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INFLUENCE OF SYSTEM ROLE ON THE PERFORMANCE OF ICT FIRMS IN NAIROBI COUNTY

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Abstract

Purpose: To determine how System Role influences the performance of ICT firms in Nairobi County.
Methodology: This study utilizes the Descriptive Quantitative research design and is a cross sectional survey. Multi-linear regression model was used in testing the study hypotheses. One or more of the Chief Officers in the target population was 486 ICT firms were the respondents. The primary data collection instrument was a structured questionnaire. From the data obtained descriptive and inferential statistics were extracted using SPSS and presented in respective tables.
Results: The study found that there was a moderate relationship between system role and performance that was statistically significant.
Unique contribution to theory, practice and policy: Information systems should be focused on product innovation, inclusion of all key processes management. This means that management should target the benefits of using Information systems in the product development processes and use the IS in managing the firms' key process.
Keywords: *System role, performance, ICT*

1.0 INTRODUCTION

1.1 Background of the Study

The increasing competitiveness in almost all aspects of human endeavor, leads to trends like globalization and digitization. This motivates businesses to deploy technology to support their operations. Information technology is at the center of this revolution because businesses are recognizing the need to interconnect internally and externally. Internally, organizations are interconnecting functions; externally organizations are interconnecting with suppliers, customers and global brunch systems. To do this they are developing and deploying an array of computerized

applications. Lipaj and Davidavičienė (2013) state that the general business performance could be influenced through the deployment of IS by improving internal processes and financial performance of the company. DeLone and McLean (1992) allude to the fact that Information Systems create information as the output and that it is the communication of this resultant information that influences the recipient as an individual or as an organization.

In the early history of computing, the hardware was bulky and expensive. The running of Information Systems required highly trained human resources which were rare and expensive. In recent decades, the systems costs have greatly reduced and trained information technology human resource is in abundant supply. However, with increased competition and customer sophistication, Information Systems still constitute a significant financial outlay for organizations. In Kenya, there is an increasing investment in information systems and related services. The Kenya 2015 economic survey indicates that the ICT sector, which comprises of firms engaged in providing Information and computer technology services and equipment, is growing at a rate 12% per year and is expected to continue to grow (Kenya National Bureau of Statistics [KNBS], 2015). This is an indicator that the demand for information systems continues to raise and it should be expected that the investments in these systems will have a significant level of influence on the performance of the individual organizations that are deploying and utilizing them.

Implementation of IS in itself is not sufficient to produce positive effect in the firms' performance. The firms' IS strategy has to be aligned effectively with the rest of the strategy. In fact, the implementation could have adverse effects on performance. Stair and Reynolds (2011) indicate that higher costs and poorer customer service could partly be because of lack of transaction processing systems integration. Of concern to management therefore is the comprehensive understanding of how the implementation of IS will influence the organization in general and performance in particular. Specifying the relationship between IS and the firms' performance is crucial in this endeavor. Ali and Younes (2013) amongst other researchers indicate that there exist significant challenges in this specification. These challenges stem in part from the fact that IS factors act catalytically with others such as decision quality and user and manager characteristics to produce influence on the organizational performance (Obasan & Soyebo, 2012.)

1.2 Statement of the Problem

In a highly complex business environment, organizations have increasingly deployed Information Systems with the expectations of gaining some competitive advantage through cost reduction, quality improvement, production optimization, decision quality improvement amongst others. These expectations are demonstrated, in part, by the continuous increase of investments in IS. However, determining the expected gains poses a challenge to organizations. Previous studies have produced non-conclusive results (Abugabah, Sanzogni & Poropat, 2009), some which contradicted the expectation of improved economic performance (Olugbode, Elbeltagi, Simmons & Biss, 2008).

