



**ENTERPRISE RESOURCE PLANNING SYSTEM ADOPTION AMONG HEALTHCARE FACILITIES IN KENYA; THE
ROLE OF USER CHARACTERISTICS**

Bezuneh, D. W., Kamau, J. N., Macharia, J.

**ENTERPRISE RESOURCE PLANNING SYSTEM ADOPTION AMONG HEALTHCARE FACILITIES IN KENYA; THE
ROLE OF USER CHARACTERISTICS**

Bezuneh, D. W.,¹ Kamau, J. N.,² Macharia, J.³

¹ *Chandaria School of Business, United States International University (USIU) – Africa
P.O BOX 14634-00800 Nairobi, Kenya*

^{2,3} *Doctor, Chandaria School of Business, United States International University (USIU) – Africa
P.O BOX 14634-00800 Nairobi, Kenya,*

Accepted: December 1, 2021

ABSTRACT

The purpose of the study was to determine the role of user characteristics on Enterprise Resource Planning systems in healthcare facilities in Kenya. The study applied positivism research philosophy and descriptive cross-sectional design with target population constituted of the executives of the healthcare organizations from level 4, 5 and 6 hospitals registered in the Kenya Medical Practitioners and Dentists Board based on 2021 data base. A structured questionnaire that contained closed ended questions was used to collect data from the respondents. Data collected was analyzed using logistic regression analysis at a 95% confidence interval in order to examine significance of the relationships between the variables and to test the hypotheses. Analyzed data was presented using tables and figures for ease of interpretation. User characteristics were found to be insignificant in influencing adoption of ERP system among health care facilities in Kenya, the study recommended that proper education and sensitization programs including training and seminars should be carried out to health facilities personnel in order to inculcate a user's confidence in their ability to use a technology like ERP systems. The study further recommended that appropriate change management policies need to be applied to facilitate the technical and health care facilities adoption of ERP the system as a function of an ERP implementation strategy.

Key words: *User characteristics, ERP system adoption, Health care facilities*

CITATION: Bezuneh, D. W., Kamau, J. N., Macharia, J. (2021). Enterprise resource planning system adoption among healthcare facilities in Kenya; The role of user characteristics. *The Strategic Journal of Business & Change Management*, 8 (4), 974 – 986.

INTRODUCTION

Prior studies have established that the use of Enterprise Resource Planning (ERP) systems is proven to be valuable in several ways and it is considered a necessity in today's business (Mayeh et al., 2016). It integrates all-important parts of a business and acts as a central hub to get an overview of the business. Slattery, Vidgen and Finnegan (2020) defined ERP system as configurable information system that integrates information-based processes using several modules to integrate business units including both managerial and operational processes. The software helps organizations manage business activities like Sales, Marketing, Procurement, Engineering, Human Resources, Supply chain, Project management, procurement, among others (Wagaw, 2017). A major advantage of having an ERP is that business decision-makers are fed with real-time information that is crucial for their activities (Slattery et al., 2020). However, despite the high benefits, cost and efforts required in adoption of ERP system, previous researchers assert that the success rate is reported unsatisfactory in many organizations in the world.

User characteristics is defined as personal characteristics that are perceived to have an impact in the adoption of the ERP system like; the conversant and experience with the new technology including basic computer knowledge and previous computer experience. It is operationalized as system self-efficacy, change fatigue, staff commitment and system anxiety (Harun & Mansor, 2019) where self-efficacy measures user's confidence in using a technology and their capabilities to organize and execute courses of action required to adopt ERP systems (Harun & Mansor, 2019). According to Picek, Bobek, and Zabukovšek (2019) personal characteristics, self-efficacy, technological inventiveness and system anxiety have an impact in the adoption of the ERP system. Also, the perceived enjoyment as a hedonic aim had a strong impact on Web use for purpose of being entertaining and that the enjoyment while using a Web site has a significant

influence on intentions to use (Moghavvemi & Salarzadeh Janatabadi, 2018; Zheng, Wang, Doll, Deng & Williams, 2018).

The user characteristics were perceived to play a key role in explaining usage intention through perceived usefulness. Ease of Use is the conversant and experience with the ERP system including basic computer knowledge and previous computer experience as well as their intention to use social networking programs. Change fatigue is holding positive perspectives about changes that take place in an organization and being ready for change by reducing resistance. Further commitment from the staff, expectancy performance, goal expectancy, social impact, innovation uneasiness, and change resistance are key in ERP adoption (Munyo, 2017).

