ELECTRONIC TENDERING AND SUPPLY CHAIN PERFORMANCE IN COUNTY GOVERNMENTS IN WESTERN REGION, KENYA

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Abstract- Electronic procurement is one the critical functions adopted by county governments in their procurement departments to shorten lead time, increase transparency and increase levels efficiency. Despite these, reports indicate that many counties in western region Kenya are still having challenges of longer lead times, poor supply performance and inadequate efficiency in procurement processes. The objective of this study was to establish the effect of electronic tendering on supply chain performance. The study was guided by technology acceptance theory. The target population of the study was 216 respondents and stratified random sampling was used to select 140 respondents from the county government employees. Both primary and secondary data was collected. A pilot study was done in Kisumu County. Cronbach’s Alpha was used to test reliability. Validity was tested by experts and factor analysis. Data was analyzed using SPSS version 27. Both descriptive and inferential statistics were obtained. Descriptive statistics comprised of variance, standard deviation and mean. Inferential statistics comprised of multiple regression analysis. Data was presented using tables. Multiple regression analysis indicated that electronic tendering electronic tendering had a significant effect on supply chain performance by reducing the inventory cost with a coefficient of -0.771. The study depicted that 46.0% variation in supply chain performance is caused by electronic tendering. The study may help policymakers to create e-procurement regulations and the information from the study findings may also be used by investors to help in deciding how much money they should spend on electronic purchases in order to cut costs and increase profits. The study concluded that electronic tendering affected supply chain performance negatively and significantly through reduction of inventory cost. The study therefore recommended county government should effectively adopt electronic tendering and train its employees on how to use electronic tendering efficiently in order to help in preparation of documents during tendering process.

Background of the study
The establishment and utilization of the procurement function have been widely recognized as a crucial determinant in evaluating organizational effectiveness inside numerous organizations. Organizations globally actively engage in the procurement process to fulfill their operational requirements. Consequently, the utilization of electronic procurement has led to a substantial improvement in the efficiency and effectiveness of the supply chain. Organizations across diverse industries have adopted electronic procurement as a strategic approach to enhance their market position through the automation of supply chain activities. There is a growing imperative for companies and organizations to embrace electronic procurement and adopt the supply chain mindset as a means to enhance their competitive advantage (Nani & Ali, 2020).

The utilization of information and communication technology (ICT) in procurement operations facilitates enhanced integration of supply chain and provides improved organization and tracking of transaction records, hence simplifying the process of data collection (Bermúdez, Farias, & Torres, 2020). The utilization of online transactions facilitates the expeditious approval of procurement operations, enabling prompt fulfillment of orders through frequent real-time delivery of the needed items. Receiving bids, prequalifying suppliers, releasing tenders, negotiating with suppliers, awarding contracts, receiving supplies, and evaluating tenders are all common procurement processes that are connected by information (Tutu, Osei, & Desmond, 2019).

The supply chain (SC) assists in the management of interrelated resources, including the activities that begin with the sourcing of raw materials and continue all the way to the end user (Buyukozkan & Gocer). This technique aids in the accomplishment of objectives by businesses who wish to compete. Only companies that pay close attention to efficient supply chain management nowadays have the chance to get a competitive edge on the market Management now recognize that their supply chain’s degree of transformation into a value chain directly affects profitability. Organizations that make little to no investment in developing modern supply chains are unable to provide value to their consumers (Ben, Hassini, & Bahrour, 2019).
In China e-procurement platforms make it easier for businesses to share information with their suppliers. Sharing information among businesses strengthens ties between them. Studies in China have shown that the use of Information and Communication Technology (ICT) in industries is greatly influenced by the availability of ICT infrastructure. According to the study's findings, building multimedia centers could considerably raise ICT usage rates in organizations. Employees need to be taught how to use the new technologies in order to reap the benefits of ICT (Moslehpour, Pham, & Wong, 2018).

In United Kingdom, electronic purchasing in public sector was found to improve communication, boost supply availability, decrease maverick spending, and improve negotiation. Product purchasing is significantly impacted by how much internal users are helped to use the new technology. Due to lower processing costs for buy requisitions as a result of the procurement system's improvements, the overall cost of procuring goods and services was reduced (Vaidya, Callender, & Sajeev, 2017).

