribution. Table 1 presents the values of Skewness and Kurtosis for a set of variables in the study (System Quality (SQ), Information Quality (IQ), Service Quality (SERQ), Perceived Usefulness (PU), Employee Satisfaction (ES), Individual Performance (IP) It can conclude that assumption of the absence of outliers in data is met, demonstrating the normality of the data used in the current research.

Table 1: Skewness and Kurtosis

No	Variables	Minimum	Maximum	Mean	SD	Skewness≤2.0	Kurtosis≤2.0
1	System Quality	7.00	25.00	17.7800	3.45515	-.336	.044
2	Information Quality	6.00	30.00	22.4067	4.95882	-.345	-.252
3	Service Quality	15.00	35.00	25.1600	4.83518	-.319	-.375
10	Perceived Usefulness	11.00	35.00	26.5800	4.66721	-.596	1.019
11	Employee Satisfaction	9.00	30.00	22.1800	4.59616	-.178	-.211
12	Individual Performance	9.00	25.00	19.1800	3.28485	-.430	-.127

5.2. Checking multi-collinearity statistics and variance inflation factor (VIF) for individual construct models in the research model

In the previous section, Multi-Collinearity Statistics in Fig. 3 are tested by the correlation matrix (4.16), which indicates that all constructs in the model of Technology Factors, Employee Satisfaction, Perceived Usefulness, and Individual Performance are free from the Multicollinearity problem as R<0.85. Multicollinearity is happening when a set of independent variables at testing their influences on the dependent variable is highly correlated, demonstrating overlapping among those independent variables. That is, the variance our independent variables explain in our dependent variable are overlapping with each other and thus do not each explain unique variance in the dependent variable.

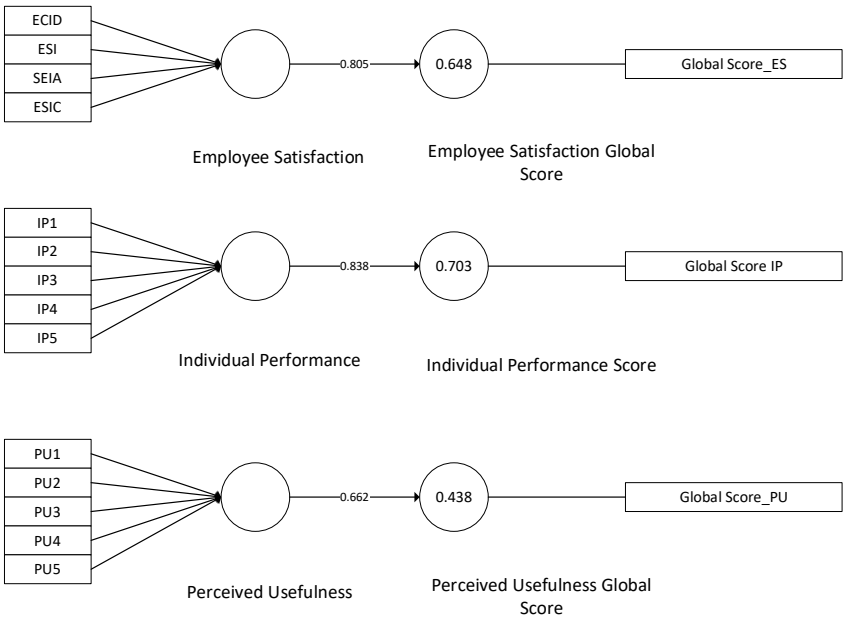


Fig. 3: Multi-collinearity statistics variance inflation factor

5.3. Convergent validity of technology factors

Fig. 4 depicts the convergent validity of the formative measurement model for technology factors exactly System Quality (SQ), Information Quality (IQ), and Service Quality (SERQ). The results display the path coefficients and R2 are above the threshold values (0.70/0.50), which indicates the set of all items in each construct (System Quality (SQ), Information Quality (IQ), Service Quality (SERQ)) contributes theoretical and empirically in shaping the constructs of System Quality (SQ), Information Quality (IQ), and Service Quality (SERQ).

5.4. Assessing the predictive relevance Q^2 using blindfolding

The study used Stone-Geisser's Q^2 value to examine the predictive relevance or predictive power of the developed research model, particularly the effect of the magnitude of the exogenous constructs (e.g., Service quality, system quality, information quality) on the endogenous constructs (Perceived Usefulness (PU), Employees Satisfaction (ES), and Individual Performance (IP)).