Adoption of ERP system and its application has been considered minimal in both developed and developing countries. For instance In Indonesia, the failure rate of ERP implementation in both private and public sector organizations estimated at sixty percent (Perdana, 2020). In India, only seven percent of organizations have adopted ERP system as the solution for their business processes (Hasheela-mufeti, 2017). In Africa countries like South Africa, Nigeria, Ghana, among others, have recorded increased adoption of the system. Ghana for instance, boasts of a vibrant information communication and technology (ICT) outsourcing industry with several organizations that provide outsourcing and offshoring business processes to local and international markets (Yaw, Sarpong & Oppong, 2014). The country has enjoyed an extended period of political stability, the country has experienced significant growth in the banking and telecommunication sectors, which has led to the development of a vibrant ICT base and also the fact that it was one of the only two African countries considered among future IT outsourcing locations and placed ahead of countries such as Korea, Malaysia, Mauritius, Nepal, Senegal, Sri Lanka, Taiwan, and Thailand (Yaw et al., 2014). In Kenya, government institutions including parastatals and departments have continued to

adopt several Information systems including ERP (Nduku & Nzuki, 2014). The adoption has had far reaching benefits that include improved financial and procurement efficiencies and improved revenue base and reduced costs. For instance, KCAA implemented ERP System in the year 2010 by initially integrating information from Finance and Procurement Departments and allowing access by other departments across the organization.

According to Hasheela-mufeti (2017) the low level of ERP system adoption and usage in both developed and developing countries include weak systems integration, uncertainties of government support, weak infrastructure systems, poor commitment of organizations including weak culture and trust on the benefits of the ERP system. Other factors are attributed to absence of behavioral intention to actual use than technological literacy on technical specifications and lack of technical, organizational support, financial constraints as well as frequent changes in module specifications.

The strategic mindset of many governments has shifted to initiating reforms aimed at enhancing the quality of health care services and improved efficiency. This is occasioned by the rising demand for the health care services and the related costs of running the health care facilities. Worldwide, healthcare organizations are increasingly faced with inefficiencies. These are associated with difficulties in patient record management, ineffective communication mechanisms, high bureaucracy as a result of paperwork and slow flow of information among coordinated departments (Haberli, Oliveirab & Yanazec, 2017). In response, healthcare organizations have continued to adopt technology-based systems aimed at coping with efficiency in operations, customers' demands, competitiveness and effectiveness in managing communication and decision-making channels (Kianto, Sáenz & Aramburu, 2017).

In the health care delivery, strengthening health systems is a global priority as indicated in Sustainable Development Goal (SDG) of 2015 where

the development of health strategies that respond to the diverse and evolving needs of countries were emphasized. Tome, Johnston, Meadows and Nyemba-Mudenda (2014) argue that a judicious use of ERP system by health care facilities offers tremendous benefits including the accessibility, quality and continuity of patient care, efficiency in care giving, substantial reduction in the operational costs, medical errors reduction and increasing health care professional support. The adoption has also been seen as a panacea to this problem which in the process is expected to mitigate against inefficiencies in the delivery of quality health care services. One of these strategies that many organizations are widely considering is Enterprise Resources Planning (ERP) system.

Despite tremendous benefits however, some of the systems used in health care organizations are considered poorly designed and the outcome is constrained capacity to effectively transform healthcare operations to achieve desired outcomes. These systematic inefficiencies continue to pose a great challenge to access to basic healthcare services in terms of quality and cost of care, among others. This therefore calls for the research on adoption of Enterprise Resource Planning system in healthcare facilities in Kenya and the role played by user characteristics being examined.

MATERIALS

The study was anchored on Dynamic Capabilities Theory. This theory was developed by Teece, Pisano and Shuen in 1997 from the concept of Resource Based View (RBV). The theory is about how valuable resources which cannot be imitated and only used to give an organization upper hand over competitors it cannot effectively integrate and allocate resources in a way that is best suited to ever changing business environment and market demands. The theory focuses on how these unique resources of an organization can be integrated, leveraged and reconfigured to ever changing business situations for the purpose of achieving operational goals and organizational competitiveness (Li & Tuunanen, 2020). Specifically,

the theory focuses on three main constructs which include process, position, and the path with process examining how an enterprise integrate resources, reconfigure, and the capability for organizational learning. Position on other hand, describes the critical resources like technical, structural and market asset that can enhance a firm's competitive advantages. Finally, path is used to uncover the directions of future business operations by examining what to acquire for example technology in order to survive in dynamic changes characterized by ever changing need to improve organizational operations and service delivery (Meng & Sun, 2019).

The theory is anchored on three capabilities which includes coordination capability, learning capability and strategic competitive response capability where coordination involves ability to reconfigure, integrate and combine necessary factors that can lead to innovation whereas learning capability is where development in terms of developing a certain technology and its applicability takes place and strategic competitive response capability is where processes, structures and routines are enhanced after acquisition of unique technology (Liu, Yu, Teng, Leung & Song, 2018). According to the theory for firms to put their valuable resources to use, they must continuously scan the dynamic environment and put necessary changes through acquisition of technologies that would give them competitive edge through improved operational processes, reduced costs and enhanced service to customers as compared to other similar firms offering complimentary of substitute services (Li & Tuunanen, 2020).

