Evaluating the Success of the Enterprise Application System at a Financial Institution in Belize

Meisi Cartagena
University of Belize
Hummingbird Avenue, Belmopan
2016114788@ubstudents.edu.bz

Mellissa Rivero
University of Belize
Hummingbird Avenue, Belmopan
2005113233@ubstudents.edu.bz

Ellorey Brown
University of Belize
Hummingbird Avenue, Belmopan
2015113504@ubstudents.edu.bz

Gerald Parham
University of Belize
Hummingbird Avenue, Belmopan
2016115331@ubstudents.edu.bz

Abstract

Enterprise Application System success is a subject that has attracted the interest of many experts. There is a general scarcity of models and frameworks for evaluating the Fusion Banking Essence System (FBE) in many financial institutions globally, much less in Belize. Whether traditional information systems success models can be extended to investigating FBE system is yet to be investigated. This paper proposes the first empirical test and specification of the Delone and Maclean model of IS success to the FBE system. The model consists of eight components: information quality, system quality, service quality, use, user satisfaction, perceived net benefit, self efficacy measure and complementary technology. Structural equation modelling techniques are applied to data collected by questionnaires from 30 employees from several sectors of the largest financial Institution in Belize for a representative sample. The hypothesized relationships between the thirteen success variables are significantly supported by the data. The findings provide several important implications for ES research and practice complementing the FBE System. The results proved that across all demographics, on average, the banking system utilized improved business decision making and efficiency, cultivating trust and confidence gaining added value and competitive advantage both locally and internationally. The overall results show that the proposed model can be beneficial for decision makers in organizations on evaluating the implementation of information systems. Further research into developing and empirically testing the model is required for reliability and validity.

Keywords: Information System, Enterprise Systems, Fusion Banking Essence, Business Intelligence System, Success Model, User Satisfaction

Introduction

Given the expansive growth of firms and organizations over the last decade there has been a need to invest more in combining computer technology (ICT) and human resources (HR). This allows for interface and greater use of technology resulting in the development of a variety of systems that provides for more effective support for businesses that have a large customer base and also must effectively harness the capacities of its employees internally in a more efficient and productive manner. The financial institution system, referred to as a Fusion Banking Essence System (FBE), is one such application used in the banking community. The financial institution, having been established since 1988, is a full service commercial banking operation in Belize providing a range of banking and financial services to both domestic and international customers.

FBE's are a form of Business Intelligence System in that it seeks to harness information of the customer base in order for the service provided to be more efficient and proactive. The FBE provides a Management Information System (MIS) with an underlying Transaction Processing System (TPS). For the purposes of this paper, the FBE can be viewed principally as an Enterprise Application System which uses information technologies, aimed at creating value within and across organizations of the targeted employees and management. FBE technology serves both as a medium, connecting spatially segregated actors, and as a tool for task fulfilment; it serves all internal customers and it supports actors in their decision making processes (Laudon and Laudon, 2016).

Many practitioners argue that these applications are basically an HRIS (human resource information system) modified system. However, there is a fundamental difference between HRIS and FBE that lies in the fact that HRIS is directed towards the HR department itself (Gupta and Saxena, 2013). Users of these systems are mainly HR staff. These types of systems aim to improve the processes within the HR department itself (Alshibly, 2011). With FBE, the target group is not the HR staff but people outside this department: the employees and management and the customer base. HRM services are being offered through an intranet for use by employees. Customer relationships are via extranet. The difference between HRIS and FBE can be identified as the switch from the automation of HR services towards technological support of information on HR services. FBE is the technical unlocking of HRIS for all employees of an organization and its customer base (Ruël et al., 2004) . The use of a cloud computing system, extranet and creating a customer relationship management system (CRM) are all additional features that allow for efficiency, enhanced productivity and ultimately profitability.

 FBE also goes beyond just employees and management. The goals related to FBE 's system are, reducing administrative costs, improving HR services, speeding response times to customers , and improving decision making, thus helping the organization to become more strategic, flexible, cost-efficient, and customer-oriented via its CRM processes (Stone and Dulebohn, 2013). The FBE technology supports the HR activities to comply with the HR needs of the organization through web-technology based channels. The FBE technology provides a portal which enables managers, employees and HR professionals to view extracts or other information which is necessary not only for managing the HR of the organization but also for managing its customer base, (Yusliza and Ramayah, 2012). Parry (2011) suggests that FBE and its self-service characteristics can be the cheapest and fastest way to provide specific HR activities and CRM activities. With FBE system managers can access relevant information and data, conduct analyses, make decisions and communicate with others and they can do this with a click of the mouse.

Organizations and practitioners alike consider the FBE applications to be a valuable tool. However, researchers have not demonstrated a consistent relationship between information systems (IS) investment and organizational performance, or even how effective CRM systems are in ensuring client or customer satisfaction (Heo and Han, 2003; Hitt and Brynjolffson, 1996). In order for FBE applications to be used effectively in an organization, we need dependable ways to measure the success and/or effectiveness of the FBE system. User satisfaction is a major source of determining the success of an information system. It is considered a weaker predictor of information systems success than technology acceptance (Wixom and Todd, 2005). However, it has been proposed that integrating technology acceptance and user satisfaction would provide a better means of predicting usage and information

systems success (Wixom and Todd, 2005). While a considerable amount of research has been conducted on IS success models (e.g., DeLone and McLean, 1992, 2003; Rai et al., 2002; Seddon, 1997), little research has been carried out to address the conceptualization and measurement of FBE success within organizations. Whether or not traditional IS success models can be extended to assessing FBE systems success is rarely addressed.