As recommended by Hair et al. (2017), the blindfolding procedure should conduct only on the endogenous latent variables with a reflective measurement model, focusing on the results of Construct Cross-validated Redundancy. Q^2 values larger than zero for a certain reflective endogenous latent construct reveal the path-developed model's predictive power/relevance for a particular endogenous variable. Guidelines for assessing Q^2 are that values of 0.35, 0.15, and 0.02, respectively, represent large, medium, and small effects, which refers to the relative measure of the predictive power of the hypothesized model. Results of this measure (Table 2) show that all exogenous constructs (technology, organization, and individual factors) have large predictive power/relevance in the developed model on the endogenous constructs.

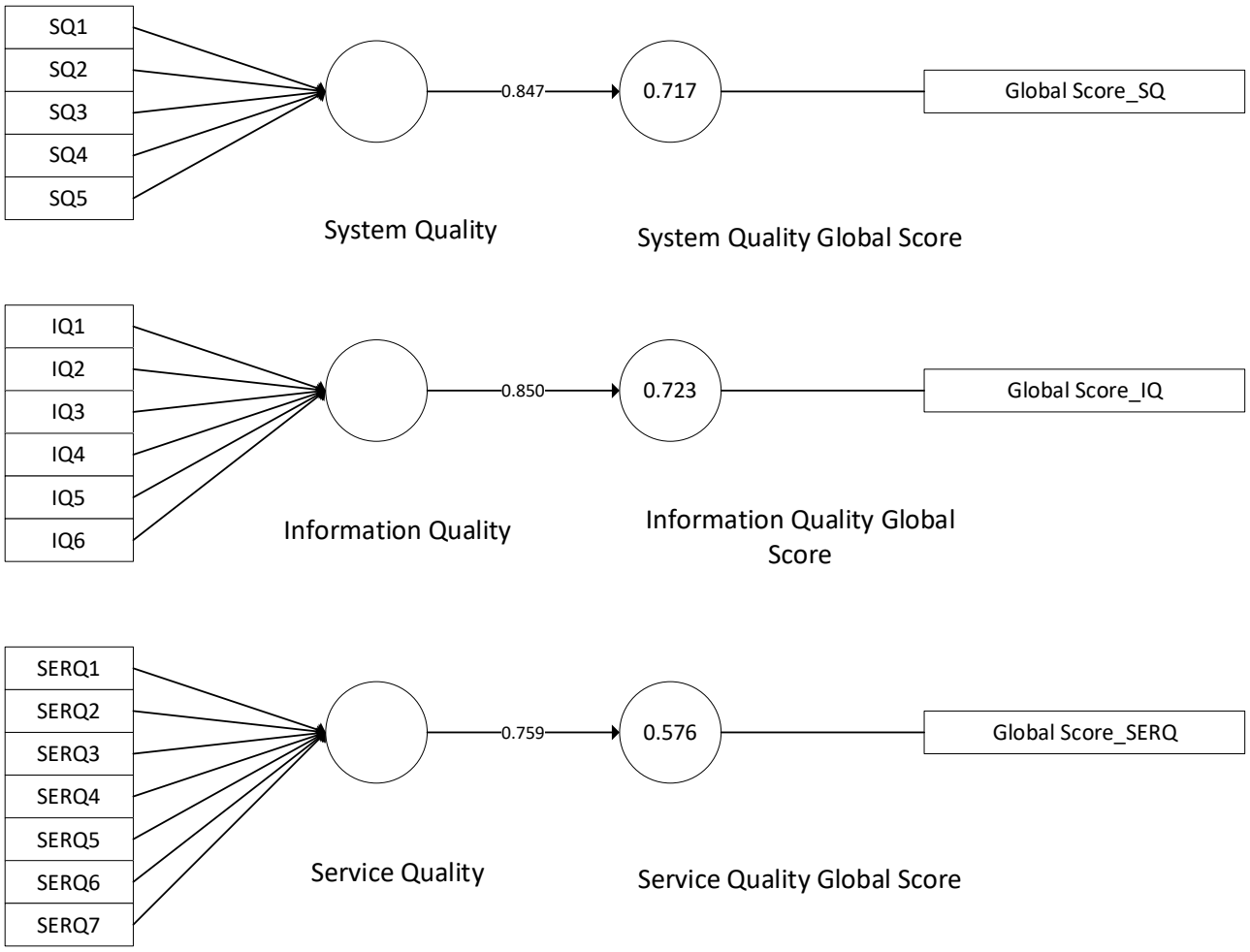


Fig. 4: Convergent validity of the formative measurement

Table 2: Stone-Geisser's Q^2

Endogenous constructs	SSO	SSE	Q^2 (=1-SSE/SSO)	Rank
Employee Satisfaction	1,500.000	853.555	0.431	Large
Perceived Usefulness	1,800.000	1,251.009	0.305	Large
Individual Performance	1,500.000	993.074	0.338	Large

