

Role of E- Procurement in Organizational Performance of Telecommunication Firms in Kenya: A Case of Safaricom Public Limited Company

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Abstract

The purpose of this study was to establish the role of e-procurement on the performance of Safaricom PLC. The target population Safaricom PLC and consisted of 79 respondents comprising finance officers, procurement officers, logistics officers, quality managers, ICT officers, and operations officers. A census of 79 respondents was carried out. Questionnaires were used to obtain data from the field. Quantitative data were analyzed using descriptive statistics which include mean, standard deviations, frequencies, and percentages and presented in terms of tables, graphs, and charts. Regression analysis was used to test the extent to which the variables under study relate to each other. The findings established that data transmission and system management had a positive and significant influence on the performance of Safaricom PLC. It led to enhanced E-ordering, E-ward and E-ordering, better channel relationship, decision making, and information sharing. It also showed increased better channel relationship, decision making, and information sharing. The study recommends that Safaricom PLC should conduct joint improvement activities, share information intensively but selectively, develop supplier technical capabilities and accept supplier complaints as an opportunity to improve on their procurement processes. The study also recommends that future research will need to be carried in other telecommunication industries in order to show if the link between e-procurement components and organizational performance can be generalized.

Keywords; E-Procurement, Performance, Safaricom, Data Transmission, System Management

1.1 Introduction

Procurement is critical in the provision of services and it anchors policies touching on the environment and the society as a whole. Consequently, the procurement processes are closely monitored by the parties involved for the purpose of ensuring that there is transparency in the process and the protection of the welfare of the state (Odhiambo and Theuri, 2015). As such, the procurement department plays a pivotal role in any organization. On the other hand, Thai (2014) argues that procurement is exposed to challenges such as in the legal framework, the structure of the market and the political environment that procurers face, thus achieving efficacy in procurement is an ambitious task. Global acceptance of the internet as a source of information and as a way of doing business has been a conduit of significant changes at the operational level of an organization. There is enough evidence to prove that IT tools have transformed the operations of both corporates and the government (Nelson et al, 2001). It is further opined that most of the firms capitalize on e-procurement to reduce procurement costs. Despite this, e-procurement adoption is limited since these enterprises and the government agencies are still not receptive on adopting e-procurement (Zheng et al., 2004).

Going by a report by Epiq Technologies (2010), adoption of e-procurement facilitates real-time communication between the firm and its suppliers, it also enables monitoring and control of the suppliers as well as cost control. Further, E-Procurement aids in making decisions by providing information about all procurement transactions in a timely manner. In the contemporary world, e-procurement has revolutionized how business is conducted. As such, it has attracted attention to both public and private entities in an equal measure over the last decade but reservedly. It is crystal clear that e-procurement has overriding advantages as compared to traditional tools of procurement. Examples of the automated tools of procurement include electronic Data Interchange which facilitates paperless communication between procuring entities and the suppliers, Enterprise Resource Planning that came about in 1970 was a precursor of both the world wide web and the internet.

The proliferation of e-procurement in the private sector and its subsequent success has made the public sector to adopt e-procurement to benefit from the same. However, its application in the public sector has been nothing short of a disappointment. In fact, the implementation of e-procurement in Kenya Utalii college has resulted in a decline in the overall performance. The application of e-procurement in the public sector is against the background that its adoption has been a success, especially among developed nations. The resulting outcome is a decline in service delivery, increase in the costs of procurement and non-adherence to procurement policies. In the case of government ministries in Kenya, e-procurement has been key in enhancing their performance (Ndunge, 2016). It was further stipulated that e-procurement was implemented with the goal of managing the human resource pool. It is also adopted with the goal of aiding the top management in decision making and enhance the coherence within the organization thus enhancing firm performance.

1.2 Rationale for the study

The performance of firms is dependent on both the efficiency and effectiveness of the procurement function. In the event that the procurement department acquires the need resources while adhering to quality standards, the price together with quantity, there is a likelihood that other departments would benefit immensely (Snider & Rendon, 2012). The telecommunications industry in Kenya has received much attention, considering the increase of players in the field. Adoption of procurement procedures cut across the critical process of organizations operations. Therefore, successful adoption and implementation are key in the sustenance of organizations.