The theory however has been criticized on its application, for instance it is argued that the theory does not give a clear framework of its outcomes based on merits and also no clear models to measure such capabilities towards organizational competitiveness. Further critiques argue that there is no satisfactory answers to the operationalization of the theory and therefore ineffective in providing answers to how capabilities take place with also no

clarity to its concepts. This therefore calls for further studies to try fix the gaps by illustrating the theory related concepts and how they interlink with practicality of practices in the organizations (Li & Tuunanen, 2020). The theory has however been widely applied successfully by strategic managers at firm level, sectors, regions and nations in different industries such as manufacturing, hospitality, education and health to enable firms recognize the advantages derived from external knowledge in form of new technologies which they assimilate and apply to their processes to gain competitiveness. Specifically, the theory is based on absorptive capability where an organization is able to absorb, assimilate and exploit all innovations available including acquiring of unique technology to apply in its quest to achieve competitiveness.

In the context of health sector, the theory helps to uncover what organizations and strategic managers should convert their unique resources into capabilities in order to achieve further results. For instance, acquiring ERP system brings more benefits like improved operational processes, accuracy in operations, reduced costs as well as satisfying customers through efficient and timeliness in providing medical services. The theory further shows that for health organizations to achieve their planned objectives, they must change operations through scanning the ever changing environment with more demands arising like customer demands for better services, competition on market for efficiency in operations and improvement in technological innovations which are key to enhanced service delivery.

The related empirical review has been carried out to determine how user characteristics influence ERP system adoption. This has been reviewed in terms of related constructs including system self-efficacy, change fatigue, staff commitment and system anxiety. In a descriptive study, Picek *et al.* (2019) examined influence of students' personal characteristics in the adoption of ERP system Solutions in Learning Process. Using Technology Acceptance Model, different factors were

considered in terms of adoption of any given technology. These included personal characteristics and information literacy, perceived system and technological characteristics of ERP solutions and perceived support within the study process. The study revealed that system self-efficacy, technological inventiveness and system anxiety were found to have an impact in the adoption of the ERP system. The study focused mainly on the influence of attitude toward using ERP systems and without linking to self-efficacy to ERP adoption in the healthcare facilities that this study endeavored to address.

In a descriptive study by Moghavvemi *et al.* (2018) on incremental influence of duration on learners' use of ELearning through Facebook students pursuing a business statistics course were surveyed. The study also measured changes that occurred in the students' intention to use and use of e-Learning at three different stages and structural equation modelling. The study showed that system efficacy, previous experience, system anxiety, management support, system quality and task structure, had an influence on the level of ERP systems adoption. Similarly, perceived enjoyment as a hedonic aim had a strong impact on Web use for purpose of being entertaining and that the enjoyment while using a Web site has a significant influence on intentions to use. This study focused more on the acceptance level of ERP systems and did not relate self-efficacy towards adoption of the ERP system which was considered in the study.

Zheng *et al.* (2018) did a study on the impact of organizational support, technical support, and self-efficacy on faculty perceived benefits of using learning management system targeting instructors in several universities. Structural equation modelling was applied to analyze the relationships among the factors in the structural model. The study revealed that system self-efficacy takes a crucial role in understanding a person's system acceptance. The implications were that universities can increase the use of LMS and achieve more effective outcomes from faculty for web-based

distance learning and web-assisted course curricula by structuring their organizations to better support faculty in both technical and self-efficacy areas. Like in the case of Moghavvemi *et al.* (2018), the study did not relate self-efficacy towards adoption of the ERP system.

A study by Harun and Mansor (2019) on individual readiness for change in the pre-implementation phase of campus Enterprise Resource Planning (ERP) project in Malaysian Public University used a research model based on the dual-factor concepts of "enablers" and "inhibitors" to explain users' intentions to utilize telehealth. The results of the study demonstrated that availability and perceived usefulness are the key factors that encourage people to adopt telehealth systems. On the other hand, technology anxiety and transition costs are found to be the main factors in discouraging individuals from using telehealth systems. Technology anxiety could be overcome through the perceived usefulness to promote the adoption of telehealth. Elsewhere, John (2013) conducted a study on the influence of computer self-efficacy on information technology adoption aimed at identifying the antecedents as well as the effects of computer self-efficacy on information systems acceptance and use. The study is conducted in the context of social networking sites in Thailand and applied structural equation modelling. Results reveal that basic computer knowledge and previous computer experience positively influence an individual's computer self-efficacy as well as their intention to use social networking programs. Results also show that social factors do not play a major role in improving an individual's computer self-efficacy. Computer self-efficacy is found to be directly influencing perceived usefulness and indirectly influencing intention to use an information system.

Buchanan, Sainter and Saunders (2013) did examine factors affecting faculty use of learning technologies: Implications for models of technology adoption by targeting faculty in a UK university. In the study, two main barriers to adoption namely

structural constraints within the University and perceived usefulness of the tools were identified. The results also show that both these variables, along with Internet self-efficacy, were associated with use of online learning technology. These findings are more consistent with models of technology engagement that recognize facilitating or inhibiting conditions (unified theory of acceptance and use of technology; decomposed theory of planned behavior) than the classic technology adoption model (TAM). These were considered in the study.

