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INFLUENCE OF E-PROCUREMENT ON PERFORMANCE OF FOOD AND BEVERAGE FIRMS IN NAIROBI COUNTY, KENYA

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Abstract

Purpose: The main purpose of this study was to examine the influence of e-procurement on performance of food and beverage firms in Nairobi County.

Methodology: The study employed a cross sectional descriptive census research design. The study conducted a census since the number of the firms is less than 200, which is a rule of the thumb. Primary data was collected through a questionnaire which was piloted for reliability and validity. The unit of observation was the heads of procurement due to their knowledge on the subject of the study and the unit of analysis was food and beverages firms. The study used convenience sampling to sample the unit of observation. Descriptive statistics including frequencies, percentages, means and standard deviations was used to capture the characteristics of the variables and inferential statistics (correlation and regression analysis) were used to analyze the relationships between the dependent and the independent variables.

Results: First, in regard to electronic payments, the regression coefficients of the study show that it has a significant influence of 0.166 on performance of food and beverage firms. Second in regard to electronic contracting, the regression coefficients of the study show that it has a significant influence of 0.138 on performance of food and beverage firms. With regard to electronic mailing, the regression coefficients of the study show that it has a significant influence of 0.119 on performance of food and beverage firms. Lastly, in regard to the fourth objective, the regression coefficients of the study show that it has a significant influence of 0.09 on performance of food and beverage firms.

Conclusion and Policy Recommendation: The findings of the study concluded that electronic payments, electronic contracting, electronic mailing and electronic ordering have a positive relationship with performance of food and beverage firms. The study recommends that firms should embrace e-procurement so as to improve performance and further researches should be carried out in other institutions to find out if the same results can be obtained.

Keywords: *Electronic Payments, Electronic Contracting, Electronic Mailing, Electronic Ordering*

1.0 INTRODUCTION

1.1 Background of the Study

Procurement is the process of gaining by purchasing, franchise, tenancy, rental, license, lease, hire, or by other contractual means of any type of works, service or goods, assets, including livestock or any combination and includes planning, advisory and processing in the supply chain system (Public Procurement and Asset Disposal, 2010). E-procurement on the other hand, uses information technology in managing the procurement process in the organization with an aim of improving the entire procurement process (Croom& Brandon, 2014).

According to Mentzer (2010), a number of firms are embracing e-procurement management concept in an attempt to improve their performance. Martin (2015) notes that organizational performance encompasses three specific areas of firm outcomes, these are, Product market performance (sales, market share); Shareholder return (total shareholder return, economic value added) and financial performance (profits, return on assets, return on investment). Thus organizational performance comprises the actual output or results of an organization as measured against its intended outputs (Lysons, 2013).

1.1.1 Global Perspective of the Study

Over the years the world has seen a massive change in the management of businesses; from organizations relying more on specialized in-house service functions, conventional multipurpose service functions to outsourced services (Knudsen, 2012). Information technology (IT) has helped many businesses in improving their operational efficiencies by providing internet based solutions for their supply chain networks and electronic solutions (Kar, 2009). From the late 1990s a raft of new e-commerce technologies emerged which revolutionized working practices, threatening existing business models (Dooley, 2014). As a result of this development on the use of e-commerce in business-to-business market, there has been significant adoption of new supply chain related technology and applications by organizations globally (Croom, 2010).

1.1.2 Regional Perspective of the Study

Globalization has resulted in expansion of market horizon to a number of firms in Africa (Croom, 2010). It has further opened up African markets to global firms which have in turn mounted extreme competitive pressure on African products (Pires& Stanton, 2005). Consequently, a number of firms have embraced e-procurement in an attempt to take advantage of the opportunities in the global market and fight stiff competitions emanating as a result of globalization (World Bank, 2013).

1.1.3 Local Perspective of the Study

In Kenya, e-procurement has attracted a lot of interest in the recent past. The government has set up ICT board to spearhead the ICT revolution in the country which is a positive signal for e-procurement (Muchelule, 2017). Since then there has been a lot of pressure and reforms to ensure all public procurement functions are conducted online (GoK, 2012). The government has adopted integrated financial management information system (IFMIS) as the platform for conducting all public procurement in order to streamline the procurement system, increase efficiency and control (Githumbi, 2013).

1.1.4 Manufacturing Firms in Kenya

Since achieving independence, Kenya's economy has remained largely agriculture based and manufacturing being part of industrialization is a key factor in Kenya's development plans (GoK, 2017). According to KAM (2016), food and beverages is the largest sector in the manufacturing industry comprising of 119 companies and contributing 21.92% of the total KAM's membership. According to Kenya Institute for Public Policy Research and Analysis (2010), the manufacturing sub-sector in Kenya constitutes 70% of the industrial sector's contribution to GDP.

1.2 Statement of the Problem

Kenya manufacturing firms have been experiencing gross decline in their performance (PPOA, 2012). Statistics from World Bank show that Kenyan manufacturers of large scale firms have registered declining profits and stagnation for the last five years (World Bank, 2013). It is estimated that large manufacturing companies have lost 70% of their market share in East Africa largely attributed to operation issues (GoK, 2012).