Therefore, there is a need to demonstrate whether traditional information systems success models can be extended to investigating FBE's. Hence, the main purpose of this study is to develop and validate a multidimensional FBE success model based on the DeLone and McLean (2003) IS success model. This paper is structured as follows. First, we review the development of IS success models. Second, based on prior studies, an FBE success model (financial institution model) and a comprehensive set of hypotheses are proposed. Third, the methods, measures, and results of the study are presented. And, finally, theoretical and managerial implications and directions for future research are discussed. The validated Enterprise Application FBE success model can serve as a success model research, and can provide management with a useful framework for evaluating FBE's success.

Literature Review

The study of information systems (IS) and the management of information systems (MIS) is one that is dynamic and in a constant state of flux. As such, extant literature on the subject of IS is constantly changing as new technology develops, and older technology becomes obsolete. The updated DeLone and McLean (2003) model builds upon the original DeLone and McLean's (1992) IS success model, one of the most cited models used to measure IT success. However, its main purpose is to synthesize IS success and create a comprehensive taxonomy for evaluating the factors that influence IS success (Delone and McLean, 2003). In this literature, the focus will be concentrated on the Enterprise system (ES) of the FBE banking system as a unified information system that is designed to assist business activities, flow of information, reporting, and analysis of data in large financial organizations. The ES, comprises one software architecture that integrates all activities of an organization to work as a unit. The core function of an enterprise information system is to synchronize an organization's main processes and integrate them into various sections of the organization. ES can be used to perform different processes including sales and marketing, accounting, human resources, management of materials, investment management, and planning for production processes with synchronized technology and application (Jang, 2010).

In a recent study done in 2012, research showed that the greatest correlations in IS are between information quality & perceived usefulness; system quality & user satisfaction and between service quality & perceived ease of use. The correlation test shows that management support will lead to increased system quality which improves user satisfaction. Training also may lead to increased service quality which in turns improves perceived ease of use. The results indicated that information quality has a strong significant influence on IS success (81.9%) followed by behavioral intention (80.2%) and perceived usefulness (78.2%). While user involvement and training are important factors of user behavior and user satisfaction, the results show that user involvement is the least important one (only 70%) followed by training (71%) (Zaied and Zaied, 2012). According to Spathis and Constantinides, Enterprise resource planning (ERP) systems offer distinct advantages in this new business environment as they lower operating costs, reduce cycle times and increase customer satisfaction (Spathis and Constantinides, 2003). Overall, the application of ERP systems leads to increased efficiency and effectiveness in business processes permeating management decision-making at all levels (Duff and Jain, 1998; Shang and Seddon, 2000; Hayes et al., 2001). This clearly suggests that ERP systems have an important if not a decisive impact on legacy systems and particularly on accounting ones. The evidence also reinforces the argument that ERP systems have been successful in fulfilling the purpose for the business as a whole, that is, the integration of applications, the production of real-time information, and particularly information for decision making are clearly impacting not only the company's accounting information systems but also, business operations in general. In addition, increased user-friendliness of information systems, time reductions for accounts closure and preparation of financial statements are also perceived as benefits derived from ERP applications (Spathis and Constantinides, 2003).

However, despite the benefits that are earned from ERP systems, implementing these systems can be very dangerous because of their complex nature. In a survey of 800 U.S. companies almost half had installed an ERP system and these systems were commanding on average 43% of a company's application budget. Research into 1000 U.S. Fortune companies also indicated that over 60% had implemented an ERP system. It is estimated that 300 billion dollars were spent on ERP systems during the 1990's . However, the implementation of ERP is a complex process, and many adopters have encountered problems in different phases. Robbins-Gioia surveyed 236 companies in 2001, revealed that 51% of ERP projects are unsuccessful. With regard to the high ERP failure rate and enormous expenditures of these systems, notice to factors which raise ERP implementation success can be very essential and helpful (Asemi and Moohebat, 2009). Studies also show that during ERP implementation the success factors between developed and developing countries are different. The national culture of developing countries has an impressive effect on ERP implementation in these countries. In other words, developing countries companies depend more on ERP vendors in comparison to developed countries companies. In addition, developing countries underestimate business process reengineering (BPR) and fit between ERP and business/process factors (Asemi and Moohebat, 2009).

Nevertheless, since the IS systems were considered an innovative information system that integrates various business processes, previous research on user acceptance models for IS can be a starting point to understand the success of ERP systems adaptation. Other researchers have identified the best practices and risks related to IS projects such as model implementation. Organizations can develop their own IS success model and extract the factors specific to their company by using the proposed approach and the IS success model DeLone and McLean. In recognition of the importance in defining the IS dependent variables and IS success measures, DeLone and McLean proposed a taxonomy and an interactive model as a framework for organizing the concept of IS success (DeLone and McLean 2003). Therefore, by formulating the ERP implementation as a large project in general, they should have considered the fundamentals of project management for achieving the success of ERP implementation (Koch 2002). The proposed IS success model would have been helpful for the construction industry executives and decision makers to have a better understanding in regard to the success of ERP systems implementation (Chung , 2008).