In order to reap the rewards of ICT adoption in procurement, significant changes in the public sector procurement environment are needed. The study discovered that the major problems can be divided into the following categories: organizational structure, electronic procurement technology framework, legal and economic environment, procurement framework and practices. For the effective implementation of ICT in the procurement process, a strong and effective organizational aspect might be seen as one of these problems (Afolabi, Aduwo, & Olayeni, 2022)

One of the primary challenges encountered by the procurement departments of public organizations in Uganda pertains to the absence of dependable information regarding the procurement procedure, encompassing its various components such as inputs, outputs, resource utilization, and outcomes. This dearth of information renders it unfeasible for these departments to evaluate the efficiency and efficacy of the procurement process. The study's findings indicate that the use of ICT in public organizations can provide decision-makers in the procurement department with impartial and objective information regarding the performance of the procurement function. The implementation and utilization of electronic procurement in Tanzania face several hurdles stemming from the country’s policy and regulatory framework, institutional structures, procurement processes, information and communication technologies (ICTs), and human resources (Kakwezi & Nyeko, 2019)

In Rwanda, the implementation of electronic procurement has led to enhanced employee adoption levels. However, firms in Rwanda need to address factors pertaining to perceived hazards linked to internet connectivity. Enhancing staff trust in the use of information and communication technology (ICT) can be achieved through the implementation of comprehensive training programs that focus on familiarizing employees with new technologies and ensuring their understanding and adherence to security protocols, including the appropriate utilization of passwords (Harelímana, 2017).

The government of Kenya has acknowledged the need of adopting information and communication technology (ICT) to improve the delivery of services. The Electronic Government Strategy Paper of 2014 outlined the inclusion of ICT adoption in procurement as a key target to be realized within the medium-term (Muriuki, Guyo, & Kinoti, 2019). In addition, the Public Procurement Regulatory Authority (2018) has delineated its intentions to implement the integration of information and communication technology (ICT) in the procurement procedures of all public organizations in Kenya. The Ministry of Finance has undertaken a government initiative to establish an e-procurement project, with the objective of implementing an electronic procurement system in a limited number of ministries prior to its widespread adoption throughout other government departments.

Electronic procurement technology has been effectively adapted by a number of private organizations in Kenya. Nation Media Group made it possible for its customers to make online purchases using their digital platform. The use of ICT has significantly changed how services are delivered in these establishments. Notwithstanding the advantages that ICT adoption in procurement brings, evidence has collected to demonstrate that there is a delayed uptake of the technology (Ngunjiri & Kiarie, 2018).

In the Kenyan, the impediments to the rapid adoption of web-enabled purchasing systems encompass several key factors. These factors include a dearth of comprehensive legislation, inadequate infrastructure, insufficient awareness and support from top-level management, challenges in integrating with existing internal systems or solutions, absence of standardized technical protocols, limited cooperation from suppliers, and the financial burdens associated with adapting to such systems (Mutisya, 2022). The study conducted by Muriuki, Guyo, and Kinoti (2019) examined the impact of e-procurement on public hospitals, specifically focusing on Kisii level 5 hospital. The findings of the study revealed several challenges encountered in the implementation of e-procurement, including insufficient financial resources, organizational resistance to change, and inadequate training of staff members in utilizing the IT system.

**Statement of the problem**

The supply chain division within county governments manages significant quantities of products and services, encompassing both foreign and local procurement. By using digital solutions for procurement and supply chain processes, both public entities and private enterprises can efficiently manage the retrieval of parts from various...
suppliers, identify components with limited stock, and substitute them with suitable alternatives or verify their lifecycle to guarantee the sustained availability of goods and services in the long term. The implementation of an efficient and successful supply chain function is a crucial undertaking for county governments in times of economic hardship. Hence, it is imperative to conduct assessments of supply chain performance and ascertain the obstacles encountered in procurement procedures. Hence, it is crucial to prioritize the implementation of e-procurement as a means to enhance procurement services. The conventional procurement process has inherent vulnerabilities that foster illicit procurement practices, such as fraudulent activities, bribery, and the irregular allocation of tenders. Nearly 370 billion sent by the national government to county governments cannot be fully accounted for due to bribes, fraudulent dealings or embezzlement of funds, which leads to loss of funds intended for procurement purposes (Ethics and Anti-Corruption Commission, 2021). In 2022, EACC officials arrested six senior officials in Vihiga County for awarding a tender irregularly to a tune of 21 million. With such misappropriations the objectives of county governments is not fully achieved. Funds allocated for procurement purposes ends up in pockets of individuals inform of bribes and hence cannot be accounted for. It is on the basis of the aforementioned gaps that this study evaluated the effect of electronic tendering and supply chain performance in county governments of western region in Kenya.

Research objectives
To establish the effect of electronic tendering on the supply chain performance in county governments in western region, Kenya.