Quesada, Gonzalez, Mueller, and Mueller (2010) are of the opinion that dismal performance by the procurement function leads to inefficiencies in the whole organization. It is evident that e-procurement makes use of IT systems to facilitate the acquisition of products, there are limited cost implications hence it is expected to contribute positively to firm performance. What is evident is a difference in the manner in which e-procurement is adopted across countries (Batenburg,2007). For countries that are receptive to change are credited with being the early adopters of e-procurement. Such countries are like the UK and Germany. On the other end, countries that were less receptive to change were left behind when it comes to the implementation of e-procurement. Further, the implementation of e-procurement in South Africa was not forthcoming mainly due to limited government capacity to implement the technology.

In the case of Kenya, not much focus has been on e-procurement. Studies that have delved on the application of e-procurement have been done in the retail industry (Orori, 2011) and the construction industry (Njoroge, 2010). Studies done in the telecommunication include that of Mburu (2012) that focused on the role played by e-procurement in enhancing the efficiency in the industry. None of the studies in the telecommunication industry has dealt with the role of e-procurement in enhancing firm performance. It is against this background that the study sought to fill this gap in the literature.

2.1 Conceptual and Theoretical Foundation

This study was based on systems theory by Morris (1996). System theory advocates that all organizational components be interrelated and integrated. According to Morris (1996) systems, theory classifies systems as open or closed depending on the presence or absence respectively of the interaction of the system with the surrounding environment. Morris (1996) describes an open system as one that interacts with its environment, the larger system of which it is a part. Interaction represents the exchange of energy or information. The model used to describe an open system theory as input-process-output, with a feedback loop from the environment into the system information received from the output and then feedback to the input.

Systems theory enables us to describe an organizations' internal and external behaviour. Internally, it can be seen how and why people inside the organizations perform their individual and group tasks. Externally, an

organization's transactions with other organizations and institutions can be assessed. All organizations acquire resources from a larger environment of which they are part of, and in turn, provide the goods and services demanded by the larger environment. This theory is relevant to the study because the business environment in which Safaricom operate lies outside itself. It is their external environment, which is always changing. Therefore, for Safaricom to enhance its performance it has to improve its system management towards better performance. The theory explains the system management variable. The following conceptual framework depicts the relationship between the independent variable and the dependent variable; it will be based on four independent variables and one dependent variable.

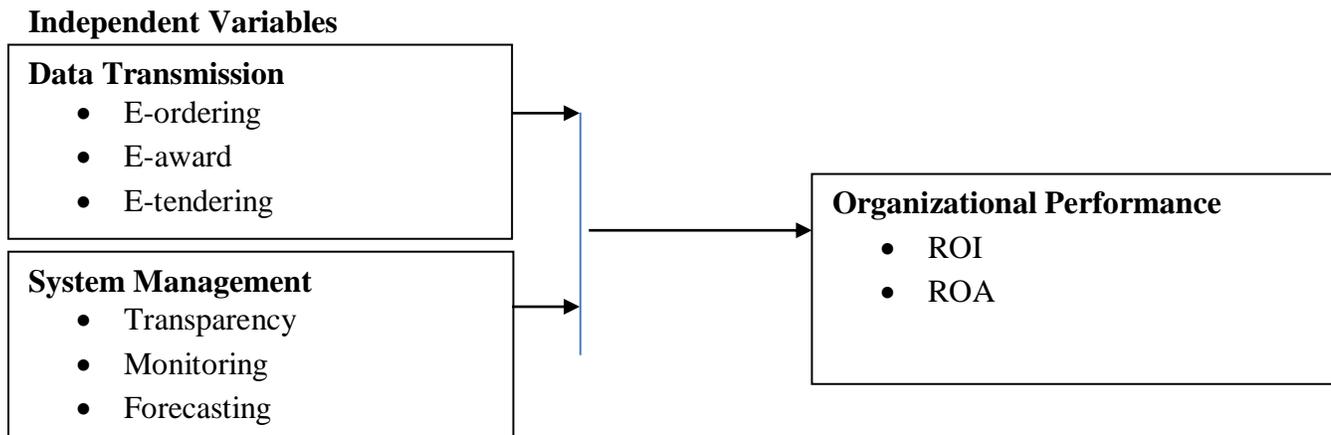


Figure 1: Conceptual Framework

Figure 2.1 shows the relationship between independent variables and dependent variable. The independent variables are data transmission and system management which will influence the dependent variable which is the organizational performance.

Data Transmission

Rogers (2010) discovered the main elements influencing the spread of a new technology, which includes: the innovation itself, communication channels, time, and a social system. These elements have a direct impact on e-tendering adoption success among both buyers and bidders since it requires the following activities to be conducted: electronic advertisement of the tender to the public, electronic transmission of bid documents to tenderers for filling in and electronic submissions of bid documents by tenderers.

