Archives of Business Research - Vol. 11, No. 1
Publication Date: January 25, 2023
DOI:10.14738/abr.111.13911.
Ngala, O. M. (2023). Analysis of Strategic Factors for Successful Integrated System Implementation: Experiences from the Co-operative University of Kenya. Archives of Business Research - Vol. 11(1). 188-196.

Analysis of Strategic Factors for Successful Integrated System Implementation: Experiences from the Co-operative University of Kenya

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ABSTRACT

An integrated resource planning (ERP) system is essential for automation of manual routine tedious organizational processes. It is meant to improve efficiency and effectiveness at work. However, implementation of such systems, if not properly organized and appropriate strategies put in place to ensure its success, may take unnecessarily longer time than anticipated, or the whole system abandoned all together. This study sought to establish the most effective strategies that ensure successful and timely integrated system implementation. Systems theory and Process theory approaches were used to anchor the study. Case study was adopted as the research design. The population of the study comprised twelve (12) departments within Co-operative University of Kenya where different system modules were rolled out for implementation. Primary data was collected using semi-structured questionnaires. Since data collected was largely categorical in nature, Chi-square was used to analyze relationship between variables. It was established that personal interest and optimism is the most influential strategy in determining success and pace in integrated system implementation. The key recommendation that the study offers as insight to policy makers, body of theory and practitioners is the need to deliberately concentrate on strategies that induce personal interest and optimism among employees so as to ensure success during implementation of a new system or change.

Keywords: Integrated System, Implementation, Strategies, Automation, Change Management

INTRODUCTION

System integration is defined in engineering as the process of bringing together the component sub-systems into one system. It is an aggregation of subsystems cooperating so that the system is able to deliver the overarching functionality (Raeisi, 2016). Enterprise Resource Planning (ERP) systems are business management software that allow an organization to use a system of integrated applications to manage the business and automate many functions. The basic goal of an ERP system is to provide one central repository for all information that is shared by all the departments to improve flow of data across the organization. Implementing an ERP system is an expensive and time-consuming venture and therefore companies need to comprehend the factors influencing the implementation of ERP systems to avoid wastage of company resources through ERP implementation failures. Implementation is a vital stage in the lifecycle of ERP system since without diligence during implementation, even the most superior strategy may fail. A strategy must first be carefully formulated and then implemented. This requires adequate

allocation of resources and sometimes changing organizational structure so as to fit the strategy. This change would definitely induce varied behavioural responses which may bring favourable or unfavourable results depending on system implementation strategies undertaken by organization management. The management should ideally act as a change agent or catalyst in order to realise favourable results. According to Indrayani (2016), successful ERP system implementation cannot be separated from management roles in addressing human factors carefully and that challenges associated with ERP system implementation include management process, organizational environmental, leadership, technical problems, and employee factors.

Farzandipur, et.al. (2016) asserted that most ERP systems fail, go through budget overruns, or do not meet expectations due to poorly defined scope for the project, change management and wrong selection of technology and software. Consequently, it is important for an organization implementing ERP system to address the factors that affect ERP implementation so as to optimize the ERP system benefits. According to Faduma (2018), the key factors that influence success of implementation of ERP comprise implementation team composition, top management support, end-user training, change management, and effective communication. The study was anchored on a number of theories which include Technology Acceptance model (TAM), Technology Organization environment (TOE) and Diffusion of innovation (DOI) Theory. In the literature review it was noted that most of the studies had been carried out on developed countries hence there was need to carry out similar research based on a developing country context. Additionally, there were limited studies conducted based on the in the Mobile Communications Sector in Kenya.

RESEARCH PROBLEM

Implementing an ERP system is an expensive and time-consuming venture and therefore organizations need to comprehend and put in place appropriate strategies in order to avoid wastage of resources leading to system failures. Implementation is a vital stage in the lifecycle of ERP system since without diligence during implementation, even the most superior strategy may fail (Indrayani (2016). Successful ERP system implementation cannot be separated from the management roles in addressing human factors carefully. The challenges associated with ERP system implementation include management process, organizational environmental, leadership, technical problems, and employee factors. Faduma (2018) poised that the key factors that influence success of implementation of ERP comprise implementation team composition, top management support, end-user training, change management, and effective communication. The Co-operative University of Kenya began ERP system implementation in the year 2014. While nonacademic modules have been implemented with a lot of expediency, academic modules are at different levels of success. There are some departments at a higher level of success compared to others. Having been the academic modules implementation champion at the Co-operative University of Kenya, I noted that the end users would attribute implementation status to different factors. Most commonly cited factors include management support, training, personal interest, system related functionalities. Farzandipur, et. al (2016) noted that human factors have the most influence on successful implementation of ERP systems followed by technological factors. This study sought to establish the most effective human factor strategies that ensure successful and expedited integrated system implementation.