According to KIPPRA (2010), the growth in manufacturing industry declined from 4.4 per cent in 2010 to 3.3 per cent in 2011. Further, KIPPRA, (2010) established that the gross domestic product at market price contributed by manufacturing firms has been in declining trajectory as follows: 9.8% in 2010, 9.6% in 2011, 9.5% in 2012, 8.9% in 2013.

The data indicate that the manufacturing firms as currently managed may not be able to contribute meaningfully to the realization of the country Vision 2030 and may not as well make a difference to the millennium goal (CCG, 2010). Consequently, a number of approaches have been tried with minimum success, for example; quality assurance (QA), total quality management (TQM), benchmarking, activity based costing, value based management and supply chain management are increasingly criticized for low level of system control due to largely human dependency (GoK, 2012).

There is a growing concern in all directions of business and management of reducing human intervention in the decision nodes of the business and developing the culture of automation of processes which will be mindful of the system control, efficiency, and operation costs. In the process, the concept of e-procurement has been suggested as one of the ways of improving performance (Rotich, 2011).

Consequently, a number of firms in the manufacturing sector in Kenya have embraced e-procurement to address both controls and performance (Amayi, 2011; Maina, 2011). According to Bilali and Bwisa (2015), e-procurement has the potential of influencing performance of firms while at the same time reduces human intervention on the processes. However, Githumbi, (2013) avers that despite heavy investment on e-procurement by a number of firms in Kenya, its benefits have not been conclusively confirmed empirically. Additionally, majority of the literature are skewed towards Europe and Asia. It is therefore against this background that the study proposes to examine the influence of e-procurement on performance of food and beverage firms in Nairobi County, Kenya

1.3 Objectives of the Study

- i. To examine the influence of e-payments on the performance of food and beverage firms in Nairobi County.
- ii. To assess the influence of e-contracting on the performance of food and beverage firms in Nairobi County.
- iii. To determine the influence of e-mailing on the performance of food and beverage firms in Nairobi County.
- iv. To evaluate the influence of e-ordering on the performance of food and beverage firms in Nairobi County.

2.0 LITERATURE REVIEW

2.1.1 E-Payment

E-payment systems are important mechanisms used by individual and organizations as a secured and convenient way of making payments over the internet and at the same time a gateway to technological advancement in the field of world economy (Oliveira& Martins, 2011). Congruent to this and as advocated by (Oliveira& Martins, 2011), E- payment, in this study, is defined in terms of real time gross settlement, e-cheques, e-cards and m-payments.

2.1.2 E-Contracting

It is the process where organizations use electronic contracts/agreements when dealing with suppliers and other stakeholders (Wong & Sloan, 2014).E-contracting is the process of sending agreements to suppliers and receiving the responses of suppliers back, using internet technology hence improving supply chain performance (Amayi, 2011). Usually e-contacting is supported by an online system which also supports the analysis and assessment of responses. E-contracting smoothens a large part of the tactical contracting process without focusing on the content that is spending category of that process (Kheng& Al-Hawamdeh, 2012). In this study, e-contracting refers to online offers, online acceptance of offer and e- negotiation of contract (Amayi, 2011)

2.1.3. E- Mailing

It is the process of gathering and distributing purchasing information both from and to internal and external parties, using the internet technology. Bilaliet al., (2015) mentioned that information sharing refers to the extent to which critical and proprietary information is communicated to one's supply chain partner thus more efficiency and high performance of the supply chain. E-mail does not only share information with partners, but also provides adequate, timely and accurate information (Samuelson, 2012). In this study e-mailing means e-offer letters, e-local purchase order and e-request for tenders (Samuelson, 2012).

2.1.4 E-Ordering

It is the process of creating and approving purchasing requisition, placing purchase orders as well as receiving goods and services ordered, by using a software system based on internet technology (Bird, 2010). Farzin and Nezhad, (2010) in his study argues that e-ordering is the process of identifying next supplies for a specific spend category, using internet technology usually the internet itself.

By identifying new suppliers a purchaser can increase the competitiveness in the tactical purchasing process for this spend category hence improve supply chain performance.

2.1.5 Firm Performance

The attributes of performance of food and beverage firms which will be taken into consideration in this study are: customer satisfaction and reduced costs. According to Arrowsmith and Trybus (2012) performance measurement is a crucial criterion for evaluating the competence and achievement of an organization. Boer and Heijboer (2012) defined performance measurement as the process of quantifying action, where measurement is the process of quantification and action leads to performance. They emphasized the importance of satisfying customer requirements with greater efficiency and effectiveness than the competitors. Here the effectiveness referred to the extent to which customer requirements were met, largely with the essence that customer was always right and the efficiency referred to the measurement as to how economically the firm's resources were utilized (i.e. total output against total input) to provide a specific level of customer satisfaction (Croom & Brandon-Jones, 2011).