E-Awarding is an e-procurement activity which entails secure tender opening, tender evaluation and tender award to the best offer (McConnell, 2009; Moon,2015).This is activities are facilitated through e-awarding module. E-awarding module is integrated with the e-notification module which allows the generation and publication of contract award notices; thus enhancing efficiency and effectiveness in the tender evaluation and award process. According to Moon (2015), e-award allows downloading of electronically submitted tenders in a form suitable for evaluation purposes without having to manually re-enter data thus saves time; ensures consistent tendering practice.

E-ordering is the use of the Internet to facilitate operational purchasing process, including requisitioning, order processing, order approval, the transmission and acceptance of this by suppliers (Croom & Brandon, 2015). The main advantage of using e-ordering is that if the supplier is able to receive the purchase order information electronically, they may be able to upload it directly into their order management system. This has the benefit of both avoiding re-keying data by sales operations staff, as well as minimizing any chance for errors in the

order. Thus, by keeping the ordering information electronic from start to finish; the process is quicker, reduces errors and provides a clear governance and audit trail (Afande, 2015).

Croom (2010) believes that an automation of procurement processes is one of the vital factors for increasing process efficiency. The author concludes that information sharing is mainly influenced by e-sourcing; partner relationships are mainly influenced by e-negotiation; supply chain integration is mainly influenced by e-evaluation. This implies that e-procurement dimensions complement each other in terms of the benefits for supply chain management. Lee and Whang (2012) view information sharing among partners in the supply chain as a fundamental agent in achieving higher levels of coordination.

System Management

Procurement is central to the organization's service delivery system and promotes aims which are, arguably, secondary to the primary aim of procurement such as using procurement to promote social, industrial or environmental policies (Cane, 2011). According to Hahn (2012), the open systems perspective views the complex organization as a set of interdependent parts that, together, constitute a whole which, in turn, is interdependent with the larger environment. The interactive nature of the elements within the organization and between the organization and the environment results in at least two open system characteristics that are central to the contingency approach.

Use of e-procurement help in the coordination of business processes, both within the organization and between a purchaser and existing suppliers. Examples include electronic purchase-order systems, online catalogs and online linkages with suppliers to exchange information regarding fulfillment activities (Johnson & Leenders, 2014). Flynn (2013) observes that managers are attracted to the benefits of improved productivity, faster response times and an overall perception of low risk in implementation. Technological developments in information systems and information technologies have the potential to facilitate coordination in transporting firms, and this, in turn, allows the virtual integration of the entire procurement process.

Kohet al (2014) have revealed the importance of e-procurement improve employees productivity, increase real time response, influence achievement of lean procurement, enhance procurement service delivery and improve procurement efficiency attaining overall organizational performance. Llorens et al (2013) show that effective procurement ethics offers high level transparency, accountability and value for money. The principle aim of procurement should be to obtain goods and services of the right quality in the right quantity from the right source, delivered to the right place and at the least cost and price.

2.2 Empirical Review

Data Transmission

Chepkwony and Chepkwony (2017) did a study on E-Ordering and E-Informing on Supply Chain Performance in Kenyan State Corporations in Nairobi County. The explanatory research design was used in the undertaking of this research. Using 262 procurement officers from 112 Kenyan State Corporations, multiple regression model findings showed that e-ordering and e-informing has a positive and significant effect on supply chain performance. The study concludes that e-ordering and e-informing which are elements of e-procurement dimensions increases supply chain performance. There is, therefore, need for firms to make use of e-ordering and e-informing in the procurement process.

Chegugu and Yusuf (2017) study examined the effect of electronic procurement practices on organizational performance in public hospitals in the county government of Uasin Gishu, Kenya. The study employed a descriptive survey of 5 hospitals. The sample size was 367 respondents. Questionnaires were the main types of

data collection tools. The study found that the adoption of e-invoice is able to indicate charges from purchasers to suppliers. The study recommends that all hospitals should automate the practice of invoicing so as to promote transparency and record management since it will be easier to track records or identify payments to be made to suppliers.

Eunice (2015) study focused on the role of the tendering process on the performance of public institutions: A Case Study of Nakuru County Government. The study targeted 43 procurement officers from 10 ministries in Nakuru County Headquarters. Census technique was applied. Questionnaires were used to collect data. Data analysis was done using descriptive and inferential statistics. The study revealed that transparency reduced corruption during the tendering process hence resulting in enhanced performance in public institutions.