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LITERATURE REVIEW

Process theory and system theory were used to anchor the study. Process theory posits that antecedents are necessary but not always sufficient conditions for outcome success. According to Koh et al. (2006), for ERP system implementation to be successful, predictive analytics projects require end-user involvement, information systems skills and management commitment. Goodman and Griffith (1991) while applying process theory noted that socialization, commitment, reward allocation, feedback and redesign and diffusion are conceptually related to the successful implementation a new system. Kim, et.al (2005) postulated that most of the critical impediments in ERP system implementation emanate from functional coordination problems related to inadequate support from functional, business process change, and change management related to resistance of users. Systems theory approach is the view of organizations as open social systems that must interact with their environments in order to survive. Theoretically, systems may be viewed either as closed open. Open organizations exchange information, energy, or resources with their environments, whereas closed systems do not. The open-systems theory was first applied by Katz and Kahn, who adapted it to explain organizational behavior. The symbiotic and mutual interaction among parts of an organization yields synergy which then ensure success in strategy implementation. Farzandipur, et. al (2016) noted that human factors have the most influence on successful implementation of ERP systems followed by technological factors. They further established that among components of human factors, ease of using a new system and ease of learning how to use it were more effective on successful implementation of the system than other human factors.

OBJECTIVES OF THE STUDY

The objective of the study was to establish the most effective human factor strategies that ensure successful and expedited integrated system implementation

HYPOTHESES OF THE STUDY

H_{01}: There is no significant association between human factor strategies and success in ERP system implementation

CONCEPTUAL FRAMEWORK

An integrated framework to respond to the knowledge gaps identified in the literature review in this study has been designed with two main components as shown in fig. 1. The study determined the direct relationship between independent and dependent variables.

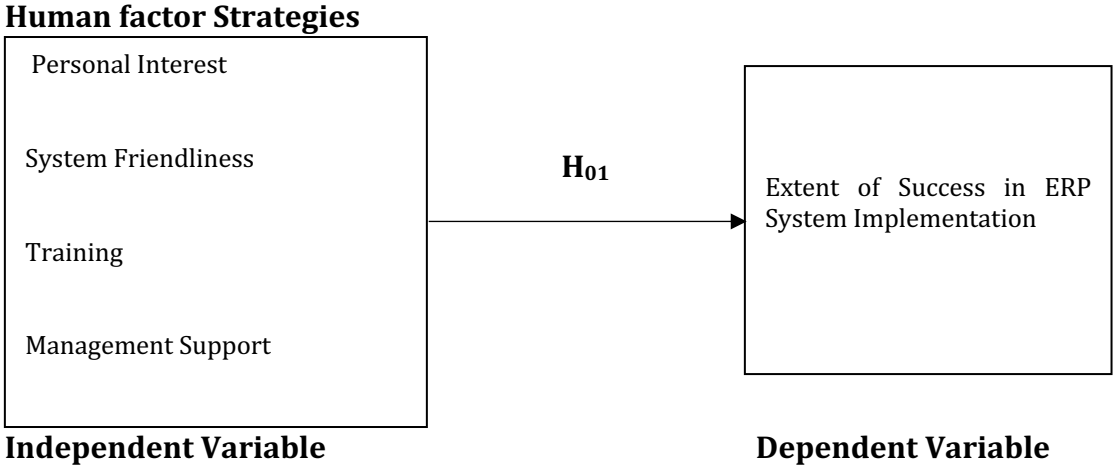


Figure 1.1: Conceptual Model

METHOD

Research Design

The study adopted case study design. Case study is preferable when dealing with one unit of analysis into details. Although the findings of a case study may not be used for inference to different populations, the results thereof can be used as benchmarks and comparisons.

Target Population

As shown in table 3.1, target population for the study comprised twelve (12) departments at the Co-operative University of Kenya where ERP system implementation had been ongoing since September 2014.