DeLone and McLean noted that an individual impact could also be an indication that an information system has given the user a better understanding of the decision context. While the provision of information, even if the information is not necessarily targeted to organizational employees (as is the case in the traditional information systems), remains the core of any e-commerce system, ecommerce systems additionally serve transactional and customer service purposes (Young and Benamati, 2000). The practice of electronic commerce (e-commerce) has been in existence since 1965 when consumers were able to withdraw money from Automatic Teller Machines (ATMs) and make purchases using point of sale terminals and credit cards. This was followed by systems that crossed organizational boundaries and enabled organizations to exchange information and conduct business electronically. Such systems were commonly known as interorganizational systems (Senn, 2000). Likewise, depending on the offering of e-commerce sites it is possible to identify different categories for the use of ecommerce systems. Considering the purposes of e-commerce systems suggested by Young and Benamati (2000), the use of e-commerce systems could likewise be divided into informational, transactional or customer service.

The IS success (enterprise systems) is the central interaction model in terms of functionality and potential benefits to organizations, hence many companies are adopting these systems for many different reasons (Ross, 2002). According to Davenport (2000) business benefits from ES use are multidimensional, ranging from operational improvements through decision making enhancement to support for strategic goals. Operational activities process day-to-day activities that involve acquiring and consuming resources. The activities are usually repeated periodically, such as daily, weekly, monthly. Information technology has a long history of use in cutting costs and raising output by repetitive operations. Managerial benefits activities involve in allocation and control of firm's resources, monitoring of operations and supporting business strategic decisions (Shang and Seddon 2002). DeLone and McLean insisted that an information system's quality affects the extent of its utilization and its users' satisfaction, ultimately influencing the behaviors of individuals and the organizations to which they belong.

Methodology

FBE offers core banking solutions to local and international clients. The system is designed and built with an open and componentized structure. The core banking platform covers 90% of a bank's needs out-of-the-box: payments, end-to-end lending, sophisticated fee and pricing capabilities, current savings and deposits support, and multi-currency general ledger platform. The financial institution banking ecosystem delivers a unique combination of expertise, experience and resources to ensure a robust implementation of solutions for new and existing customers ensuring exceptional customer experiences and outcomes. The FBE technology serves both as a medium, connecting spatially segregated actors, and as a tool for task fulfilment; it serves all internal customers and it supports actors in their decision making processes making the system a communication and IS phenomenon that lends itself to the updated D&M IS success model (Laudon and Laudon, 2016). In this context, DeLone and McLean (2003) updated IS success model can be adapted to the quantification challenges of FBE technology. Consequently, this study proposes a comprehensive model of FBE success (see Fig. 1), which suggests that information quality, system quality, service quality, use, user satisfaction, perceived net benefit, self efficacy measure and complementary technology are success variables in FBE systems. Thus, this present study is aimed to examine the employees perspective towards the success of the FBE Model of the financial institution. A systematic process and methodology is needed to conduct research in a successful manner. This section highlights the methodology and process used to conduct the research.

Figure 1. Delone and McLean Modified Research Model
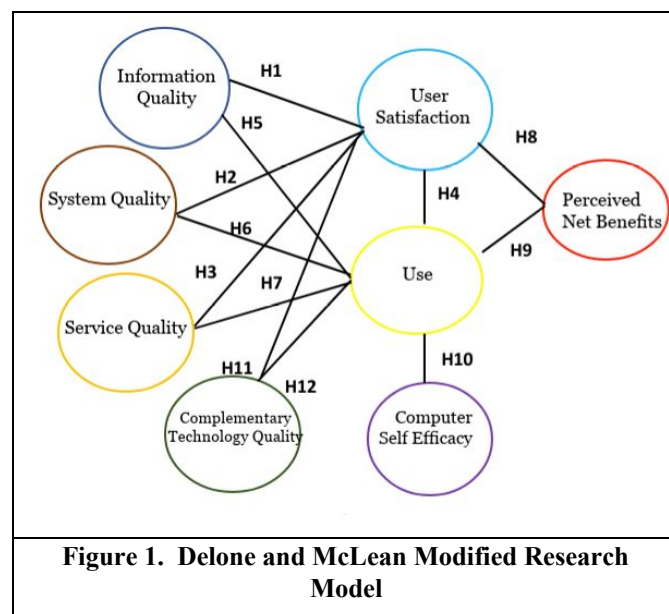
The hypothesized relationship between enterprise systems success variables are based on the theoretical and empirical work reported by DeLone and McLean (2003). As they suggest, the success model needs further development and validation before it could serve as a basis for the selection of appropriate IS measures. Accordingly, the study hypothesized the following thirteen hypotheses tested:

H1. Information quality will positively impact user satisfaction.

H2. System quality will positively impact user satisfaction.

H3. Service quality will positively impact user satisfaction.

H4. Use will positively impact user satisfaction.

H5. Information quality will positively impact use.

H6. System quality will positively impact use.

H7. Service quality will positively impact use.

H8. User satisfaction will positively impact perceived net benefit.

H9.Use will positively impact perceived net benefit.

H10. Self-efficacy will positively impact use.

H11.Complementary technology will positively impact user satisfaction.

H12. Complementary technology quality will positively impact system use.

H13.Complementary Technology will positively impact the service quality.