Hypothesis of the study
H0: Electronic tendering has no significant effect on supply chain performance in County governments in Western region, Kenya

Theoretical literature review
Technology acceptance theory
According to Davis (1989), the Technology Acceptance Theory posits that the acceptance of technology is influenced by the perceived benefits and ease of use. Within the framework of the technology acceptance hypothesis, the factors of perceived usefulness and perceived ease of use play a crucial role in forecasting the likelihood of technology adoption. The perceived utility and ease of use are significant factors in determining the actual utilization of a technology. Based on the theory, the intention to accept technology is influenced by factors such as attitude, utility, and convenience of usage. The impact of perceived utility and ease of use of emerging technologies on user behavior is significant. The alignment of employee attitudes and beliefs with new technology becomes imperative as it induces organizational and behavioral transformations. The majority of individuals within the organization may exhibit resistance towards the changes that have arisen. Consequently, it is imperative for the organization to ascertain the underlying factors contributing to the users' resistance towards any alterations. The theory of technological acceptability is based on two key variables, namely perceived usefulness and ease of use. The implementation of e-procurement requires organizational adjustments, including the reengineering of current systems, which will influence the manner in which operations are carried out (Venkatesh, James, & Thong, 2012).

External factors activate cognitive processes, which subsequently elicit an emotional response, so influencing patterns of usage behavior. The observed action is a result of the anticipated ease of use, perceived utility, and intention to engage in the behavior. Surendran (2012) conducted a study. The perceived simplicity of usage and perceived usefulness capture the anticipation of positive behavioral outcomes and the belief that the behavior would not require much effort. The stronger the affective response, the higher the likelihood of the occurrence of that behavior. The direct impact of perceived usefulness on actual use is a significant factor to consider when predicting behavior. The direct impact of perceived ease of use on usage behavior is absent (Kaliannan & Adjovu, 2015).

The implementation of e-procurement requires organizational modifications, including the reengineering of current systems, which can significantly influence the execution of many operations. The applicability of the theory of technological acceptance arises from the premise that the adoption of electronic procurement within an organization hinges on two key factors: the ease of use perceived by employees and the perceived benefits of the technology to the organization. The perspectives of management and suppliers regarding the utility and simplicity of utilizing an e-procurement system play a pivotal role in maximizing the advantages derived from the use of e-procurement.

Conceptual framework
This section presents a conceptual framework that outlines electronic tendering and supply chain performance, as illustrated in Figure 1.1.
Independent variable
Electronic procurement adoption

<table>
<thead>
<tr>
<th>Electronic tendering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document preparation</td>
</tr>
<tr>
<td>Document submission</td>
</tr>
<tr>
<td>Efficiency</td>
</tr>
</tbody>
</table>

Dependent variable
Supply chain performance

<table>
<thead>
<tr>
<th>Supply chain performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total inventory costs</td>
</tr>
</tbody>
</table>

Figure 1.1: Conceptual framework: Source (researchers’ theorization)

Empirical literature review

In a study conducted by Sylvester (2019), the focus was on examining the impact of e-procurement on the supply chain performance of County governments in Kenya, with a specific case study conducted in Busia County. In order to conceptualize this research, the study employed a Correlational research design. The intended recipients of the information were the government procurement personnel. Data was collected from all 56 employees using questionnaires. The validation process of the study instrument involved soliciting feedback from professionals, who provided recommendations for content improvements. These suggestions were then incorporated into the instrument.

The results of the study revealed that the use of electronic tendering systems had a notable and statistically significant impact on the overall supply chain performance of county governments in Kenya.

Otieno, Aliata, and Midida (2021) investigated the impact of electronic tendering on the supply chain performance of the county government of Homa-Bay in Kenya. The study was grounded in ideas of disruptive innovation and technology acceptability. The study employed a correlational research design. The target population of this study consisted of 400 individuals who were working in the 10 departments of the county administration of HomaBay. The research study utilized a simple random sampling technique to select a sample size of 196 participants. Prior to the main investigation, a total of 30 pilot questionnaires were assessed and eliminated using SPSS software to address any potential uncertainties or ambiguities. The analysis of quantitative data involved the utilization of descriptive and inferential statistical methods, while qualitative data was investigated through the examination of verbatim reports and transcriptions. Based on the results of the study, it can be concluded that the implementation of electronic tendering has a noteworthy and favorable influence on the performance of supply chains.

In a study undertaken by Khasandi, Kadima, and Miroga (2022), the objective was to assess the influence of E-Tendering procedures on the supply chain performance of County Governments in Western Kenya, specifically in Kenya. The research employed a descriptive research approach, with the target population consisting of senior officers from all five counties in Western Kenya. The census method was employed on the entire population due to its small and manageable size. The Questionnaire was employed as a tool for gathering data. The study employed SPSS software version 24 to analyze the descriptive and inferential statistics. The outcomes of the study revealed that the implementation of computerized tendering processes had a noteworthy influence on the supply chain performance of County Governments in Western Kenya.

RESEARCH METHODOLOGY

Research design

The research design employed in this study was descriptive research design. The chosen study design was deemed highly suitable due to its alignment with the investigation of the relationship between electronic tendering and supply chain performance in county governments within the western region, Kenya. This design effectively addresses the nature of both independent and dependent variables (Atmowardoyo, 2018).