5.5. Technology factors TF→perceived usefulness PU→employee satisfaction ES (TF→PU→ES)

The results indicate that this indirect hypothesis (H10) is statistically significant (β=0.057, T value=3.192, critical value=1.964, and P=0.002, P≤0.05) (Table 2). Moreover, the Lower Limit (LL) (0.030) and Upper Limit (UL) (0.090) of Confidence Interval (CI) Bias Corrected by the bootstrapping method is located in a positive direction, asserting the significance of the hypothesis. Consequently, H10 is supported and H7 (there is no significant relationship between (system, service, and information quality and ES via PU) is rejected, demonstrating the positive relationship between technology factors (system quality, service quality, and information quality) and Employee Satisfaction (ES) via Perceived Usefulness (PU). That means Perceived Usefulness (PU) transits the effect of Technology Factors ((system, service, and information quality) to Employee Satisfaction (ES). The indirect path coefficient (β) is 0.057, which ranges between the LL (0.030) and UL (0.090) as mentioned by Bootstrapping method for mediation. That means, 6% of variance from Employee Satisfaction (ES) is jointly explained by Technology Factors (system quality, service quality, and information quality) via Perceived Usefulness PU. In other words, the effect of Technology Factors (system quality, service quality, and information quality) on Employee Satisfaction (ES) via employees' Perceived Usefulness (PU) as mediation is around 6%. Furthermore, the Monte Carlo method for testing mediation illustrates that H7 is statistically significant in that the Lower Limit (LL) (0.0257) and Upper Limit (UL) (0.0929) of Confidence Interval (CI) Bias Corrected by the Monte Carlo method are located into the positive side (Fig. 5), validating the significance of the hypothesis. Besides, the indirect path coefficient (β) ranges between the LL (0.0257) and UL (0.0929) according to the Monte Carlo method (Fig. 5). That means, the effect of technology factor on Employee Satisfaction (ES) via employees' Perceived Usefulness (PU) as mediation ranges between LL (0.0257) and UL (0.0929) using the Monte Carlo method, which is typical with results of Bootstrapping method

5.6. First-order construct and second/hierarchical/higher-order constructs

Second-Order Constructs refer to a model or G. Factor or strong theory (Kline, 2015) that contains the sub-factors. In this research, the first G Factor is technology factors with sub-factors such as System Quality (SQ), Information Quality (IQ), and Service Quality (SERQ). As mentioned early, T-Values≥1.964 and T-Values≤0.05 refer to the significance of the loading or relationships (Kline, 2015). Recently, Confidence Intervals (CI) Bias Corrected is used to support the significance of the loading. The lower limit (LL) and Upper Limit (UL) of CI validate the significance of loading or relationship if both limits (LL-UL) are located on either positive or negative sides. If one of them is positive and another is negative, the relationship is not statistically significant. Results in Fig. 5 demonstrate that Second/Hierarchical/Higher Order Constructs are statistically significant as T-Values≥1.964, T-Values≤0.05, and, Lower Limit (LL) and Upper Limit (UL) are located on the same positive sides. Moreover, the higher loadings between second-order constructs and its first-order constructs are above the ideal threshold values (0.70) (Fig. 5) and R2 is a substantial effect size for each first-order construct (i.e., System Quality (SQ), Information Quality (IQ), and Service Quality (SERQ)) with its second-order construct (technology factors). Results in Fig. 6 display that first-order constructs are statistically significant as T-Values≥1.964, T-Values≤0.05, and (LL-UL) are located on the same positive sides. Moreover, the loadings between each first-order construct and its corresponding items are above the ideal threshold values (0.50) of absolute importance. In conclusion, all loading of the formative measurement model is above 0.50 indicating retaining all items as they contribute theoretically and empirically to shaping their constructs.