To ensure the validity of the measurement scales for the quantitative data collection, it was mainly obtained from previously verified instruments. The information was collected and measured by using a thirteen-item scale from Bailey and Pearson (1983), with modifications made to fit the specific context of the FBE System. Bailey and Pearson's instrument is widely accepted and has been tested for reliability and validity by several researchers and became a standard instrument in the IS field. Alshibly (2011), modified a four-item scale which was used to measure the system quality construct, service quality was measured from a modified five- item scale. Use was ultimately measured by a four-item measure adapted from previous studies (Balaban et al., 2013 Rai et al., 2002).

In this research, we considered overall satisfaction as an evaluative component regarding a specific FBE experience and the affective attitude of the employee who uses and interacts with the FBE system (Doll and Torkzadeh, 1988). Perceived benefits are also known as the achievement of a firm's objectives by using the FBE and achievement of end-user related objectives from using them.

After the measurement variables were developed and distributed, the face validity of these variables were tested. A total of 30 samples were tested for this research and it was reviewed by the professor of the said course. In addition, 5 students reviewed the measurement variables and provided feedback on the length and clarity of each item. Based on the feedback the researchers received from the reviewers, any questions that caused confusion, bias or where deemed potentially difficult to comprehend were modified or replaced by amended and simplified questions. Table 1 below presents the research construct and the survey used for measurement of each of the 8 constructs.

Construct	Survey Questions	Source
Information Quality	IQ1: The enterprise system provides information that is exactly what you need IQ2: The enterprise system provides information you need at the right time IQ3: The enterprise system provides information that is relevant to your work IQ4: The enterprise system provides sufficient information IQ5: The enterprise system provides information that is easy to understand IQ6: The enterprise system provides up-to-date information	Bailey and Person (1983)

	IQ7: The enterprise system provides sufficient information	
System Quality	SQ1: The enterprise system is easy to use SQ2: The enterprise system is user-friendly SQ3: The enterprise system provides interactive features between users and the system	Alshibly (2011)
Complementary Technology Quality	CTQ1: The computer (desktop, laptop, mobile device) you normally use to access enterprise system is adequate CTQ2: The computer (desktop, laptop, mobile device) you normally use to access enterprise system has a fast and reliable internet connection CTQ3: The speed of the Internet connection used to access the enterprise system is adequate. CTQ4: The reliability of the Internet connection used to access enterprise systems is adequate	Chang et al.,(2009)
Computer Self-Efficacy Measure	CSE-1- if there was no one around to tell me what to do as I go CSE-2 - if I had never used an information system like it before. CSE-3-if I had only the information system manuals for reference CSE-4 -if I had seen someone else using the information system before trying it myself CSE-5 - if I could call someone for help if I got stuck CSE-6 -if someone else had helped me get started CSE-7 -if l had a lot of time to complete the job for which the information system was provided CSE-8 -if I had just the built-in help facility for assistance CSE-9 -if someone showed me how to do it first CSE-IO- if I had used similar information systems before this one to do the same job	Seddon and Yip (1992)
Service Quality	SV1: The support staff keeps the enterprise system software up to date SV2: When users have a problem the enterprise system support staff show a sincere interest in solving it SV3: The enterprise system support staff respond promptly when users have a problem SV4: The enterprise system support staff tell users exactly when services will be performed	Alshibly, (2011); Tansley et al, (2001)

User Satisfaction	US1: Most of the users have a positive attitude of the enterprise system function US2: You think that the utility of the enterprise system is high US3: The enterprise system has met your expectations US4: You are satisfied with the enterprise system	Seddon and Yip (1992)
Use	U1: Your frequency of use of the enterprise system is high U2: You depend upon the enterprise system U3: You were able to complete a task using enterprise system even when there was no one around to tell you what to do U4: You have the knowledge necessary to use the enterprise system	Balaban et al.,(2013) Rai et al., (2002).
Perceived Net Benefits	NB1:The enterprise system helps you improve your banking performance NB2: The enterprise system helps the bank save costs NB3: The enterprise system helps you achieve your banking goals NB4: Using the enterprise system improves NB5:Using the enterprise system at banks increases your performance NB6:Overall,using the enterprise system enhances employees performance	Alshibly, (2011); Tansley et al, (2001)

Table 1: Measurement Items for Questionnaire

Sampling and Data Collection

Data was gathered from 30 employees of the chosen organization in Belize using the stratified random sampling method. All the population units were grouped within homogeneous groups, and simple random samples were selected within each group. Respondents were assured anonymity, thus resulting in a high return rate. Out of the 30 questionnaires distributed to the employees, the 30 questionnaires were returned, yielding a response rate of 100 percent, which is considered more than acceptable. The respondents' characteristics are presented in Table 2 below. Male participants represented a slightly higher percentage of the completed sample (approximately 53%) compared to female participants (approximately 47%). 47% of the participants were aged 26-35 years and 3% were older than 55. The representative sample were mostly experienced employees. Approximately 54% of the participants had more than 3 years' of service in the organization. This section explains sample, sample size and sampling techniques, and data collection methods. Demographics of the sample data is summarized in table 2 in numerical form.

| Characteristics	Number	Percentage
Gender		
Female	14	47%

| Male	16	53%
Age		
Less Than 25	6	20%
From 26 to 35	14	47%
From 36 to 45	9	30%
Form 46 to 55	0	0%
Older than 55	1	3%
Years of Service		
1st year	7	23%
2nd year	6	20%
3rd year	1	3%
More	16	54%