Table 3. 1: Target Population

S/No.	Department
1	Department of Finance and Accounting (DAF)
2	Department of Entrepreneurship and Economics (DEE)
3	Department of Co-operatives and Agribusiness Management (DCAM)
4	Department of Co-operatives and Environmental Management (DCEM)
5	Institute of Open Distance and eLearning (IODeL)
6	Nairobi CBD Campus
7	Admissions and Students Registry
8	Examinations
9	House Keeping
10	Finance
11	Human Resource
12	Procurement

Respondents of the Study

As shown in table 3.2, the respondents of the study comprised all the system end-users within twelve (12) departments at the Co-operative University of Kenya, where ERP system implementation had been ongoing since September 2014.

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Table 3. 2: Target Population

S/No.	Department	No. of Respondents
1	Department of Finance and Accounting (DAF)	2
2	Department of Entrepreneurship and Economics (DEE)	4
3	Department of Co-operatives and Agribusiness Management (DCAM)	2
4	Department of Co-operatives and Environmental Management (DCEM)	4
5	Institute of Open Distance and eLearning (IODeL)	4
6	Nairobi CBD Campus	4
7	Admissions and Students Registry	3
8	Examinations	2
9	House Keeping	3
10	Finance	5
11	Human Resource	4
12	Procurement	4
	Total	**41**

Data Collection Instrument

The researcher used questionnaire as an instrument of primary data collection. The questionnaire included structured questions to collect views and opinions from the respondents. Nominal scale was used as scale for independent variables and ordinal scale for dependent variable. The data collection instrument was tested using expert judgement to confirm whether the theoretical dimensions emerged as conceptualized. Reliability test for equivalence was undertaken through questionnaire pretesting by a pilot study of 5 randomly selected SMEs. The feedback obtained assisted to revise the scales, address the structure of the questions and the overall design of the instrument. As a result, some questions which were ambiguous were reconstructed and duplicated ones were deleted from the original questionnaire before administering the final one to all study respondents.

Data Analysis

Data collected was analyzed through cross tabulation and Chi-square statistic at 0.05 significant level to determine the level of association between independent and dependent variables hence test the formulated null hypothesis.

RESULTS

The primary data gathered were cleaned, coded, sorted, analyzed, interpreted, and presented in different tables.

Correlation Analysis of Study Variables

Correlation analysis was conducted using Chi-square at 95% level of confidence, in order to establish the nature of relationships between study variables.

Table 4.1: Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Strategies used in System Implementation * The current extent of success in system implementation	41	100.0%	0	0.0%	41	100.0%

The case processing summary in table 3.1 shows that all the target respondents returned the questionnaire. This implies 100% response rate.

Table 4.2 Cross Tabulation Results

		The current extent of success in system implementation			Total
		Moderate Extent	Large Extent	Very Large Extent	
Strategies used in System Implementation	System User-friendliness	5	0	0	5
	Management Support	5	2	3	10
	Training on System Functionalities	2	6	5	13
	Personal Interest	0	2	11	13
Total		12	10	19	41

Table 4.2 indicates that eleven (11) respondents out of the nineteen (19) who rated implementation success as **Very Large Extent,** were those motivated by **personal interest**. This represents a majority of 58%. This implies that very large extent of success in system implementation is mainly associated with personal interest in the system. In the second rank is **system training** at 26% and third being **Management Support** at 16%. Zero respondents linked system **user-friendliness** with very large extent of success in system implementation success. Table 4.2 also shows that among those who cited **personal interest** (13 respondents), none was at **moderate extent** of success in system implementation. Majority, that is, eleven (11) out of thirteen (13), representing 85% were at **very large extent** success in system implementation.

Test of Hypothesis

Chi-square was used to test the null hypothesis that there is no significant association between human factor strategies and success in ERP system implementation at 95% level of confidence.

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Fig. 4.1 illustrates pictorial associations between human factor strategies and extent of success in ERP system implementation.