According to Petter, DeLone and Mclean (2008) little improvement has been seen in the science of measuring the influence of information systems success on performance in empirical studies in the past decade. They assert that "Researchers and practitioners still tend to focus on single dimensions of IS success and therefore do not get a clear picture of the impacts of their systems and methods. Progress in measuring the individual success dimensions has also been slow." (Petter, DeLone & Mclean, 2013)

In addition to the above, though the growth of output of the ICT sector in Kenya is estimated at 12% per annum there was no reference to the contribution of information systems to other sectors. This growth is mainly driven by mobile subscriptions and internet users. According to the 2015 Kenya economic survey, the overall economic growth (GDP) for 2015 was estimated at 5.4 percent which is 0.3 % lower than the previous year (KNBS, 2015). From this disparity in growth rate, it can be inferred that the demand for information systems and related services is not efficiently translating into improved performance. A deficiency of information on this subject that is relevant to Kenyan businesses is evident. There is no reference the construct 'Information Systems' as a factor in the performance of organizations or the sector.

1.3 Objective of the Study

The objective of the study will be to determine how system role quality influences the performance of ICT firms in Nairobi County.

2.0 LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1 IS-Impact Measurement Model

Gable, Sedera, and Chan (2008) advance the theory that the net benefits from an information system could be measured from "robust, economical and simple dimensions and measures". In this model the constructs from the Information systems success model are used in determining the benefits both at a point in time and future. The extent to which an individual's capabilities and effectiveness in the organization has been influenced by the IS is the Individual impact construct. While the organizational impact is measured as the extent to which improvement in an organization's results and capabilities has been promoted by the implementation of the IS.

Impact being the dependent variable in this model relates to the change in the results of an organization that can be properly associated to the IS. In this study, an investigation will be done on the change in the performance.

2.1.2Agency Theory

The agency theory identifies the project principal and the agent as the manger and the employee respectively. The objective and success criteria of the principle and those of the agent may differ in relation to an information system project. The reasons of IS project failure could be interpreted from the agency theory as behavior-based contracting, insufficient monitoring, goal conflict, shirking, privately held information and low level of task programaticability (Mahaney & Lederer, 2003). Unsupportive principle-agent relationship could predispose an information system project to failure. It is not fusible that all objectives will be agreed upon between the mangers and the employees; the agency theory informs the emphasis on requirements identification where all stakeholder needs are addressed and tradeoffs defined. The result should be a non-tension synergetic principle-agent relationship.

Tension between expectations of different stakeholder groups could result in IS design and implementation that gives outcomes that do not meet the overall organizational objectives. Variability and articulations of stakeholder expectations requires some attention.

2.2 Empirical Studies

Kornkaew (2012) observes that key challenges to the implementation of information systems include the following: individual skills and knowledge required in order to be able to use the information system, system evaluation which is the process to ensure the correction, availability and readiness of the system, training and education process management, inadequate staffing and people's resistance to change.

From Kornkaew's (2012) observation it can be inferred that User acceptance of information technology has a significant bearing on the success of an information system. The technology acceptance model (TAM) gives relationships between system design features, perceived usefulness, ease of use, attitude towards using and usage behavior (Venkatesh & Bala, 2008). Found the satisfaction was "the most crucial factor contributing to user intention to use" technology (Park & Kim, 2013). The intended information system user's attitudes towards information technology and systems will influence their acceptance of the systems being implemented. For example, if the information systems are viewed as a threat job stability of the individuals in an organization, and are not accepted, use could be forced but usefulness will not follow and performance will be impaired.

3.0 RESEARH METHODOLOGY

This study utilizes the Descriptive Quantitative research design and is a cross sectional survey. Multi-linear regression model was used in testing the study hypotheses. One or more of the Chief Officers in the target population was 486 ICT firms were the respondents. The primary data collection instrument was a structured questionnaire. From the data obtained descriptive and inferential statistics were extracted using SPSS and presented in respective tables.