Table 2.Characteristics of the respondents

Data Analysis and Discussion

At this stage we will move from Basic Research to Applied Research. We will not be testing hypotheses, however, we will be using descriptive analysis to present the data. Given the timing of the research, limitations of the study included time constraints to learn about the Statistical Package for the Social Science (SPSS) data software tool. Therefore, in order to present a thorough description of the findings from the survey questions the usage of 8 histograms and 1 bar graph were utilised. After collection of data and to ensure reliability of data, the data were analysed using microsoft excel software and assigned rating scales from 7 to 1, with 7 being strongly agreed (positive) and 1 being strongly disagreed (negative) to the construct as summarized in Table 1. Please refer to Figure 2 to 9 for an explicit summary of the correlation between the Enterprise Application Fusion Banking system to each of the 8 constructs identified.
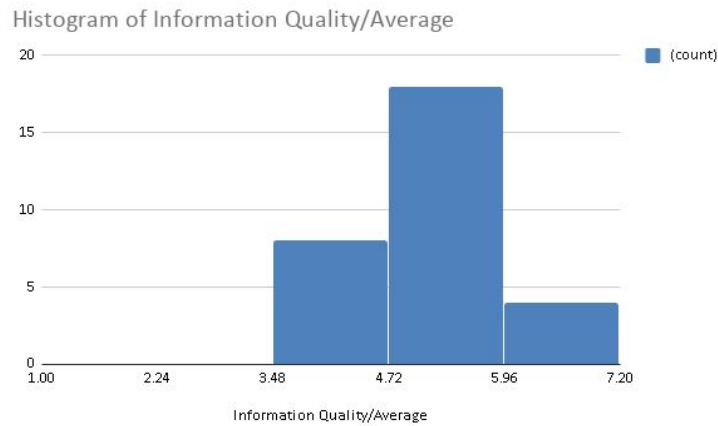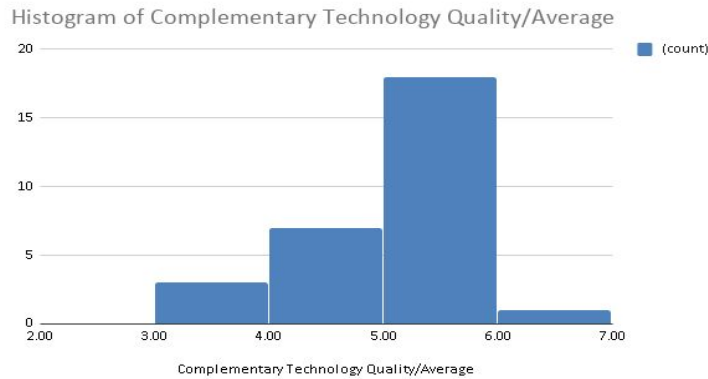

Figure 2: Information Quality/Average

Figure 2: Shows the average answer of employees in regards to the Information quality of the Information System. The answers were selected from a scale of 1-7, where 8 employees rated the information quality to be satisfactory, 18 rated it to be average and 4 rated it to be highly satisfactory. According to the results, most respondents rated the information quality of the information system to be average.
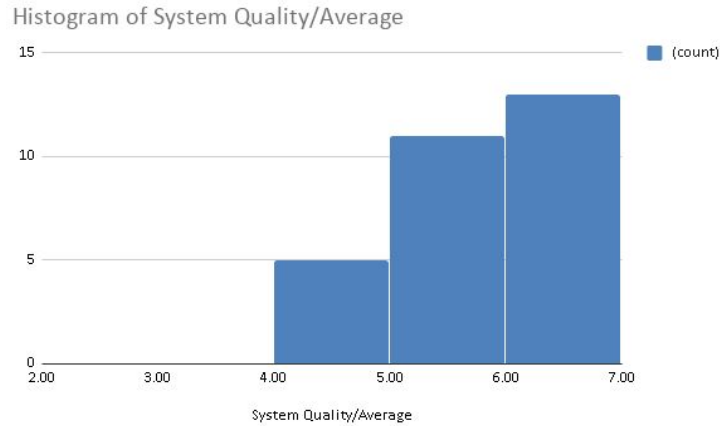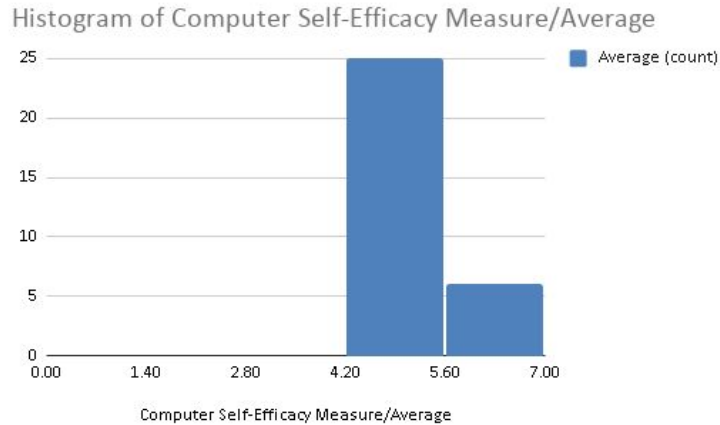
Figure 3: System Quality