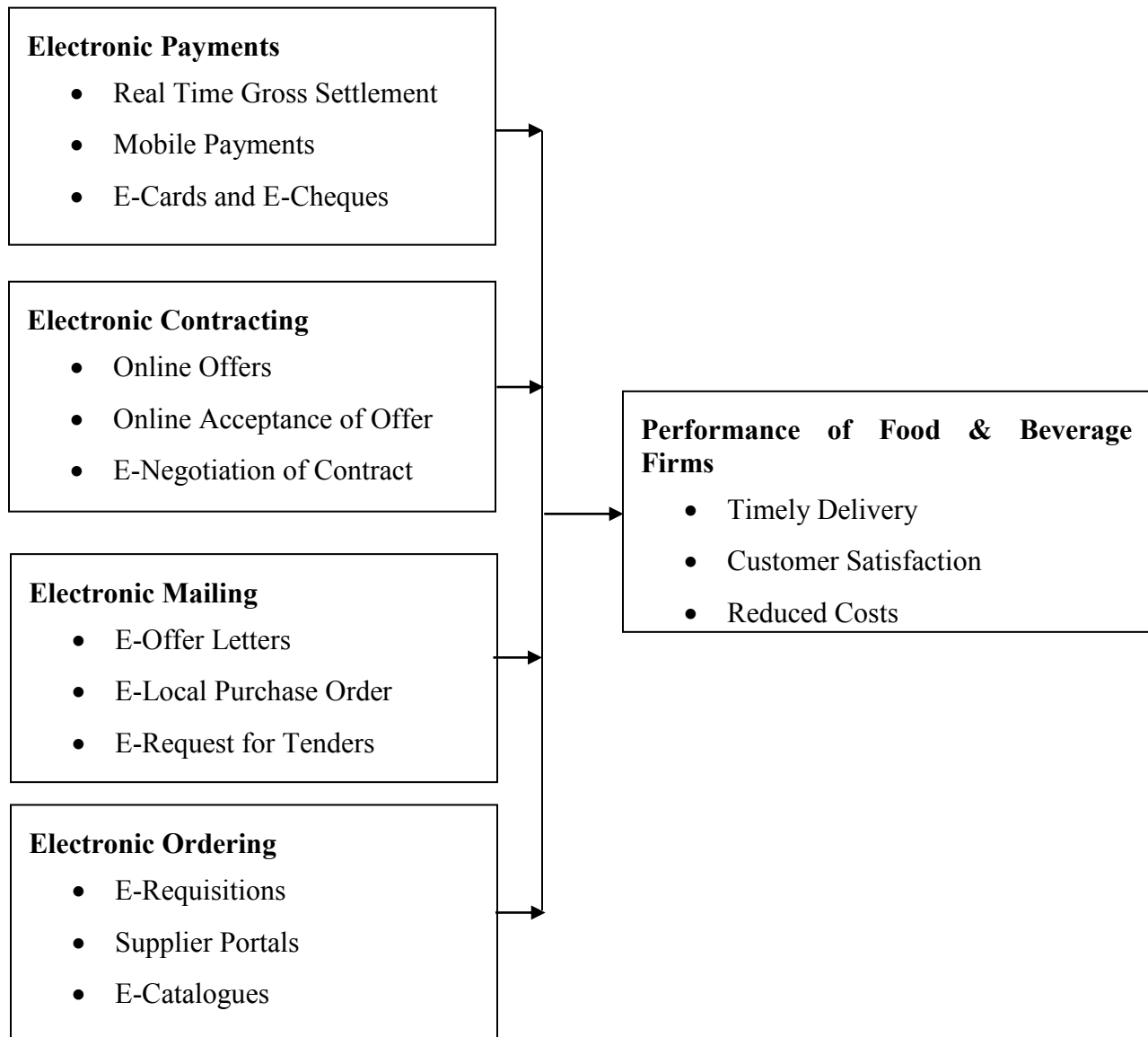
2.2 Theoretical review

2.2.1 The Disruptive Innovation Theory

The disruptive innovation is probably one of the most important innovation theories of the last decade (Bird, 2009). The core concepts behind it circulated so fast that one year after the publication of the theory, people were using the term without making reference to Harvard professor Clayton Christensen or to his book "The Innovator's Dilemma". The term disruptive innovation as we know it today first appeared in the best-seller *The Innovator's Dilemma* (Dai & Kauffman, 2010).

In the book, Harvard Business School professor Clayton Christensen investigated why some innovations that were radical in nature reinforced the incumbent's position in a certain industry, contrary to what previous models would predict. Electronic communication is radical in nature and it reinforces the manual incumbent's communication position (Angeles & Nath, 2010). More specifically he analyzed extensively the disk drive industry because it represented the most dynamic, technologically discontinuous and complex industry one could find. On the other hand contemporary availing of tender documents online and notification of (un)successful vendors among supply chain partners are seen as dynamic, technologically discontinuous and complex (Bendoly & Schoenherr, 2015). The theory resonated among supply chain practitioners in several industries and also resulted in influencing thinking and research in the areas of electronic expressions of interest and availing of tender documents online especially for internationally competitive tenders (Cagliano, Caniato & Spina, 2013)

2.3 CONCEPTUAL FRAMEWORK



Independent Variables

Dependent Variable

Figure 1: Conceptual Framework

3.0 METHODOLOGY

The study employed a cross sectional descriptive census research design. The study conducted a census since the number of the firms is less than 200, which is a rule of the thumb. Primary data was collected through a questionnaire which was piloted for reliability and validity. The unit of observation was the heads of procurement due to their knowledge on the subject of the study and the unit of analysis was food and beverages firms. The study used convenience sampling to sample the unit of observation. Descriptive statistics including frequencies, percentages, means and standard deviations was used to capture the characteristics of the variables and inferential statistics (correlation and regression analysis) were used to analyze the relationships between the dependent and the independent variables.