System Management

Nakano (2012) study examined collaborative forecasting and planning in supply chains: The impact on performance in Japanese manufacturers. A survey of Japanese manufacturers was conducted and the analytical model is proposed to examine using structural equation modeling. The study found that there are positive relationships between internal and external collaborative forecasting and planning. Upstream and downstream collaborative forecasting and planning are also positively related. Internal collaborative forecasting and planning have a positive effect on relative logistics and production performance. External collaborative forecasting and planning do not have a significant effect on relative logistics and production performance.

Ogwang and Waweru (2017) study looked at the influence of procurement planning on performance of Kisumu Water and Sewerage Company Limited, Kenya. The study population comprised of the 128 procurement officers, middle level managers, supervisors and departmental heads working with KIWASCO. Descriptive and inferential statistics were used. The study found that all facets of procurement planning, that is, transparency in procurement and procurement requirements were positively correlated to organizational performance. However, the study found that transparency in procurement was the only one that had a significant influence on the performance of KIWASCO. It was deduced that transparency in procurement was very important towards advancing the performance of the firm.

Nderitu and Ngugi(2014) study examined the effects of green procurement practices on an organization performance in manufacturing industry: A case study of East African Breweries Limited. The study adopted a Descriptive Research Design. The target population was 122 employees of the EABL. The researcher utilized both primary and secondary data. Data were analysed using both descriptive and inferential statistics. The study found that EABL had already laid down ICT infrastructure and with a system that allows Supplier participation had increased contribution of green procurement to 29% of organizational performance.

Research Gaps

The literature reveals that data transmission and system management have a great influence on organizational performance. However, much of the empirical review focused on governmental institutions (Chepkwony & Chepkwony, 2017; Chegugu & Yusuf, 2017; Eunice, 2015 and Ogwang & Waweru, 2017). On the other hand, studies (Ogbo & Ukpere, 2014; Nderitu & Ngugi, 2014; Nakoro, 2012; Azeem, 2015) outline a significant relationship between e-procurement and organizational performance. However, these studies most of these studies were qualitative in nature and used a case study which generally utilizes small sample sizes and, thus, findings are typically not generalizable to the population at large. They also provide insight but not definitive conclusions. Therefore, this study will be conclusive in nature as it will be guided by descriptive research design and quantitative data to examine the role of electronic procurement on the performance of Safaricom public limited company.

3.1 Methodology

The descriptive survey research design was used in this study. The study comprised 79 respondents who were drawn from 6 departments namely: finance department, procurement department, logistics department, quality departments, ICT department, and operations department. Mugenda and Mugenda, (2003), observe that in a situation where the study population there is no need to sample otherwise the total population should be studied. Therefore, the census of 79 respondents was carried out. Questionnaires were used to obtain data from the field. Cronbach's alpha test was used to measure the internal consistency of the research instrument by obtaining a correlation coefficient. Quantitative data were analyzed using descriptive statistics which include mean, standard deviations, frequencies, and percentages and presented in terms of tables, graphs, and charts. This was made possible by using Statistical Package for Social Sciences (SPSS) version 20.0. In order to test the relationship between variables and the extent to which they influence each other a multiple regression was carried out.

The regression equation was: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \epsilon$ Whereby Y = Organizational Performance, X_1 = Data Transmission, X_2 = System Management, β_1 , β_2 are coefficients of determination, ϵ is the error term.

4.1 Findings and Discussion

This section presents the response rate background information of the respondents, descriptive statistics and regression analysis. It also presents the data analysis, presentation and its interpretation based on the descriptive and inferential statistics.

Data Transmission

The first research objective sought to determine the role of data transmission on the performance of Safaricom PLC. The findings are presented in Table 1

Table 1: Data Transmission

Statement	M	Sd.Dev
Safaricom electronically purchase product and services	3.89	0.911
Safaricom electronically order for a receipt for payment of goods and services supplied	3.95	1.105
Safaricom electronically processes suppliers invoice.	3.22	1.115
Safaricom electronically gather information for suppliers experiences	3.7	1.005
Safaricom electronically distribute our information to the relevant suppliers	3.94	0.974
Aggregate	3.74	1.071

The respondents agreed that data transmission influence the performance of Safaricom PLC as shown by the aggregate mean of 3.74 with a significant variance of 1.071 (See Table 1). This finding is supported by Chepkwony and Chepkwony (2017) whose study showed that re-ordering and re-informing has a positive and significant effect on supply chain performance. The study concludes that re-ordering and e-informing which are elements of e-procurement dimensions increases supply chain performance. There is, therefore, need for firms to make use of e-ordering and e-informing in the procurement process.