Arasanmi (2019) used online survey method to collect data from ERP system users, who had previously attended ERP system training with the intention to examine the effectiveness of training in an ERP environment. The descriptive analysis was conducted with SPSS version 24, while Hayes Process Macro was used to test the research model and the mediation analysis. The findings indicated that change fatigue identifies with the degree to which staff workers hold positive perspectives about the requirement for change in organization, just as their conviction that changes are probably going to have positive ramifications for them and the organization. The findings indicated that being ready for change assumes an essential job in reducing resistance and along these lines in decreasing the failing rate. Making the conviction that organization change to reduce change fatigue is required and requires an understanding that there is a gap between the current and wanted end states.

Dai, Larnyo, Tetteh, Aboagye, and Musah (2019) examined factors affecting caregivers' acceptance of the use of wearable devices by patients with Dementia by extending the Unified Theory of Acceptance and Use of Technology (UTAUT) model with two additional constructs namely Resistance to Change (RC) and Technology Anxiety (TA). In the study, a structured online questionnaire was developed and distributed to caregivers who have either dealt previously with or were currently taking care of patients with dementia in sub-Saharan

Africa. They concluded that gender and perceived wearing devices benefits are related to readiness for change, and readiness for change is a significant predictor of students' attitude. In addition, computer self-efficacy is related to attitude toward usage and one's intent to use ERP system.

A study done by Jeffrey (2015) on testing the technology acceptance model 3 (tam 3) with the inclusion of change fatigue and overload, in the context of faculty from seventh-day Adventist universities. Employing correlations, regressions, and path analysis, the study revealed that change fatigue was a significant predictor of lower LMS usage. A more parsimonious revised model of factors that reflect these changes was constructed. The core elements of the TAM 3 remain intact. This suggests that administrators should pay close attention to perceived usefulness of the LMS, perceived ease of use, voluntariness, and change fatigue in selecting and implementing any new system and in seeking to increase adoption of the current system.

Mostert-Phipps *et al.* (2013) studied South African perspective on factors that impact on the adoption and meaningful use of health information technologies. A three-round Delphi study was conducted to identify such factors. The Delphi panel included participants who were considered to be suitably knowledgeable about the acceptance and significant use of HITs in the context of the South African healthcare setting. Results show that change fatigue of the staff that was related to the way users perceive the significance of the health information technologies and alterations that it come with it in its adoption.

In an empirical study by Almajali *et al.* (2016) on Jordanian hospitals, empirical data were collected using a survey questionnaire which was distributed to ERP users. In the study, structure equation modeling was adopted and the findings reported. The findings revealed a noteworthy connection among ERP antecedents and its success in adoption and proposed that client fulfillment assumes a huge interceding job between Ease of Use and success in

ERP adoption. The study focused more on the antecedents of ERP and failed to relate the specific user characteristic like staff commitment towards adoption of the ERP system that this study with focus on.

An investigation by Hoque and Sorwar (2017) determined the main components impacting the implementation of the mHealth services. They utilized a structured questionnaire to gather information from respondents in Bangladesh city. The examination revealed that commitment from the staff, expectancy performance, goal expectancy, social impact, innovation uneasiness, and change resistance significantly affected the BI to adopt mHealth. This study did not relate staff commitment towards adoption of the system in the organization that the current study covers.

Kharuddin, Foong and Senik (2015) did a study on the effects of decision rationality on ERP adoption extensiveness and organizational performance. The mediating roles of system usage and user satisfaction on the relationship between adoption extensiveness and organizational performance were also examined. This study was based on a questionnaire survey of public-listed companies and unlisted manufacturing companies. The findings revealed that in spite of variety and plentiful benefits expected from ERP system, the relationship between ERP adoption and organizational performance is inconclusive, for understanding and realization of benefits of ERP implemented it should be accompanied with full participation and user's support, information technology alone would not reflect on organizational performance, and the technology must be properly implemented for information technology to affect performance.

Al-din *et al.* (2019) did a cross sectional review to analyze the elements influencing the eHealth implementation by the doctors of Bangladesh. The research used questionnaires, to obtain data and the results indicated that staffs' personal innovativeness and commitment, expectancy in performance, and social impact affected doctors' Behavioural Intention aim to embrace eHealth,

though facilitating conditions had no great impact. This study did not relate staff commitment towards adoption of the ERP system in the organization that this study covers.

Ben Moussa and El Arbi (2020) did a study on the impact of Human Resources Information Systems on individual innovation capability in Tunisian companies: The moderating role of affective commitment. A research model was proposed and the related hypotheses were tested within human resources department of Tunisian companies with 42 respondents. Results estimated by Smart PLS software, showed that employees' affective commitment moderates the relationship between HRIS usage and individual innovation capability. The employees are engaged affectively to their organization more the HRIS impact is positive and noteworthy on individual innovation behavior of HR staff. The study allows clarifying some lines which are responsible of improving individual creativity.