4. 0 RESULTS FINDINGS

4.1 Response Rate

A sample of 119 respondents were cross-examined using questionnaires that enabled the study to drop the questionnaire to the respondents and then pick them at a later date when they had answered the questionnaires. 119 questionnaires were handed out to employees. Out of the population used, 96 were responsive representing a response quotient of 81%. This was above the 50% which is considered adequate in descriptive statistics according to (Dunn, 2010).

Table 1: Response Rate of Respondents

Response	Frequency	Percentage
Actual Response	96	81
Non-Response	23	19
Total	119	100%

4.2 Descriptive Statistics

4.2.1 Electronic Payments

The respondents were also asked to comment on statements regarding electronic payments influence on performance of food and beverage firms. The responses were rated on a likert scale and the results presented in Table 2. It was rated on a 5 point Likert scale ranging from; 1 = strongly disagree to 5 = strongly agree. The scores of 'strongly disagree' and 'disagree' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'neutral' has been taken to represent a statement agreed upon, equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' have been taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5.

The respondents were asked to indicate their descriptive responses for electronic payments. The result revealed that majority of the respondent with a mean of (4.3) agreed with the statement that Real time gross settlement greatly reduces delivery time. The measure of dispersion around the mean of the statements was 1 indicating the responses were varied. The result revealed that majority of the respondent with a mean of (3.6) agreed with the statement that Mobile payments greatly reduce delivery time. The measure of dispersion around the mean of the statements was 1.4 indicating the responses were varied. The result revealed that majority of the respondent with a mean of (3.8) agreed with the statement that E-cards and E-cheques greatly reduce delivery time. The measure of dispersion around the mean of the statements was 1.3 indicating the responses were varied.

The result revealed that majority of the respondent with a mean of (3.0) agreed with the statement that Real time gross settlement greatly influences customer satisfaction. The measure of dispersion around the mean of the statements was 1.4 indicating the responses were varied. The result in table 4.5.1 revealed that majority of the respondent with a mean of (4.2) agreed with the statement that Mobile payments greatly influence customer satisfaction. The measure of dispersion around the mean of the statements was 1 indicating the responses were varied. The result revealed that majority of the respondent with a mean of (3.7) agreed with the statement that E-cards and E-cheques greatly influence customer satisfaction. The measure of dispersion around the mean of the statements was 1 indicating the responses were varied.

The result revealed that majority of the respondent with a mean of (3.4) agreed with the statement that Real time gross settlement greatly reduce costs. The measure of dispersion around the mean of the statements was 1.3 indicating the responses were varied. The result revealed that majority of the respondent with a mean of (3.8) agreed with the statement that Mobile payments greatly reduce costs. The measure of dispersion around the mean of the statements was 1.2 indicating the responses were varied. The result revealed that majority of the respondent with a mean of (3.8) agreed with the statement that E-cards and E-cheques greatly reduce costs. The measure of dispersion around the mean of the statements was 1.2 indicating the responses were varied. The findings of this study imply that the use of e-procurement is prevalent among food and beverage firms and that its use improves the performance of a firm significantly.

Table 2: Electronic Payments

Statements	Mean	Std. Dev
Real time gross settlement greatly reduces delivery time	4.3	1.0
Mobile payments greatly reduce delivery time	3.6	1.4
E-cards and E-cheques greatly reduce delivery time	3.8	1.3
Real time gross settlement greatly influences customer satisfaction	3.0	1.4
Mobile payments greatly influence customer satisfaction	4.2	1.0
E-cards and E-cheques greatly influences customer satisfaction	3.7	0.5
Real time gross settlement greatly reduce costs	3.4	1.3
Mobile payments greatly reduces costs	4.1	4.3
E-cards and E-cheques greatly reduces costs	3.8	1.2
Average	3.8	1.5

4.2.2 Electronic Contracting

The respondents were also asked to comment on statements regarding electronic contracting influence on performance of food and beverage firms. The respondents were asked to indicate descriptive responses for electronic contracting.

The result revealed that majority of the respondents as indicated by a mean of (3.8) indicated that they agreed with the statement that online offers greatly reduce delivery time. The responses were varied as measured by standard deviation of 1.1. The result revealed that majority of the respondents as indicated by a mean of (3.6) indicated that they agreed with the statement that Online acceptance of offers greatly reduces delivery time. The responses were varied as measured by standard deviation of 1.1. The result revealed that majority of the respondents as indicated by a mean of (3.7) indicated that they agreed with the statement that Electronic negotiations of contracts reduce delivery time. The responses were varied as measured by standard deviation of 1.1.

The result revealed that majority of the respondents as indicated by a mean of (3.6) indicated that they agreed with the statement that Online offers greatly influences customer satisfaction. The responses were varied as measured by standard deviation of 1.2. The result revealed that majority of the respondents as indicated by a mean of (3.6) indicated that they agreed with the statement that Online acceptance of offers greatly influences customer satisfaction. The responses were varied as measured by standard deviation of 1.2. The result revealed that majority of the respondents as indicated by a mean of (3.5) indicated that they agreed with the statement that Electronic negotiations of contracts greatly influence customer satisfaction. The responses were varied as measured by standard deviation of 1.4.