Figure 3: Shows the average answer of employees in regards to the System Quality of the Information System. The answers were selected from a scale of 1-7, where 5 employees rated the system quality to be average, 11 rated it to be satisfactory and 14 rated it to be highly satisfactory. All the answers were rounded to the nearest whole number as to avoid confusion in the results. According to the results, most respondents rated the system quality of the information system to be highly satisfactory.
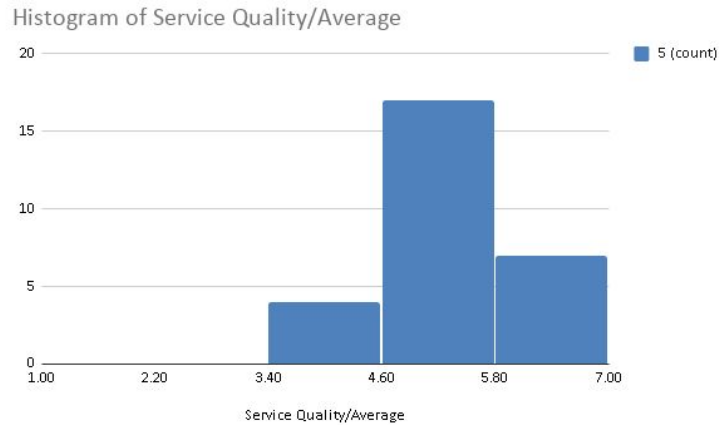

Figure 4: Complementary Technology Quality

Figure 4: Shows the average answer of employees in regards to the Complementary Technology of the Information System. The answers were selected from a scale of 1-7, where 3 employees rated the complementary technology to be poor and 8 rated it to be satisfactory. 18 rated the complementary technology to be average and 1 rated it to be highly satisfactory. According to the results, most respondents rated the complementary technology quality of the information system to be average.
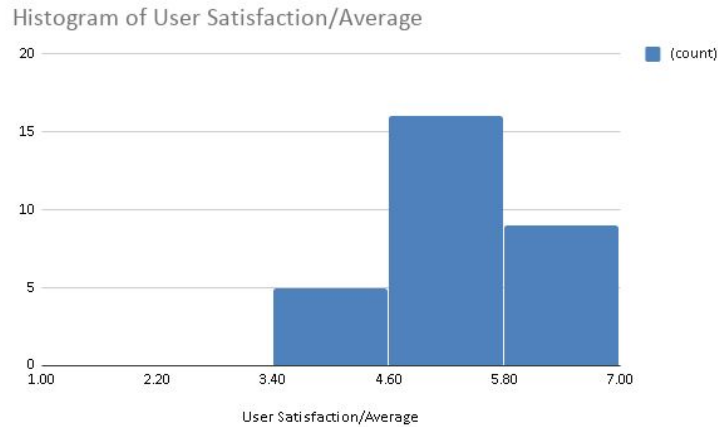
Figure 5: Computer Self-Efficacy Measure

Figure 5: Shows the average answer of employees in regards to the computer self-efficacy measure of the Information System. The answers were selected from a scale of 1-7, where 25 employees rated the computer self-efficacy measure to be average and 5 rated it to be highly satisfactory. According to the results, most respondents rated the computer self-efficacy measure of the information system to be average.
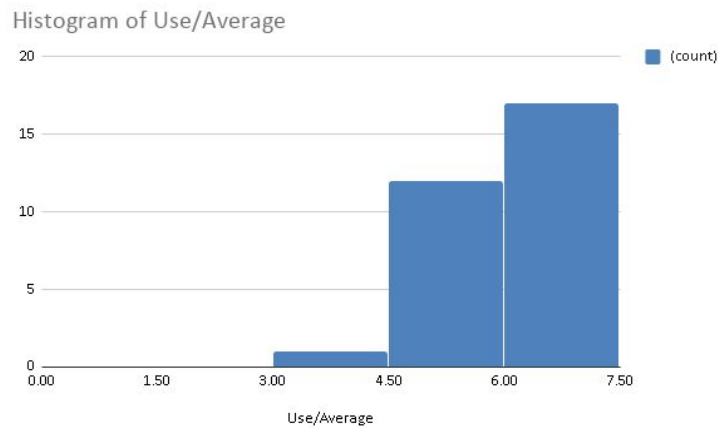

Figure 6: Service Quality

Figure 6: Shows the average answer of employees in regards to the User Satisfaction of the Information System. The answers were selected from a scale of 1-7, where 4 employees rated the service quality to be satisfactory, 18 rated it to be average and 8 rated it to be highly satisfactory. According to the results, most respondents rated the service quality of the information system to be average, which in our estimation is a positive outlook.
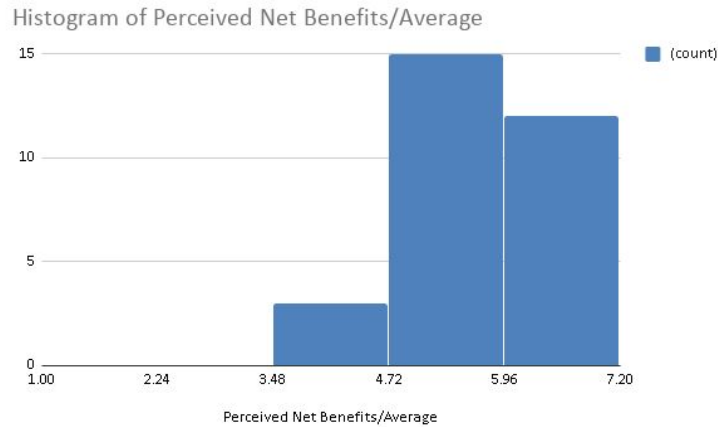
Figure 7: User Satisfaction

Figure 7: Shows the average answer of employees in regards to the User Satisfaction of the Information System. The answers were selected from a scale of 1-7, where 5 employees rated the user satisfaction to be satisfactory, 16 rated it to be average and 9 rated it to be highly satisfactory. According to the results, most respondents rated the user satisfaction of the information system to be average.