Mahar *et al.* (2020) on the study of ERP system implementation in terms of planning, management, and administrative issues. Methods used for the research was qualitative research approach. A survey was done by different professionals and the top management of different organization's IT department to get more productive results. These research approaches provided descriptive information to find out the ideas or solutions for the problems regarding subject study. It was found out that the ERP implementation project are staff commitment and support from the management, vision and planning. Furthermore, staff commitment and support from administration of the organization can be described as a committed leadership of an organization who shows their serious concern about the targets to accomplish the implementation plan successfully.

In Kenya, Munyao (2017) studied the effect of the use of information and communication technology on performance of community-based organizations in Kitui County. The study used descriptive research design targeting managers in charge of Community Based Organizations in Kitui County, Kenya who

were identified using stratified random sampling, The study revealed that Community Based Organizations had insufficient computer hardware resources and that Information and Communication Technology Infrastructure had helped them enhance communication amongst themselves and with other stakeholders. Management supported the Community Based Organizations to undertake preventive maintenance. It was also observed that staff had adequate Information and Communication Skills and that they were aware of the existence of the Government Information and Communication Technology Policy. The study concluded that the Information and Communication Technology infrastructure, Management support and government. Information and Communication Technology policy influenced the performance of the Community Based Organizations.

Shim and Shim (2020) studied the effects of user perceptions of SAP ERP system on user learning and skills. This study examines the effects of playfulness and anxiety as perceived by users in relation to SAP enterprise resource planning (ERP) system on users' learning of business processes and users' skills to use the system. Data was collected from a survey of college students who took a course on business process integration with ERP system where students used SAP ERP system to complete course works on business processes. System playfulness was found to have a small positive effect on user learning and skills without any control but the positive effect disappears after controlling for gender and prior experiences. System anxiety was found to have a large negative effect on both user learning and skills. These results suggest that enhancing the playfulness of SAP ERP system can help improve the user's learning of business processes and the user's skills to use the system, but that reducing the anxiety of the system is far more important in improving the user's learning of business processes and the user's skills to use the system.

Zabukovšek, Bharadwaj, Bobek, and Štrukelj (2019) studied Technology acceptance model-based

research on differences of Enterprise Resources Planning systems use in India and the European Union. Acceptance of Enterprise Resources Planning (ERP) systems remains among the major concerns of organisations in the global economy. This study compared the results of two studies focused on ERP advanced use in their maturity stage in two different but important socio-economic cultural backgrounds. The research was based on an extended Technology Acceptance Model (TAM), where two additional factors (work compatibility and extended use) were added together with additional external factors that can influence users' acceptance of ERP systems. The researcher analysed and compared the data of 444 ERP users from 14 organisations in the EU and 577 ERP users from 13 organisations in India. Even though the use of ERP systems in India and the EU is at the same advanced level, ERP users exhibited various behaviours and focus attention on different factors. Research data shows differences regarding the impact of extended TAM model factors and some differences regarding the impact of external factors researched.

Hasan (2017) did a study on acceptance of ERP systems: The uses and gratifications theory perspective. This study was based on the Uses and Gratifications Theory (UGT) and informing science theory. A survey questionnaire was distributed to ERP users to collect data to empirically test the research model developed in this study. The empirical results show that UGT provides a sound theoretical framework for explaining users' gratifications, attitudes, and behavioral intentions toward adopting and using an ERP. These results support the view that subsumes information systems and other fields that endeavor to inform their audience. The findings showed that individuals' perceptions of the informativeness and entertainment of ERP systems demonstrated strong direct effects on attitude toward using and satisfaction with ERP systems. In turn, satisfaction with ERP systems showed a direct significant impact on intention to use an ERP system.

Taufiq and Siddiqui (2021) explored the post implementation impact of Enterprise Resource Planning (ERP) System on end users' performance with the complementary role of demographic characteristics: evidence from Pakistan. Empirical validity was established by conducting a survey using a close-ended questionnaire. Data was collected from 301 end users of ERP, analyzed using confirmatory factor analysis, and structured equation modeling. The results suggested that system anxiety, problem solving, job discretion and cross-functionality, and organizational performance were positive whereas authority and decision-making are negatively influenced by ERP performance. Results also showed a positive complementarity in ERP and job designation, meaning ERP has a more pronounced effect on organizational performance of those in high designation as compared to the lower designation.

METHODOLOGY

The study applied positivism research philosophy and descriptive cross-sectional design with target population constituted of the executives of the healthcare organizations from level 4, 5 and 6 hospitals registered in the Kenya Medical Practitioners and Dentists Board based on 2021 data base. A structured questionnaire that contained closed ended questions was used to

collect data from the respondents. This study used a structured questionnaire which as method used in gathering information through a tool comprising of inquiries and prompts to get a reaction from participants. The questionnaires were then distributed to the respondents with the assistance of ten research assistants. Before issuing the questionnaire, participants were assured of confidentiality and anonymity concerning their contributions. Data collected was analyzed using logistic regression analysis at a 95% confidence interval in order to examine significance of the relationships between the variables and to test the hypotheses. Analyzed data was presented using tables and figures for ease of interpretation.