The result revealed that majority of the respondents as indicated by a mean of (3.5) indicated that they agreed with the statement that Online offers greatly reduce costs. The responses were varied as measured by standard deviation of 1.4. The result revealed that majority of the respondents as indicated by a mean of (3.3) indicated that they agreed with the statement that Online acceptance of offers greatly reduces costs. The responses were varied as measured by standard deviation of 1.5. The result revealed that majority of the respondents as indicated by a

mean of (3.6) indicated that they agreed with the statement that Electronic negotiations of contracts greatly reduce costs. The responses were varied as measured by standard deviation of 0.5.

However the variations in the responses were varied as shown by an average standard deviation of 1.2 and an average mean of 3.6. The findings of this study imply that the use of e-contracting is prevalent among food and beverage firms and that its use improves the performance of a firm significantly. They agree with Lysons (2013) that organizations must look toward their vendor evaluation improvements. The opportunities for cost savings and operational improvements can be enormous as the impact on profitability is considerable.

Table 3: Electronic Contracting

Statements	Mean	Std. Deviation
Online offers greatly reduce delivery time	3.8	1.1
Online acceptance of offers greatly reduces delivery time	3.6	1.1
Electronic negotiations of contracts reduce delivery time	3.7	1.1
Online offers greatly influences customer satisfaction	3.5	1.2
Online acceptance of offers greatly influences customer satisfaction	3.8	1.2
Electronic negotiations of contracts greatly influences customer satisfaction	3.5	1.4
Online offers greatly reduce costs	3.5	1.4
Online acceptance of offers greatly reduces costs	3.3	1.5
Electronic negotiations of contracts greatly reduces costs	3.6	0.5
Average	3.6	1.2

4.2.3 Electronic Mailing

The respondents were asked to indicate their levels of agreement on statements regarding electronic mailing. The results revealed that majority of the respondent (3.9) agreed with the statement that E-offer letters greatly reduce delivery time. The responses were varied as shown by the standard deviation of 1.2. The results revealed that majority of the respondent (3.2) agreed with the statement that E-local purchase orders greatly reduce delivery time. The responses were varied as shown by the standard deviation of 1.3. The results revealed that majority of the respondent (4.0) agreed with the statement that E-request for tenders reduce delivery time. The responses were varied as shown by the standard deviation of .8.

The results revealed that majority of the respondent (4.2) agreed with the statement that E-offer letters greatly influences customer satisfaction. The responses were varied as shown by the standard deviation of .9. The results revealed that majority of the respondent (3.7) agreed with the statement that E-local purchase orders greatly influences customer satisfaction. The responses were varied as shown by the standard deviation of .5.

The results revealed that majority of the respondent (2.4) agreed with the statement that E-request for tenders greatly influences customer satisfaction. The responses were varied as shown by the standard deviation of 1.3.

The results revealed that majority of the respondent (3.1) agreed with the statement that E-offer letters greatly reduces costs. The responses were varied as shown by the standard deviation of 1.2. The results revealed that majority of the respondent (3.2) agreed with the statement that E-local purchase orders greatly reduce costs. The responses were varied as shown by the standard deviation of 1.3. The results revealed that majority of the respondent (3.5) agreed with the statement that E-request for tenders greatly reduces costs. The responses were varied as shown by the standard deviation of 1.3.

The average mean of all the statements was 3.7 indicating that majority of the respondents agreed on electronic mailing influence on performance of food and beverage firms. However the variations in the responses were varied as shown by a standard deviation of 1.1. The findings of this study imply that the use of e-mailing is prevalent among food and beverage firms and that its use improves the performance of a firm significantly. These findings imply that through electronic mailing, companies can improve competitive positioning, gain entry to new dynamic and technology driven markets (Maina, 2008).

Table 4: Electronic Mailing

Statements	Mean	Std. Deviation
E-offer letters greatly reduce delivery time	3.9	1.2
E-local purchase orders greatly reduces delivery time	3.2	1.3
E-request for tenders reduce delivery time	4.0	0.8
E-offer letters greatly influences customer satisfaction	4.2	0.9
E-local purchase orders greatly influences customer satisfaction	3.7	0.5
E-request for tenders greatly influences customer satisfaction	2.4	1.3
E-offer letters greatly reduces costs	3.1	1.2
E-local purchase orders greatly reduces costs	3.2	1.3
E-request for tenders greatly reduces costs	3.5	1.3
Average	3.7	1.1

4.2.4 Electronic Ordering

The respondents were requested to indicate the descriptive replies for electronic ordering. The results revealed that the bulk of the respondents (3.2) accepted the statement that Electronic requisitioning greatly reduces delivery time. The responses were different as shown by a standard deviation of 1.3. The results discovered that majority of the respondent (3.2) approved the proclamation that Supplier portals greatly reduces delivery time. The responses were varied as revealed by a standard deviation of 1. The results discovered that majority of the respondent (4.3) approved with the statement that Electronic catalogues reduces delivery time. The responses were varied as shown by a standard deviation of 1.