Figure 8: Use

Figure 8: Shows the average answer of the employees in regards to the Use of the Information System. The answers were selected from a scale of 1-7, where 1 employee rated the use to be satisfactory, 12 rated it to be average and 17 rated it to be highly satisfactory. According to the results, most respondents rated the use of the information system to be highly satisfactory.

Figure 9: Perceived Net Benefit

Figure 9: Shows the average answer of employees in regards to the Perceived Net Benefits of the Information System. The answers were selected from a scale of 1-7, where 3 employees rated the perceived net benefits to be satisfactory, 15 rated it to be average and 12 rated it to be highly satisfactory. According to the results, most respondents rated the perceived net benefits of the information system to be average.
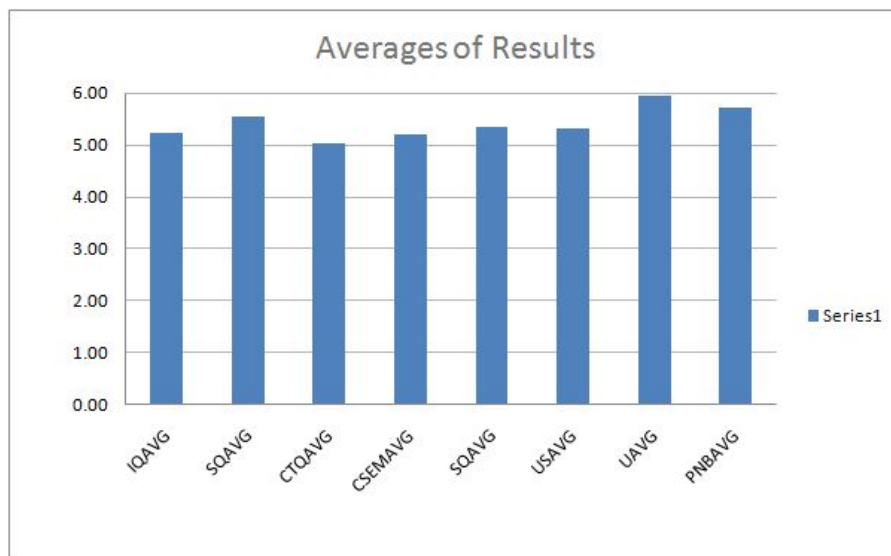
Figure 10: Averages of Averages

Figure 10: Shows the averages of the average answer for each of the 8 constructs in the survey. According to the bar chart above, employees rated the information system to be moderately successful.

The average answer for the Information Quality was 5.24. The average answer for the system quality average was 5.53 where 14 employees rated the system quality to be highly satisfactory. This means that the company's technician is doing a fairly good job at keeping the quality of information up to date. The average answer for complementary technology quality was 5.03 where 18 employees rated the complementary technology quality to be average. Complementary technology quality construct had the lowest average. The average answer for computer self efficacy measure was 5.21 where 25 employees rated the computer self efficacy measure to be average. According to the results this then means that most employees have the skills needed to perform their tasks. Service quality average was 5.33, User satisfaction average was 5.31. This then means that employees are satisfied with the information system. User average was 5.95 and is the construct with the highest average. This means that almost all employees utilise the information system. Perceived net benefits average was 5.71. This means that most employees can successfully get tasks done using the information system. Overall a positive feedback between the tested constructs and the users of the system.

Conclusion

This study has applied DeLone and McLean information system success model in the banking context. The concerns in this research address the method for measuring the success of the FBE System, one such application used in the banking community. The objective was to develop a model for measuring the effectiveness of organizational information systems as well as an FBE success measurement model that was developed based on the popular DeLone and McLean (2003) updated IS success model, which captures the multidimensional nature of FBE success. The information depicts the categories which include information quality, system quality, service quality, use, user satisfaction, and perceived net benefit which are valid measures of FBE success. The relationships between the eight success variables which were hypothesized and significantly supported by the data.

Furthermore, there were several important implications in this research that provided the success of this research and management of FBE. First, results of the empirical analysis indicated that information quality has a strong significant influence on IS success. Thus, system designers should make full use of completeness, understandability, security, availability, and accuracy of information to increase behavioral intention and user satisfaction to use IS. The result from a proposed model, perceived net benefit is considered to be a closer measure of FBE success than the other five success measures. Perceived net benefit should develop if the formation of perceived quality, system use, and user satisfaction is significantly controlled. However, to be more successful management must focus on the aspect of the psychological and behavioural development process to develop more user perceived net benefit. It is certain that the organization will need to increase better strategies to improve information quality, system quality, and service quality, in order to have a positive impact for the user system behaviour and satisfaction evaluation, as well as the corresponding perceived net benefit. The DeLone and McLean model effectively proved that the quantum variables were closely correlated to perceived net benefit, which projects the effectiveness of the FBE system at the financial institution.