RESULTS

The study sought to establish the use of User Characteristics and their influence on Adoption of ERP System. User characteristics combined various constructs including system self-efficacy, change fatigue, staff commitment and system anxiety. The data was analysed to measure descriptive statistics of mean and standard deviation. A mean of 4.0 or higher represented "strongly agree". A mean score close to 3.0 represented "neutral" and a mean of 2.0 and below represented disagree and strongly disagree. Table 1 shows findings of descriptive analysis for user Characteristics.

Table 1: Mean Scores for User Characteristics

	Descriptive Statistics											
	N	Mini	Max	Mean	Std. Deviation	Skewness	Kurtosis					
	Stat	Stat	Stat	Stat	Stat	Stat	Stat	Stat	Stat	Stat	Stat	
System self-efficacy	213	2.50	5.00	4.0962	.03186	.46500	-.853	.167	.689	.332		
Change fatigue	213	1.00	4.17	2.4022	.03153	.46010	-.025	.167	2.090	.332		
Staff commitment	213	1.80	5.00	3.4627	.04910	.71654	-.378	.167	-.416	.332		
System anxiety	213	1.25	4.25	2.4472	.03567	.52065	.525	.167	.644	.332		
Valid N (listwise)	213											

Table 1 showed that all the variables had mean scores of higher than 2 or rounded to 2 with System self-efficacy having the highest mean score of 4.0962 out of the possible 5. The lowest mean score was change fatigue with a mean score of 2.4022 out of a possible 5. This shows that a majority of the

respondents strongly agreed that change fatigue was the lowest among the four. The standard deviation for System self-efficacy was 0.465, meaning that the data for System self-efficacy was mostly concentrated around the mean.

The hypothesis that guided the analyses was: there is no relationship between user characteristics and ERP system adoption in healthcare facilities in Kenya was derived. To test this hypothesis, the

data for user characteristics and ERP adoption were fitted in a logistic regression model and results presented as summarized in Table 2.

Table 2: Logistic Regression Results for User Characteristics and Adoption of ERP System

	Estimate	p-value	Odds ratio
Constant B_0	-1.216653		
SYST	1.10249	0.03423	3.01165
CHANG	0.054761	0.48827	0.3426
COMM	1.217361	0.03125	2.0562
SYSAN	0.701705	0.30136	0.0171
Model: Logistic regression (logitf)			
log likelihood = -1.06594			
Prob> chi ² = 0.6253			
McFadden R ² =0.3904			
Number of obs = 213			

The findings as depicted in Table 2 showed that the model attained R² of 0.3904 of the McFaddens static of model fitness. The regression coefficients for each construct under user characteristics show that system self-efficacy had the highest estimate of 3.01165, followed by staff commitment (2.0562), change fatigue (0.3426), while system anxiety had the least (0.30136). From the results, system self-efficacy and staff commitment were significant independently in explaining adoption of ERP system among health care facilities whereas change fatigue and system anxiety were insignificant. The p-value of all constructs were significant at 95% confidence level (p<0.05) except for system change fatigue and system anxiety. System self-efficacy had p = 0.03423, change fatigue had p = 0.3426, staff commitment had a mean score of 0.03125 and system anxiety had p = 0.30136. Only two constructs namely system self-efficacy and staff commitment had a positive and statistically contributing to ERP adoption among the facilities.

Based on the values of Chi² (0.3904), the results show a statistically insignificant relationship between user characteristics and adoption of ERP system at 95% confidence level. This implies that user characteristics have no influence on the adoption of ERP system in health facilities in Kenya thus leading to acceptance of the null hypothesis

which stated that H₀₄: There is no relationship between user characteristics and ERP system adoption in healthcare facilities in Kenya.

The revised model therefore becomes

$$\text{Logistf (ERP System Adoption)} = -1.216653 + 1.102\text{SYST} + 0.0547\text{CHANG} + 1.217\text{COMM} + 0.7017\text{SYSAN}$$

CONCLUSIONS AND RECOMMENDATIONS

User characteristics included system self-efficacy, change fatigue, staff commitment and system anxiety. The findings from logistic model as depicted show that the overall model attained R² of the McFaddens static of model fitness therefore the model can well be used in predicting adoption of ERP system. User characteristics were statistically insignificant in influencing adoption of ERP system at 95% confidence level with system self-efficacy recording the highest estimate coefficient, followed by staff commitment, change fatigue and finally system anxiety. Additionally, the p-values of all constructs were significant at 95% confidence level (p<0.05) except for change fatigue and system anxiety, while only two constructs namely system self-efficacy and staff commitment to positively and statistically contribute to ERP adoption among the facilities. Regarding the odd ratio, system self-efficacy had the highest value followed by staff

commitment had also a high odd ratio with others showing lower Odds ratio. This therefore implies that the model does not significantly explain the ERP system adoption among the health care facilities in Kenya thus leading to acceptance of the null hypothesis which states that there is no relationship between user characteristics and ERP system adoption in healthcare facilities in Kenya.