The results discovered that majority of the respondent (4.2) approved with the statement that Electronic requisitioning greatly influences customer satisfaction. The responses were varied as shown by a standard deviation of 0.8. The results discovered that majority of the respondent (4.1) approved with the statement that Supplier portals greatly influence customer satisfaction. The responses were varied as shown by a standard deviation of 1. The results discovered that majority of the respondent (4.2) approved with the statement that Electronic catalogues greatly influences customer satisfaction. The responses were varied as shown by a standard deviation of 0.8

The results discovered that majority of the respondent (4.4) approved with the statement that Electronic requisitioning greatly reduces costs. The responses were varied as shown by a standard deviation of 0.6. The results discovered that majority of the respondent (4.4) approved with the statement that Supplier portals greatly reduce costs. The responses were varied as shown by a standard deviation of 0.6. The results discovered that majority of the respondent (4.4) approved with the statement that Electronic catalogues greatly reduces costs. The responses were varied as shown by a standard deviation of 0.7.

The average mean response for the statements on electronic ordering was 4.4 indicating there was agreement on electronic ordering, the variations in the responses was 0.9. The findings of this study imply that the use of e-ordering is prevalent among food and beverage firms and that its use improves the performance of a firm significantly. The results imply that an organization benefits greatly when electronic ordering is embraced to reduce costs (Bird, 2009).

Table 5: Electronic Ordering

Statements	Mean	Std. Deviation
Electronic requisitioning greatly reduces delivery time	3.2	1.3
Supplier portals greatly reduces delivery time	2.9	1.0
Electronic catalogues reduces delivery time	4.3	0.9
Electronic requisitioning greatly influences customer satisfaction	4.3	0.9
Supplier portals greatly influence customer satisfaction	4.1	1.0
Electronic catalogues greatly influences customer satisfaction	4.2	0.8
Electronic requisitioning greatly reduces costs	4.4	0.6
Supplier portals greatly reduce costs	4.4	0.7
Electronic catalogues greatly reduces costs	4.4	0.6
Average	4.4	0.9

4.3 Correlation Analysis

Table 6: Summary of Pearson's Correlations

Correlations		Electronic Payments	Electronic Contracting	Electronic Mailing	Electronic Ordering	Performance of Firms
Electronic Payments	Pearson Correlation	1				
	Sig. (2-Tailed)					
Electronic Contracting	Pearson Correlation	.372**	1			
	Sig. (2-Tailed)	0				
Electronic Mailing	Pearson Correlation	.353**	.449**	1		
	Sig. (2-Tailed)	0	0			
Electronic Ordering	Pearson Correlation	.363**	.771**	.547**	1	
	Sig. (2-Tailed)	0	0	0		
Performance of Firms	Pearson Correlation	.556**	.662**	.703**	.691**	1
	Sig. (2-Tailed)	0	0	0	0	

** Correlation is Significant at the 0.05 Level (2-Tailed).

The correlation summary shown in Table 7 indicated that the associations between each of the independent variables and the dependent variable were all significant at the 95% confidence level. The correlation analysis to determine the relationship between electronic payments and performance of food and beverage firms, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there was a positive relationship ($r=0.556$) between electronic payments and performance of food and beverage firms. In addition, the researcher found the relationship to be statistically significant at 5% level ($p=0.000, <0.05$).

The correlation analysis to determine the relationship between electronic contracting and performance of food and beverage firms, Pearson correlation coefficient computed and tested at 5% significance level. The results indicated that there was a positive relationship ($r=0.662$) between electronic contracting and performance of food and beverage firms. In addition, the researcher found the relationship to be statistically significant at 5% level ($p=0.000, <0.05$).

The correlation analysis to determine the relationship between electronic mailing and performance of food and beverage firms, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there was a positive relationship ($r=0.703$) between electronic mailing and performance of food and beverage firms. In addition, the researcher found the relationship to be statistically significant at 5% level ($p=0.000, <0.05$).

The correlation analysis to determine the relationship between electronic ordering and performance of food and beverage firms, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there was a positive relationship ($r=.691$) between electronic ordering and performance of food and beverage firms. In addition, the researcher found the relationship to be statistically significant at 5% level ($p=0.000, <0.05$). Hence, it was evident that all the independent variables could explain the changes in the performance of food and beverage firms, on the basis of the correlation analysis.

4.4 Regression Analysis

In this study multivariate regression analysis was used to determine the significance of the relationship between the dependent variable and all the independent variables pooled together. Regression analysis was conducted to find the proportion in the dependent variable (performance of food and beverage firms) which can be predicted from the independent variables (electronic payments, electronic contracting, electronic mailing and electronic ordering).

Table 8 presented the regression coefficient of independent variables against dependent variable. The results of regression analysis revealed that there was a significant positive relationship between dependent variable and the independent variable. The independent variables reported R value of 0.846 indicating that there was perfect relationship between dependent variable and independent variables. R square value of 0.715 means that 71.5% of the corresponding variation in performance of food and beverage firms can be explained or predicted by (electronic payments, electronic contracting, electronic mailing and electronic ordering) which indicated that the model fitted the study data. The results of regression analysis revealed that there was a significant positive relationship between dependent variable and independent variable at ($\beta = 0.715$), $p=0.000 <0.05$).