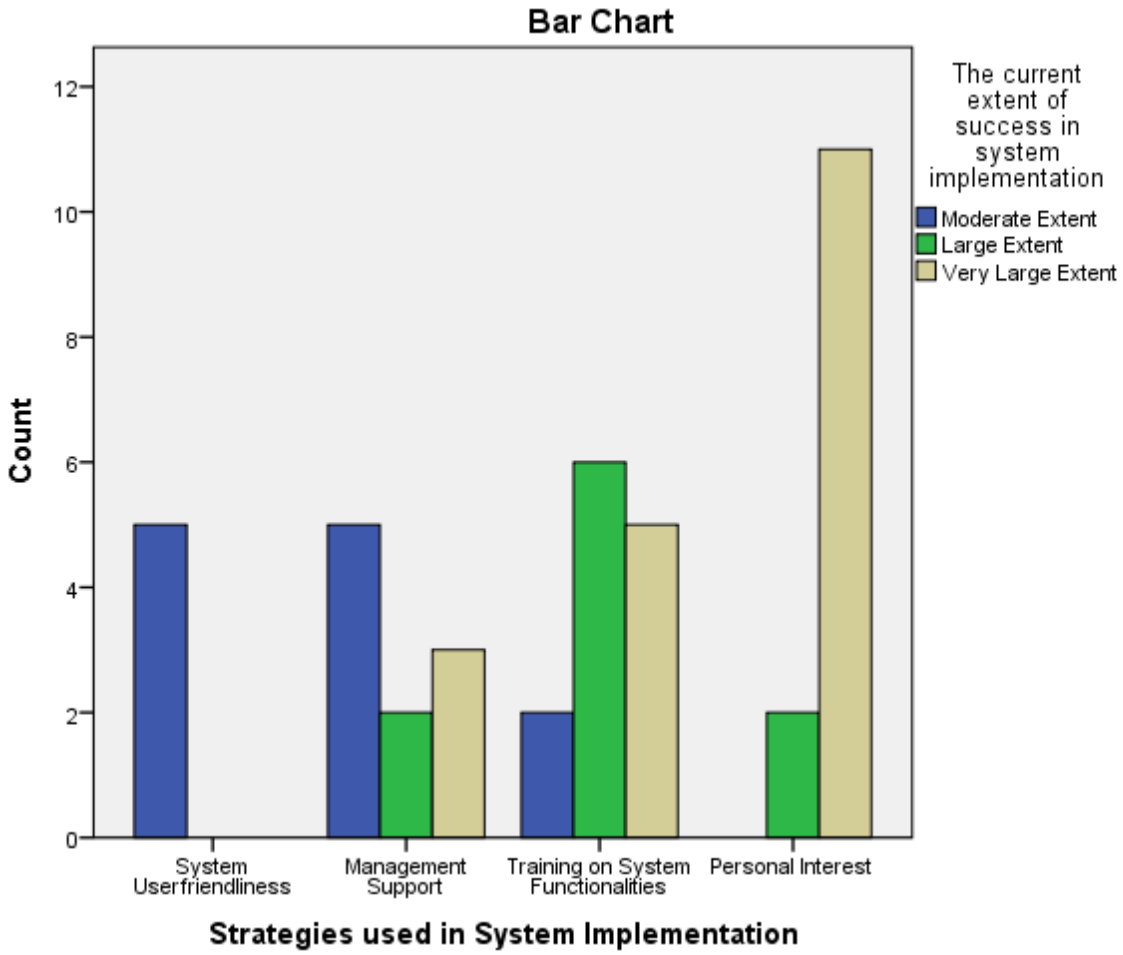


Fig. 4.1: Bar Graph illustrating Association between Independent and Dependent Variables

Fig. 4.1 illustrates that personal interest is quite highly associated with very large extent of success in system implementation. The second factor associated with very large extent of success in system implementation is Training on system functionalities and last is management in that order. System user-friendliness is only associated with moderate extent of success in system implementation.

Table 4.3: Chi-Square Test

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	26.109[a]	6	.000
Likelihood Ratio	28.859	6	.000
Linear-by-Linear Association	18.793	1	.000
N of Valid Cases	41		

10 cells (83.3%) have expected count less than 5. The minimum expected count is 1.22.