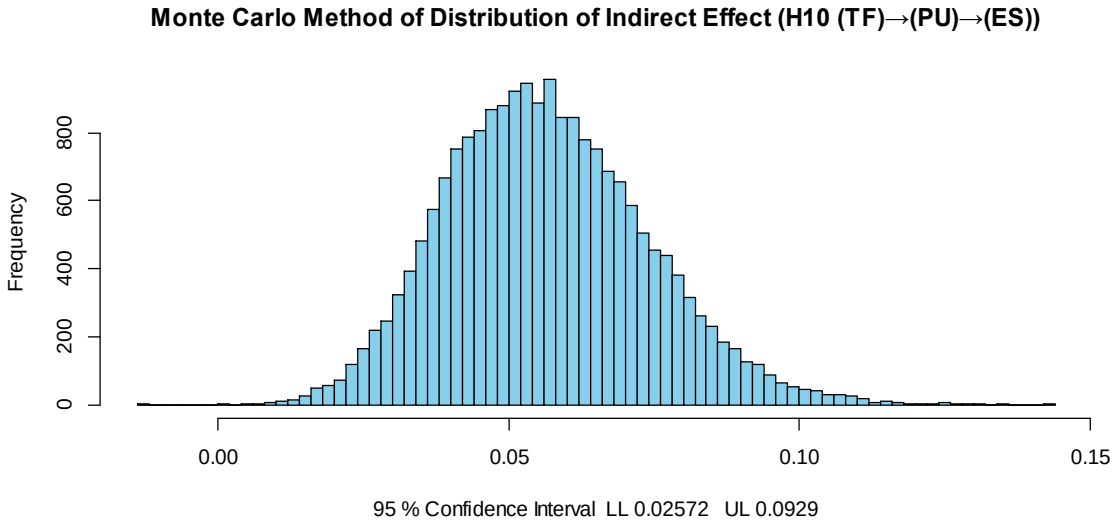
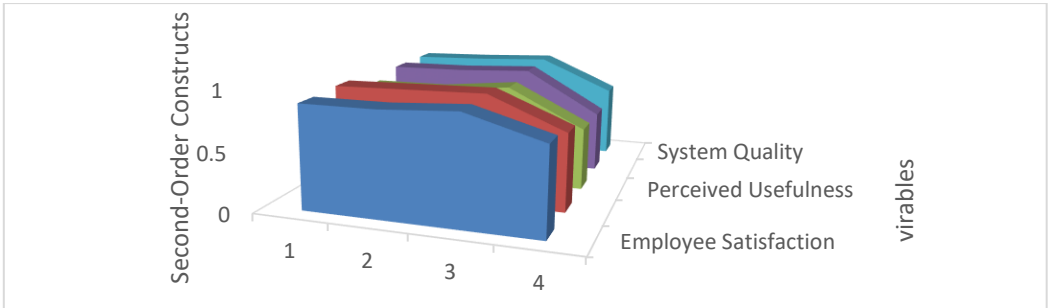


Fig. 5: Monte Carlo method for testing mediation: (TF)→(PU)→(ES)



	1	2	3	4
Employee Satisfaction	0.878	0.88	0.916	0.733
Information Quality	0.893	0.906	0.919	0.655
Perceived Usefulness	0.777	0.782	0.847	0.527
Service Quality	0.842	0.85	0.881	0.516
System Quality	0.841	0.858	0.886	0.61

Fig. 6: Outer loading of formative measurement loading

6. Discussion and conclusion

The well-established DeLone and McLean IS Success Model is adapted for the metrical requirements of the new e-CRM environment in this study (Anaam et al., 2018). The different aspects of the updated DeLone and McLean framework, based on IS and marketing literature published in recent years, comprise a condensed framework for grouping the different e-CRM performance indicators discovered in the literature. The conclusions are the result of this research. Academics and practitioners should not be misled by the modern financial hype into believing that this new and fast dynamic landscape necessitates the whole following methodology of IS Method. The cumulative tradition should be examined first to see which existing and validated success measures may be employed in the e-CRM context. As much as necessary, tried-and-true techniques should indeed be reinforced and enhanced with adjustments, and effective guidelines must be considered where appropriate. The aspects and metrics of e-CRM success must be chosen based on the aims and circumstances of the academic investigation, but tested and proven measures should be employed whenever available. Just as the last alternative must immediately new and experimental measurements be used.The DeLone and McLean IS Success Theory describes the complex and interrelated character of e-CRM improvement, which necessitates serious consideration for the formulation and assessment of every area of this predictor variable. To suppress the influences of different variables on several of the indicators of performance, it is critical to assess the complex association between variables. Relationships between the variables are all too frequently confusing. Considering the DeLone and McLean IS Success Model from both a procedure and a correlation standpoint, as recommended by Seddon, can help in detecting and comprehending these communications. Nevertheless, considering the highly complex and interdependent character of the e-CRM performance, a measure should be taken to dramatically decrease the chances of distinct metrics used to quantify effectiveness, allowing collected data to be evaluated and conclusions confirmed.

Compliance with ethical standards

Conflict of interest

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