The respondents agreed on the statements that Safaricom electronically order for receipt for payment of goods and services supplied, Safaricom electronically distribute our information to the relevant suppliers, Safaricom electronically purchase product and services and Safaricom electronically gather information for suppliers experiences as shown by mean of 3.95, 3.94, 3.89 and 3.70 respectively and standard deviation of 1.105, 0.974,

0.911 and 1.150 respectively. This is in agreement with Chegugu and Yusuf (2017) study which found that the adoption of e-invoice is able to indicate charges from purchasers to suppliers.

The respondents were neutral on the statement that Safaricom electronically processes suppliers invoice as shown by mean of 3.22 and a standard deviation of 1.215. This is contrary to the findings of Eunice (2015) study which revealed that transparency reduced corruption during the tendering process hence resulting in enhanced performance in public institutions.

System Management

The third research objective sought to examine the role of System Management on the performance of Safaricom PLC. The findings are presented in Table 2.

Table 2: System Management

	M	Sd.Dev
Safaricom ensures that procurement information is shared amongst all interested stakeholders	4.08	1.271
Monitoring of the procurement procedure is effected by external independent entities	4.03	1.052
Safaricom ensures that forensic audits are conducted on the entire procurement procedure.	4.05	1.413
System management allows for the sharing of resources which leads to better organizational performance	4.47	0.644
System management allows for collaborative process design which leads to better organizational performance	4.39	0.985
Aggregate	4.2	1.073

The respondents strongly agreed that system management influence the performance of Safaricom PLC as shown by the aggregate mean of 4.20 with a significant variance of 1.073 (See Table 4.6). This is in line with the findings of Nakano (2012) study which found that there are positive relationships between internal and external collaborative forecasting and planning.

The respondents strongly agreed on the statements that System management allows for sharing of resources which leads to better organizational performance (M=4.47, SD=0.644) and that system management allows for collaborative process design which leads to better organizational performance (M=4.39, SD=0.985). This concurs with Ogwang and Waweru (2017) study which found that all facets of procurement planning, that is, transparency in procurement and procurement requirements were positively correlated to organizational performance. The respondents agreed on the statements that Safaricom ensures that procurement information is shared amongst all interested stakeholders (M=4.08, SD=1.271), Safaricom ensures that forensic audits are conducted on the entire procurement procedure (M=4.05, SD=1.413) and that Monitoring of the procurement procedure is effected by external independent entities (M=4.03, SD=1.052). These findings were also supported by Ogwang and Waweru (2017) whose study found that transparency in procurement was the only one that had a significant influence on the performance of KIWASCO. It was deduced that transparency in procurement was very important towards advancing the performance of the firm.

Organizational Performance

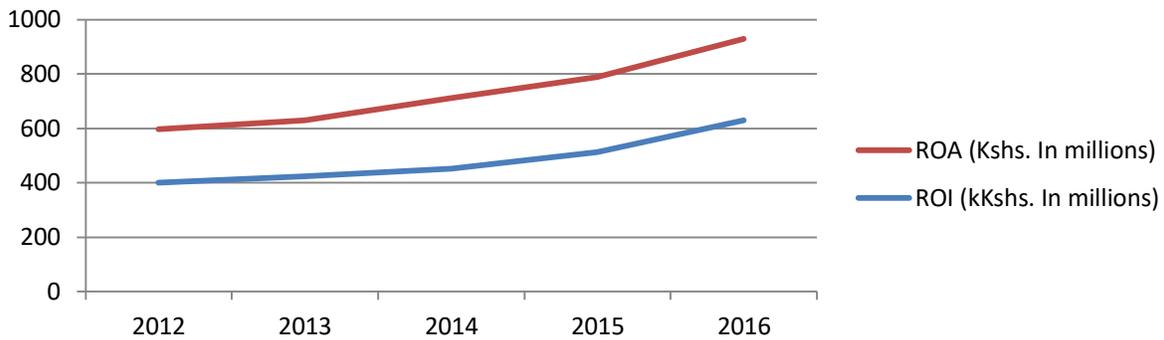


Figure 1: Organizational Performance

The results of the study show that Return on Investment (ROI) increased from 401 million Kenya shillings in the year 2013 to 329 million Kenya shillings in the year 2016 (See Table 4.8). Return on Assets increased from 194 million Kenya shillings in the year 2012 to 300 million Kenya shillings 2016. This finding is supported by Green (2011) whose study identified that return on investment, sales, and market growth, and profit is important factors that be measured by organization performance. Green (2011) further argue that there are many factors in this study that be measured by performance such as market shares, financial performance, efficiency and effectiveness of an organization performance, and human resource management.