Table 4.3 indicates that calculated Chi-square value at df (6,1) is 26.109, p=0.00 < 0.05. Critical Chi-square value from the table at df (6,1), at 0.005 level of significant = 12.59. Since calculated Chi-square (26.109, p<0.05) > critical Chi-square (12.59), the researcher failed to accept the formulated null hypothesis and concluded that ***there is significant association between human factor strategies and success in ERP system implementation.***

DISCUSSION

As Farzandipur, et.al. **(2016)** asserted, most ERP systems fail, go through budget overruns, or do not meet expectations due to poorly defined scope for the project and change management. This study established that different strategic factors contribute to success of ERP system implementation at different levels. It is therefore vital for an organization implementing ERP system, to identify, address and emphasize on the most effective and strategic factors so as to optimize implementation success and expedite the process. This study has established that personal interest is the most significant and strategic factor that would expedite success in ERP system implementation. The implication of the finding, is that project leaders charged with the responsibility of overseeing ERP system implementation, must endeavor to elicit reasonable level of user interest so us to expedite the entire process. The findings of this study are consistent with those of Kim, et.al (2005), who postulated that most of the critical impediments in ERP system implementation emanate from functional coordination problems related to inadequate support from functional, business process change, and change management related to resistance of users. Consequently, if the root causes of resistance to change can be identified and neutralized among the users, their level of interest in the system would be boosted hence maximize effectiveness and expediency in implementation process. Indeed, quite a number of factors including technology related may explain expediency in system implementation. However, as Indrayani (2016), alluded, successful ERP system implementation cannot be separated from management roles in addressing human factors. This study therefore concludes that whatever implementation factors an organisation may consider, those that evoke individual interest in the system from the end users must be central as strategic focus in order to expedite ERP system implementation hence optimize success in module operations.

RECOMMENDATIONS

The study findings have theoretical, practical and policy implications for future researchers, institutions and all stakeholders. Prudent strategic focus demands that organizations seek to exploit the most pivotal resource in creating and sustaining competitive advantage. Although, so many factors including those which may not have been considered in this study, may in one way or another, contribute to success in ERP system implementation, human factors and especially personal interest by end users are paramount and remain vital. Future researchers

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may need to explore the kind of strategies that would evoke or elicit personal interest among system end users. Organizations or teams involved in ERP system implementation must endeavor to assure and reassure the end users that the system is meant for their own good so as to deal with skepticism and resistance to change which may slow down the implementation process or make it abort all together. ERP system implementation strategies and policies must squarely address human factors and especially those that are central to eliciting end user interest in the new system.

ACKNOWLEDGMENT

Completing this study was through the support of many individuals and institutions. I would like to sincerely thank all Co-operative University staff who successfully completed my questionnaire and submitted promptly. The findings would not have been credible without participation of each and every respondent that took part in one way or another. Finally, this study would not have been successful without the involvement of experts, senior researchers and professionals who contributed immensely in questionnaire construction and validation process. It may not be possible to mention every person who assisted me in one way or another but to all, I say thank you and may God bless you.

References

Babaei, M. (2013). Management information system, challenges and solutions. European Online Journal of Natural and Social Sciences.2(3)

Faduma, H.M (2018). Factors Influencing Implementation of Integrated Financial Management Information System (IFMIS) In Puntland's Public Institutions: A Case of Garowe City. IOSR Journal of Business and Management (IOSR-JBM). 20(5).

Farzandipur, M., Fatemeh Esmaeil, R. J. Azimi, E. (2016). Factors Affecting Successful Implementation of Hospital Information Systems. Journal Academy of Medical Sciences of Bosnia and Herzegovina 24(1).

Florian, B., Mangu, S., Gheorghe,F. B. and Gabriela, C.S. (2013).The Strategy Of Implementation And Integration Of The Decision Support Systems Having In View Achievement Of A Performant Management At S.C. Energetic Complex Oltenia S.A. Journal of Engineering Studies and Research. 19 (2).

Goodman, P.S. and Griffith, T. L. (1991). A Process Approach to the Implementation of New Technology. Journal of Engineering and Technology Management. 8 (3).

Indrayani, E. (2016). Implementation of Management Information System for Integrated Sub-District Administrative Service (Simpaten). The Need or Opportunity. Journal of Social Sciences Research. 9(3).

Kim, Y., Lee, Z. and Gosain, S. (2005). Impediments to successful ERP implementation process. Business Process Management Journal

Koh , L.. and Saad S. M. (2006). Managing uncertainty in ERP-controlled manufacturing environments in SMEs. International Journal of Production Economics. 101 (1).

Samaranayake, P. (2009). Business Process Integration, Automation in ERP: Integrated Approach Using Enhanced Process Models. Business Process Management Journal

Raeisi, S. (2016). Implementation Management Information System (MIS) in the Tehran Vehicle Technical Inspection Bureau. International Academic Journal of Business Management.3(10).