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.846 ^a	.715	.703	.14869

a) Predictors: (Constant), Electronic Payments, Electronic Contracting, Electronic Mailing and Electronic Ordering

b) Dependent Variable: Performance of Firms

Table 8: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.002	4	1.251	56.562	.000 ^b
	Residual	1.99	91	0.022		
	Total	6.992	95			

a) Predictors: (Constant), Electronic Payments, Electronic Contracting, Electronic Mailing and Electronic Ordering

b) Dependent Variable: Performance of Firms

The significance value is 0.000 which is less than 0.05 thus the model is statistically significance in predicting how electronic payments, electronic contracting, electronic mailing and electronic ordering influence performance of food and beverage firms. The F critical at 5% level of significance was 18.15. Since F calculated which can be noted from the ANOVA table above is 56.562 which is greater than the F critical (value= 18.15), this shows that the overall model was significant. The study therefore establishes that; electronic payments, electronic contracting, electronic mailing and electronic ordering were all important e-procurement aspects influencing performance of food and beverage firms. These results agree with Odhiambo and Kamau (2013) results which indicated a positive and significant influence of information communication technology on performance of food and beverage firms.

Table 9: Electronic Payments and Performance of Firms

Performance of Firms	Coefficient	Standard Error	t	Sig(p)	p>0.05
Electronic Payments	0.322	0.111	2.896	0.005	no
Constant	2.482	0.407	6.099	0.000	no

R-Squared=29.8%

The first objective of the study was to establish the influence of electronic payments on performance of firms. In order to address this objective, the multiple regression analysis ($y=B_1X_1+\epsilon$) was run with performance of firms as the dependent factor and electronic payments as tested predictor factor. The results from the table showed that the predictor equation for performance of firms (Y) versus electronic payments (X) takes the form; performance of firms= 0.322 (electronic payments) + 2.482. This means that performance of firms is predicted to increase by 0.322 when electronic payments went up by 1 (an increase in mean index of electronic payments increases the performance of firms of the organization by a positive unit of mean index value of 0.322)

Table 10: Electronic Contracting and Performance of Firms

Performance of Firms	Coefficient	Standard Error	t	Sig(p)	p>0.05
Electronic Contracting	0.209	0.347	2.233	0.028	no
Constant	2.942	0.347	8.472	0.000	no

R-Squared=23.5%

The second objective of the study was to establish the influence of electronic contracting on the performance of firms. In order to address this objective, the multiple regression analysis ($y = B_1X_1 + \epsilon$) was run with performance of firms as the dependent factor and electronic contracting as tested predictor factor. The results from the table showed that the predictor equation for performance of firms (Y) versus electronic contracting (X) takes the form; performance of firms = 0.209 (electronic contracting) + 2.942. This means that performance of firms is predicted to increase by 0.209 when electronic contracting went up by 1 (an increase in mean index of electronic contracting increases the performance of firms of the organization by a positive unit of mean index value of 0.209).

Table 11: Electronic Mailing and Performance of Firms

Performance of Firms	Coefficient	Standard Error	t	Sig(p)	p>0.05
Electronic Mailing	0.204	0.099	2.067	0.042	no
Constant	2.909	0.361	8.062	0.000	no

R-Square=21.6%

The third objective of the study was to establish the influence of electronic mailing on the performance firms. In order to address this objective, the multiple regression analysis ($y = B_1X_1 + \epsilon$) was run with performance firms as the dependent factor and electronic mailing as tested predictor factor. The results from the table showed that the predictor equation for performance firms (Y) versus electronic mailing (X) takes the form; performance firms = 0.204 (electronic mailing) + 2.909. This means that performance firms is predicted to increase by 0.204 when electronic mailing went up by 1 (an increase in mean index of electronic mailing increases the performance firms of the organization by a positive unit of mean index value of 0.204).

Table 12: Electronic Contracting and Performance of Firms

Performance of Firms	Coefficient	Standard Error	t	Sig(p)	P>0.05
Electronic Ordering	0.291	0.109	2.677	0.009	no
Constant	2.689	0.368	7.307	0.000	no

R-Squared=20.7%

The last objective of the study was to establish the influence of electronic ordering on the performance of firms. In order to address this objective, the multiple regression analysis ($y=B_1X_1+ \epsilon$) was run with performance of firms as the dependent factor and electronic ordering as tested predictor factor. The results from the table showed that the predictor equation for performance of firms (Y) versus electronic ordering (X) takes the form; performance of firms=0.291 (electronic ordering) + 2.689.

This means that performance of firms is predicted to increase by 0.291 when electronic ordering went up by 1 (an increase in mean index of electronic ordering increases the performance of firms of the organization by a positive unit of mean index value of 0.291).

Table 13: Coefficients of Determination

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	2.07	0.193		10.725	0.000
	Electronic Payments	0.166	0.041	0.255	4.048	0.000
	Electronic Contracting	0.138	0.053	0.235	2.603	0.010
	Electronic Mailing	0.119	0.021	0.398	5.667	0.000
	Electronic Ordering	0.09	0.043	0.201	2.093	0.037

a) Predictors: (Constant), Electronic Payments, Electronic Contracting, Electronic Mailing and Electronic Ordering

b) Dependent Variable: Performance of Firms

The research used a multiple regression model

$$Y= \beta_0+ \beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\epsilon$$

The regression equation will be;

$$Y=2.07+ 0.166X_1 + 0.138X_2 + 0.119X_3+ 0.09X_4$$

The regression equation above has established that taking all factors into account (electronic payments, electronic contracting, electronic mailing and electronic ordering) constant at zero, performance of food and beverage firms will be an index of 2.07. The findings presented also shows that taking all other independent variables at zero, a unit increase in electronic payments will lead to a 0.166 increase in performance of food and beverage firms. The P-value was 0.000 which is less 0.05 and thus the relationship was significant.