Limitations

Based on our research we had a few limitations. This includes the uncontrollable variables in the study such as, time, honesty, and number of responses received. The ability to distribute a large amount of surveys would be impossible; therefore, the researchers focused mainly on the banking and transaction processing sectors. The limitations found in this research are the respondent's level of honesty. Some participants were not fully committed and honest when answering the questions. Moreover, not all questionnaires handed out were returned on time. This proved to be a challenge and caused delays for the

researchers in collecting and analysing the data. Despite these limitations, the validated study provides valuable insights into the study of FBE success.

Future research

The extension and future research has contributed to the theory for empirical testing of the DeLone and McLean IS Success Model in a variety of settings and also the system content previous researchers studied as recommended by various authors (e.g., DeLone and McLean, 2003; Iivari, 2008). Subsequently, the study empirically validated as a comprehensive success among the first models for FBE. Our research has theoretical development in advance for more future research in this specific field. Nevertheless, by using the proposed IS theory as the theoretical basis for a benchmarking study, presenting our study research can help practitioners develop better models as well as improve their FBE and can prioritize their investments accordingly. Finally, further research is required to improve both the theoretical base and the operational construct, which the research consists of applied and basic methods as well as the operational constructs of the model and develop a FBE measuring instrument.

References

Al-Shibly, H. (2011). Human resources information systems success assessment: An integrative model. Australian Journal of Basic and Applied Sciences, 5(5), 157-169.

Asemi, Asefeh; Moohebat, Mohammad Reza (2009). A Comparative Study of Critical Success Factors (CSFs) in Implementation of ERP in Developed; Developing Countries. Ninth International Conference on Operations; Quantitative Management (ICOQM-9), California, Los Angeles: Loyola Marymount University, 27-30 June. http://www.icmis.net/infoms/icoqm9/.

Chung, B., Skibniewski, M. J., Lucas, H. C., Jr., and Kwak, Y. H. 2008. "Analyzing enterprise resource planning ERP systems implementation success factors in the engineering-construction industry." J. Comput. Civ. Eng., 22 6, 373–382.

C. Jang, Measuring Electronic GovernmentProcurement Success and Testing for the Moderating Effect of Computer Self-efficacy, International Journal of Digital Content Technology and its Applications 4(3), 2010, pp. 224-232.[11].

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. Journal of Management Information Systems, 19 (4), 9-30.

G. Udo, K. Bagchi, P. Kirs, An assessment of customers' e-service quality perception, satisfaction and intention, International Journal of Information Management 30, 2010, pp. 481–492.

Gupta, A., & Saxena, S. (2013). Electronic human resource management (e-hrm): growing role in organisations. Management Insight, 8 (1), 60-66.

Heo, J., & Han, I. (2003). Performance measure of information systems (IS) in evolving computing environments: an empirical investigation. Information & Management, 40(4), 243-256.

Koch, C. 2002. "ABC: An introduction to ERP: Getting started with enterprise resource planning ERP." CIO.

Laudon, K. C., & Laudon, J. P. (2016). Management information systems managing the digital firm 14th Edition Global Edition. Hoboken: Pearson.

Marler, J. H., & Fisher, S. L. (2013). An evidence-based review of e-HRM and strategic human resource management. Human Resource Management Review, 23(1), 18-36.

Parry, E. (2011). An examination of e-HRM as a means to increase the value of the HR function. The International Journal of Human Resource Management, 22 (05),1146-1162.

R. Saadé, F. Nebebe, W. Tan, Viability of the "Technology Acceptance Model" in Multimedia Learning Environments: A Comparative Study, Interdisciplinary Journal of Knowledge and Learning Objects 3, 2007, pp. 175-184.

Ruël, H., Bondarouk, T., & Looise, J. K. (2004). E-HRM: Innovation or irritation. An explorative empirical study in five large companies on web-based HRM. Management Revue, 15(3),364-380

Senn, J.A. (2000) "Business-to-business e-commerce". Information Systems Management.

Shenhar, A. J., Tishler, A., Dvir, D., Lipovetsky, S., and Lechler, T. 2002. "Refining the search for project

success factors: A multivariate, typological approach." R&D Manage, 32 2, 111–126.

Spathis, C. and Constantinides, S. (2003), "The usefulness of ERP systems for effective management ", Industrial Management & Data Systems, Vol. 103 No. 9, pp. 677-685. https://doi.org/10.1108/02635570310506098

Spring, pp. 23-32. Turban, E. & Gehrke, D. (2000) "Determinants of e-commerce website". Human Systems Management. 19, pp. 111120. V

Stone, D. L., & Dulebohn, J. H. (2013). Emerging issues in theory and research on electronic human resource management (eHRM). Human Resource Management Review, 23(1), 1-5.

W. DeLone, E. McLean, Measuring e-Commerce Success: Applying the DeLone & McLean Information Systems Success Model, International Journal of Electronic Commerce 9(1), 2004, pp. 31–47.

Young, D. & Benamati, J. (2000) "Differences in public websites: The current state of large U.S. Firms". [Internet] Journal of Electronic Commerce Research. 1(3).

Yusliza, M., & Ramayah, T. (2012). Determinants of attitude towards E-HRM: an empirical study among HR professionals. Procedia-Social and Behavioral Sciences, 57, 312-319.

Zaied, Abdel Nasser & Zaied, H. (2012). An Integrated Success Model for Evaluating Information System in Public Sectors. Journal of Emerging Trends in Computing and Information Sciences. 3. 814-825.