Regression Analysis

Regression analysis was used to model, examine, and explore the relationships between the dependent variable (performance of Safaricom PLC) against the four independent variables (data transmission, buyer/supplier collaboration, system management, and billing management) used for the study. The four independent variables that were studied, explain 72.9% of the performance of Safaricom PLC as represented by the adjusted R square. This, therefore, means that other factors not studied in this research contribute 27.1% of the performance of Safaricom PLC. Analysis of Variance (ANOVA) was used to determine the linear relationship among the variables under investigation. Using this method, the sum of squares, degrees of freedom (df), mean square, the value of F(calculated) and its significance level was obtained. The results are shown in The significance value is 0.001 which is less than 0.05 thus the model is statistically significant in predicting how the independent variables studied influenced the performance of Safaricom PLC. The F calculated at 5% level of significance was 6.54. Since F calculated is greater than the F critical (p value = 2.562), this shows that the overall model was significant. From the above regression model, holding data transmission and system management constant, performance of Safaricom PLC would be 0.542.

Table 3 Regression Results

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Constant	0.542	0.645		3.231	0.001
Data Transmission	0.701	0.682	0.135	4.421	0.011
System Management	0.792	0.534	0.001	6.687	0.002
summary statistics					
R	0.854				
R Square	0.729				
Adjusted R Square	0.718				
F	6.54				
Sig.	0.001				

As shown in Table 3 data transmission, buyer/supplier collaboration, system management, and billing management had a positive and significant effect on the performance of Safaricom PLC as indicated by t-values. The relationships ($p < 0.05$) are all significant with data transmission ($t = 4.421$, $p < 0.05$), buyer/supplier collaboration ($t = 3.715$, $p < 0.05$), system management ($t = 6.687$, $p < 0.05$) and billing management ($t = 7.012$, $p < 0.05$). Buyer/supplier collaboration was found to have a greater (83.5%) on the performance of Safaricom PLC followed by system management (79.2%), data transmission (70.1%) and billing management (69.4%). A study by Osir (2016) supported this finding by showing that faced with persistent public complaints about dismal procurement performance; an increasing number of state corporations are beginning to adopt e-procurement solution in order to realize its promises that have already been achieved by many private sector firms, especially in the developed world. In addition, Ndunge's study (2016) revealed the e-procurement had a significant impact on the performance of government ministries.

5.1 Conclusions and Recommendations

The purpose of this study was to investigate the influence of e-procurement on the organizational performance of Safaricom PLC. Based on previous studies the components of e-procurement were expected to have a positive relationship with the performance of Safaricom PLC. The output from the findings indicates that there is a significant positive relationship between the components of e-procurement namely data transmission, buyer/supplier collaboration, system management and billing management with the organizational performance. Based on the findings of this study, it can be concluded as below:

The study concluded that Safaricom electronically purchased products and services and ordered receipts for payment electronically. Supplier invoices and relevant information to suppliers were distributed electronically which in turn led to reduced ordering and follow up time. From the findings, it can be concluded that effective data transmission added a competitive advantage to the organization.

From the study, it can be concluded that system management is an important component of electronic procurement in Safaricom It has ensured that procurement information is shared, monitored and forensic audits regularly conducted on the entire procurement procedure. It can be concluded that effective system management has led to better organizational performance in the company.

On Data transmission, this study recommends that Safaricom should conduct joint improvement activities, share information intensively but selectively, develop supplier technical capabilities and accept supplier complaints as an opportunity to improve on their procurement processes. On system management, this study recommends that Safaricom should have processes, data, tools which are all needed to manage a system efficiently and effectively. Processes which deal with how to perform the task and technically experienced staff to support the system and how they are set up to do so.

This study examined the role of e-procurement on the performance of Safaricom PLC. It is recommended that similar studies should be carried out in other telecommunication companies in Kenya and another sector as this would help in validating the findings and conclusions of this study. Further research should also be carried out to investigate the effect of other factors that have not been conceptualized in this study particularly considering the empirical implication of the coefficient of determination reported from the output of model summary.

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