User characteristics were found to be insignificant in influencing adoption of ERP system among health care facilities in Kenya, the study recommends that proper education and sensitization programs including training and seminars should be carried out to health facilities personnel in order to inculcate a user's confidence in their ability to use a technology like ERP systems. The study further recommends that appropriate change management policies need to be applied to facilitate the technical

and health care facilities adoption of ERP the system as a function of an ERP implementation strategy.

Since the study found that system self-efficacy and staff commitment were significant to explaining adoption of ERP system among health care facilities in Kenya whereas change fatigue and system anxiety were insignificant in influencing ERP system adoption among health care facilities in Kenya, it was therefore recommended that management should focus more on system self-efficacy and staff commitment for more adoption to take place and also emphasize the role of change fatigue and system anxiety through developing systems that attracts attention to users in the positive way on ERP system for it to be achieved during implementation and adoption phases.

REFERENCES

- Ali, M., & Miller, L. (2017). ERP system implementation in large enterprises – a systematic literature review. *Journal of Enterprise Information Management*, 30(4), 666–692.
- Almajali, D. A., Masa'deh, R., & Tarhini, A. (2016). Antecedents of ERP systems implementation success: a study on Jordanian healthcare sector. *Journal of Enterprise Information Management*, 29(4), 549–565.
- Almubideen, S. S., Fannas, E. J. A., Alsawalqah, H. I., Al Hassan, M., Zamzeer, M., & Alshamaileh, Y. (2020). Determinants of cloud ERP adoption in Jordan: an exploratory study. *International Journal of Business Information Systems*, 34(2), 204.
- Ameen, N., Tarhini, A., Hussain Shah, M., & Madichie, N. O. (2020). Employees' behavioural intention to smartphone security: A gender-based, cross-national study. *Computers in Human Behavior*, 104, 106184.
- Amini, M., & Sadat Safavi, N. (2013). Critical Success Factors for ERP Implementation. *SSRN Electronic Journal*, 5(16), 1–23.
- Awa, H. O., Ojiabo, O. U., & Orokor, L. E. (2017). Integrated technology-organization-environment (T-O-E) taxonomies for technology adoption. *Journal of Enterprise Information Management*, 30(6), 893–921.
- Awa, H. O., Ukoha, O., & Emecheta, B. C. (2016). Using T-O-E theoretical framework to study the adoption of ERP solution. *Cogent Business and Management*, 3(1), 1–23.
- Duncan, T., Rahim, E., & Burrell, D. (2018). Challenges in Healthcare Post-EMR Adoption. *Thirteenth Midwest Association for Information Systems Conference*.
- Dwivedi, Y. K., Ramdani, B., Williams, M. D., Mitra, A., Sukumar, R., & Williams, J. (2013). Factors contributing to successful ERP implementation in locally-owned and multinational firms in India. *International Journal of Indian Culture and Business Management*, 6(4), 458.

- Edirisinghe, S. D., & Roshantha, L. M. D. (2018). Statistical Analysis on Enterprise Resource Planning Systems (ERP) On End User Satisfaction. *Journal of Business and Management (IOSR-JBM)*, 20(7), 24–34.
- Fijorek, K., & Sokolowski, A. (2012). Separation-Resistant and Bias-reduced Logistic Regression: STASTICA macro. *Journal of Statistical Software; April 2012, Volume 47, Code Snippet 2*.
- Haberli, C., Oliveira, T., & Yanaze, M. (2017). Understanding the determinants of adoption of enterprise resource planning (ERP) technology within the agrifood context: The case of the Midwest of Brazil. *International Food and Agribusiness Management Review*, 20(5), 729–746.
- Khanna, K. (2012). Choosing an Appropriate ERP Implementation Strategy. *IOSR Journal of Engineering*, 02(03), 478–483.
- Kharuddin, S., Foong, S. Y., & Senik, R. (2015). Effects of decision rationality on ERP adoption extensiveness and organizational performance. *Journal of Enterprise Information Management*, 28(5), 658–679.
- Kruse, C. S., DeShazo, J., Kim, F., & Fulton, L. (2014). Factors associated with adoption of health information technology: a conceptual model based on a systematic review. *JMIR medical informatics*, 2(1), e9.
- Kulikov, I., Semin, A., Skvortsov, E., Ziablitckaia, N., & Skvortsova, E. (2020).
- Kumar Ranjit. (2019). *Research Methodology: A Step-by-Step Guide for Beginners* - Ranjit Kumar - Google Books. In SAGE.
- Liang, Y., Qi, G., Wei, K., & Chen, J. (2017). Exploring the determinant and influence mechanism of e-Government cloud adoption in government agencies in China. *Government Information Quarterly*, 34(3), 481–495.
- Lutfi, A. (2020). Investigating the moderating role of environmental uncertainty between institutional pressures and ERP adoption in Jordanian SMEs. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(3).
- Mahar, F., Ali, S. I., Jumani, A. K., & Khan, M. O. (2020). ERP System Implementation: Planning, Management, and Administrative Issues. *Indian Journal of Science and Technology*, 13(1), 106–122.
- Mahmood, F., Khan, A. Z., & Bokhari, R. H. (2019). ERP issues and challenges: a research synthesis. *Kybernetes*, 49(3), 629–659.
- Mdima, B., Mutagahywa, B., Mohamed, J., & Mahabi, V. (2017). Conceptual Framework for Understanding of the Pre-Implementation Phase of ERP Projects in Tanzania. *Journal of Multidisciplinary Engineering Science and Technology (JMEST)*, 4(9), 2458–9403.
- Meng, Y., & Sun, Q. (2019). *Path Analysis of Building Organizational Dual Abilities from the Perspective of Dynamic Capability Theory*. 376(Sschr), 509–515.
- Min, S., So, K. K. F., & Jeong, M. (2019). Consumer adoption of the Uber mobile application: Insights from diffusion of innovation theory and technology acceptance model. *Journal of Travel and Tourism Marketing*, 36(7), 770–783.
- Mostert-Phipps, N., Pottas, D., & Korpela, M. (2013). A South African perspective on factors that impact on the adoption and meaningful use of health information technologies. *South African Family Practice*, 55(6), 545–554.
- Roztock, N., Soja, P., & Weistroffer, H. R. (2020). Enterprise systems in transition economies: research landscape and framework for socioeconomic development. *Information Technology for Development*, 26(1), 1–37.