4.0 RESULTS

4.1 Respondent and firm general information

The questionnaires requested the disclosure of the gender, age group and years of enjoyment of the respondents and the number of employees and turnover for the previous three years (2013, 2014 and 2015) of the firm. These factors may influence the decisions and expectations regarding implementation of information systems. Response was received from 75 firms. Where a firm responded to more than one questionnaire, the response from one of the chief officers was selected at random. These results are presented in Table 1

Table 1: General Firms and Respondent Information

Number of Staff		
Number of Staff	**Frequency**	**Percent**
Less than 5	13	17.3
5 - 10	28	37.3
10 - 15	15	20.0
15 - 20	7	9.3
Over 20	10	13.3
Missing Data	2	2.7

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Total	75	100.0
2015 Turn Over in million shillings		
Turn over	Frequency	Percent
Less than 100	28	37.3
100 - 300	10	13.3
300 - 500	6	8.0
500 - 700	4	5.3
Greater than 700	10	13.3
Total	75	100.0
Gender of Respondents		
Gender	Frequency	Percent
Male	54	72.0
Female	21	28.0
Total	**75**	**100.0**

Over 74% of the firms in the study had less than 15 employees while 13.3% had over 20 employees. 13.3 % of the firms had a turnover of over 700 million shillings in 2015. The firms' chief officers were predominantly male at 72%. This means that ICT firms in Nairobi County are predominantly small enterprises with a turnover of less than 300 Million Shillings a year. The firms are run by lean staff numbers some having only one member of staff at the registered office at the time the questionnaires were presented.

4.2 Descriptive Analysis

The statements relating to the Role of information systems in the firm, the study sought to establish the measure of the contribution of information systems to the firms' strategy. This is by responses to the contribution to product innovation and the proportion of investment. The missing data is not included in the analysis. The results are present in Table 2.

Table 2: Descriptive Analyses – System Role

System Role									
Questionnaire Statement	**N**		**Extent to which the respondent agree**					**Mean**	**Std. Deviation**
			1	2	3	4	5		
Proportion of IS investment to total annual budget	72	f	3	10	26	23	10	3.38	1.027
		%	4	13.3	34.7	30.7	13.3		
Contribution of IS in product innovation	71	f	1	8	22	19	21	3.72	1.058
		%	1.3	10.7	29.3	25.3	28		
Proportion of key processes managed through IS	72	f	1	7	24	15	25	3.78	1.078
		%	1.3	9.3	32	20	33.3		
Aggregate								3.62	0.84774

The measurements in this section represent how information systems are passive in relation to the total annual budget, product innovation and key process management. This form the role of the IS in the firm. 33.3 % of the firms scored 5 on the proportion of key processes managed through IS and 28 % scored 5 on the contribution of IS to product innovation. This is an indication that management has a strong view to utilize information systems on key processes and innovation of the firms' products. The mean score of 3.6232 and standard deviation of 0.84774 indicates that the firms consider information systems as key to their strategies. There was low variation in these responses

4.3 Regression Results

Table 3: First regression Model SPSS output

Coefficients[a]					
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
(Constant)	1.505	.435		3.463	.001
System Role	.414	.082	.562	5.067	.000
a. Dependent Variable: Organizational Performance					

4.4Test of Hypothesis

Ho1 There is no relationship between System Role Systems and the performance of ICT firms in Nairobi County. $p = 0.000$, $\beta_3 = 0.562$

The regression model in Table 2 shows that there is a moderate relationship between Systems Role and the performance that is statistically significant. The alternative hypothesis is accepted and concludes that there is a relationship between Systems role and the performance of ICT firms in Nairobi County.

When the role of the Information system is understood and shared, its influence on performance is strengthened (Al-Shawabkah, 2013). Van Ark and Piatkowski (2004) capture the fact that innovation is one of the factors that create a growth environment. The findings in this study support this view IS contribution to innovation being one of the aspects of System role.

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The study sought to gain information on the influence of System role on the performance of ICT firms in Nairobi County. The study found from the test of Hypotheses three that there was a moderate relationship that was statistically significant. As discussed in the literature review, this finding is in agreement with the finding by Chen, Mocker, Preston and Teubner (2010).

5.2 Conclusions

The study concluded that in respect to performance in the three dimensions of return on investment, Market Share and Process clarity, the role of the information system directly and positively

influences the performance of the ICT firms in Nairobi County. This is in particular the commitment of sufficient resource to implementation and the linking of the information systems to product innovation.

5.3 Recommendations

Information systems should be focused on product innovation, inclusion of all key processes management. This means that management should target the benefits of using Information systems in the product development processes and use the IS in managing the firms' key process. This will have a direct relationship with performance. This will require a change in how IS projects are selected, designed and managed.

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