The study also found that a unit increase in electronic contracting will lead to a 0.138 increase in performance of food and beverage firms. The P-value was 0.00 and thus the relationship was significant. In addition, the study found that a unit increase in electronic mailing will lead to a 0.119 increase in the performance of food and beverage firms. The P-value was 0.000 and thus the relationship was significant.

Lastly, the study found that a unit increase in electronic ordering will lead to a 0.09 increase in the performance of food and beverage firms. The P-value was 0.00 and hence the relationship was significant since the p-value was lower than 0.05. The results of the study show that, electronic payments underwrote most to the performance of food and beverage firms.

5. 0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

5.1.1 Electronic Payments and Firm Performance

The study sought to assess influence of electronic payments on performance of food and beverage firms as the first objective of the study. Food and beverage firms had embraced electronic payments with regard to its procurement activities. Mobile payments and RTGS were common in the food and beverage firms. Correlation and regression results revealed that this was an important variable that could perhaps be explained by the observation from the findings that electronic payments was an important factor in influencing performance of food and beverage firms.

5.1.2 Electronic Contracting and Firm Performance

The influence of electronic contracting on performance of food and beverage firms was the second objective of the study. The food and beverage firms had embraced electronic contracting with regard to its procurement activities. Online offers and online acceptance of offer were common in the food and beverage firms. Correlation and regression results revealed that this was an important variable that could perhaps be explained by the observation from the findings that electronic contracting was an important factor in influencing performance of food and beverage firms.

5.1.3 Electronic Mailing and Firm Performance

The study endeared to assess influence of electronic payments on performance of food and beverage firms as the third objective of the study. The food and beverage firms had embraced electronic mailing with regard to its procurement activities. Electronic offer letters and electronic request for tenders were common in the food and beverage firms. Correlation and regression results revealed that this was an important variable that could perhaps be explained by the observation from the findings that electronic payments was an important factor in influencing performance of food and beverage firms.

5.1.4 Electronic Ordering and Firm Performance

The study sought to assess influence of electronic ordering on performance of food and beverage firms as the last objective of the study. The food and beverage firms had embraced electronic ordering with regard to its procurement activities. E-requisitions and E-catalogues were common in the food and beverage firms. Correlation and regression results revealed that this was an important variable that could perhaps be explained by the observation from the findings that electronic ordering was an important factor in influencing performance of food and beverage firms.

5.1.5 E-Procurement and Firm Performance

The study endeared to determine influence of e-procurement on performance of food and beverage firms in Nairobi County, Kenya. The regression results revealed that e-procurement platforms identified in the study, that is, electronic payments, electronic contracting, electronic mailing and electronic ordering combined could explain approximately 71.5% of the variations in the performance of food and beverage firms. The other 28.5% may be attributed to other strategies not explained by the model or the variables.

5.2 Conclusion of the Study

First, in regard to electronic payments, the regression coefficients of the study show that it has a significant influence of 0.166 on performance of food and beverage firms. This implies that increasing levels of electronic payments by a unit would increase the levels of performance of food and beverage firms by 0.166. This shows that electronic payments have a positive influence on performance of food and beverage firms.

Second in regard to electronic contracting, the regression coefficients of the study show that it has a significant influence of 0.138 on performance of food and beverage firms. This implies that increasing levels of electronic contracting by a unit would increase the levels of performance of food and beverage firms by 0.138. This shows that electronic contracting has a positive influence on performance of food and beverage firms.

With regard to electronic mailing, the regression coefficients of the study show that it has a significant influence of 0.119 on performance of food and beverage firms. This implies that increasing levels of electronic mailing by a unit would increase the levels of performance of food and beverage firms by 0.119. This shows that electronic mailing has a positive influence on performance of food and beverage firms.

Lastly, in regard to the fourth objective, the regression coefficients of the study show that it has a significant influence of 0.09 on performance of food and beverage firms. This implies that increasing levels of electronic ordering by a unit would increase the levels of performance of food and beverage firms by 0.09. This shows that electronic ordering have a positive influence on performance of food and beverage firms.

Drawing on this research, lack of electronic payments, electronic contracting, electronic mailing and electronic ordering in food and beverage firms is leading to poor performance. Though the food and beverage firms are striving hard to improve their performance there are still issues of poor quality products, long lead time and high cost of projects/products. It was articulated that the current phenomenon of poor performance in the food and beverage firms can be reversed if the food and beverage firms and other stakeholders ensure electronic payments, electronic contracting, electronic mailing and electronic ordering are embraced in the procurement function.

5.3 Areas for Further Research

The current study should be expanded further in future in order to include other e-procurement platforms that may as well have a positive significance to performance of food and beverage firms. Existing literature indicates that as a future avenue of research, there is need to undertake similar research in other institutions and food and beverage organizations in Kenya and other countries in order to establish whether the explored e-procurement platforms herein can be generalized to affect performance in other institutions.

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