- Ryan, G. (2018a). Introduction to positivism, interpretivism and critical theory. In *Nurse Researcher*.
- Ryan, G. (2018b). Introduction to positivism, interpretivism and critical theory. In *Nurse Researcher*.
- Shim, S. J., & Shim, M. K. (2020). Effects of user perceptions of SAP ERP system on user learning and skills. *Journal of Computing in Higher Education*, 32(1), 41–56.
- Slattery, P., Vidgen, R., & Finnegan, P. (2020). Persuasion: An analysis and common frame of reference for is research. *Communications of the Association for Information Systems*, 46, 30–69.
- Talebian, A., & Mishra, S. (2018). Predicting the adoption of connected autonomous vehicles: A new approach based on the theory of diffusion of innovations. *Transportation Research Part C: Emerging Technologies*, 95(June), 363–380.
- Tarafdar, M., & Roy, R. K. (2003). Analyzing the adoption of enterprise resource planning systems in Indian organizations: A process framework. *Journal of Global Information Technology Management*, 6(1), 31–51.
- Taufiq, A., & Siddiqui, D. A. (2021). Exploring the Post Implementation Impact of Enterprise Resource Planning (ERP) System on End Users' Performance with the Complementary Role of Demographic Characteristics: Evidence from Pakistan. *SSRN Electronic Journal*.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic management journal*, 18(7), 509-533.
- Teotia, Dr. S., Panwar, S., & Sirohi, H. (2021). Use and Implementation of an ERP to Enhance Security. *SSRN Electronic Journal*.
- Tome Mr, L., Johnston Prof, K. A., Meadows Mrs, A., & Nyemba-Mudenda Ms, M. (2014). Barriers to Open Source ERP Adoption in South Africa. *The African Journal of Information Systems*, 6(2), 1.
- Tuti, T., Bitok, M., Paton, C., Makone, B., Malla, L., Muinga, N., ... & English, M. (2016). Innovating to enhance clinical data management using non-commercial and open source solutions across a multi-center network supporting inpatient pediatric care and research in Kenya. *Journal of the American Medical Informatics Association*, 23(1), 184-192.
- Voronkova, O. V., Kurochkina, A. A., Firova, I. P., & Bikezina, T. V. (2017). Implementation of an information management system for industrial enterprise resource planning. *Espacios*, 38(49).
- Wagaw, M. (2017). Acceptance of homegrown enterprise resource planning (ERP) systems in Ethiopia. *Applied Informatics*, 4(1). <https://doi.org/10.1186/s40535-017-0034-5>
- Wanyoike, D. M., Mukulu, E., & Waititu, A. G. (2012). ICT Attributes as Determinants of Internet Social Adoption by Formal Small Enterprises in Urban Kenya. *International Journal of Arts and Commerce*, 1(7), 65–74.
- Weeger, A., Wang, X., & Gewald, H. (2016). It consumerization: Byod-program acceptance and its impact on employer attractiveness. *Journal of Computer Information Systems*, 56(1).
- World Health Organization. (2010). World Malaria Report. In *World Health: Vol. WHO/HTM/GM* (Issue December).
- Yaw Asabere, N., Doku, V., Kusi-Sarpong, S., & Oppong, D. (2014). Adopting Electronic Business in Ghana: Story of the Hospitality Industry. *International Journal of Computer Applications*, 85(4), 1–9.