Target population

The target population for this study was 216 respondents consisting of 4 Procurement directors, 140 Supplies Officers, 40 Store Keepers, and 32 Store Clerks in all four counties in western region, Kenya.

Table 1.1: Target population

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
<th>Percentages (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement Directors</td>
<td>4</td>
<td>1.9</td>
</tr>
<tr>
<td>Supplies Officers</td>
<td>140</td>
<td>64.8</td>
</tr>
<tr>
<td>Store Keepers</td>
<td>40</td>
<td>18.5</td>
</tr>
<tr>
<td>Store Clerks</td>
<td>32</td>
<td>13.8</td>
</tr>
</tbody>
</table>
Sample size and sampling technique

The researchers employed Yamane's Sample formula to ascertain the appropriate sample size for the investigation. The Yamane sample calculation method is utilized in order to ascertain the appropriate sample size for a research investigation. The aforementioned approach is considered highly advantageous in situations when the sole available information regarding the target population being sampled is its size. The formula was originally devised by Yamane in 1967 and subsequently employed by (Ngigi & Kawira, 2015).

\[ n = \frac{N}{1+N(e^2)} \quad \text{Equation 3.1} \]

Where: 
- \( n \): required sample size
- \( e \): level of significance taken to be 0.05
- \( N \): the population size
- \( l \): constant

\( N = 216 \)
\( e = 0.05 \)

\[ n = \frac{216}{1+216(0.05)^2} = 140 \text{ respondents} \]

The sample population of each category was calculated based on proportion and calculated further by dividing category target respondents by total target population and then multiplying it by the total sample size. The respondents were then further chosen using stratified random sampling. The sample population is shown in Table 1.2.

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
<th>Percentages (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement Directors</td>
<td>3</td>
<td>1.9</td>
</tr>
<tr>
<td>Supplies Officers</td>
<td>90</td>
<td>64.8</td>
</tr>
<tr>
<td>Store Keepers</td>
<td>26</td>
<td>18.5</td>
</tr>
<tr>
<td>Store Clerks</td>
<td>21</td>
<td>13.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>140</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Data collection instruments

The collection of primary data was conducted by employing questionnaires, which were administered with the assistance of research assistants. The selection of this scale was based on the technical nature of its items and the need to ensure the legitimacy of respondents' responses. The researcher utilized closed-ended questions structured in the format of a 5-point Likert scale. Closed-ended questions have been found to have a positive impact on response rates, as they are very simple to administer. Additionally, they facilitate the collection of measurable and quantitative data. The ease and speed with which respondents can answer closed-ended questions further contribute to their effectiveness. Moreover, the provision of answer possibilities enhances comprehension and ensures confidentiality for the respondents. The collection of secondary data involved the examination and analysis of audited reports and statements obtained from the county administrations.

Data collection procedure

The researcher provided training to the research assistants who assisted in the process of data gathering. The surveys were administered by the research assistants to the corresponding counties. The participants were provided with a duration of two weeks to fulfill the questionnaires. Participants who were unable to provide an early response were granted an additional week to finalize the completion of the surveys. Subsequently, the study assistants proceeded to gather the surveys. The collection of secondary data involved the analysis of audited financial and procurement records, which provided comprehensive information on the costs associated with the acquisition and management of inventories.
Pilot study
The pilot test was conducted on 20 respondents in Kisumu County because it has the same demographic features as the other counties that is; Bungoma, Busia, Kakamega and Vihiga counties. Those who participated in pilot test study were not among the targeted respondents.

Validity testing
Factor analysis was used to assess the construct validity of the questionnaire by examining whether the features being measured by the research tool effectively and accurately capture the intended constructs. The technique of dimension reduction was employed to assess the validity of the observed variables (Cooper & Schindler, 2011). In this study, the effectiveness of data sampling was evaluated and its eligibility for factor analysis was assessed through the utilization of KMO and Bartlett's tests. A KMO score greater than 0.5 and a Bartlett's test result over 0.05 indicate that the dataset is appropriate for doing factor analysis (Hayashi, Abib, & Hoppen, 2019).

Table 1.3: Validity test results

<table>
<thead>
<tr>
<th>Construct</th>
<th>No of Items</th>
<th>KMO</th>
<th>Bartlett's test of sphericity</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET</td>
<td>10</td>
<td>0.859</td>
<td>124.437</td>
<td></td>
</tr>
<tr>
<td>SCP</td>
<td>10</td>
<td>0.941</td>
<td>166.586</td>
<td></td>
</tr>
</tbody>
</table>

Based on the data shown in Table 1.3, it can be observed that all the variables exhibit Kaiser-Meyer-Olkin (KMO) statistics exceeding the threshold of 0.5. This suggests that the dataset is deemed appropriate for conducting factor analysis. The determination of sample adequacy was conducted using Bartlett's tests, which rely on the statistical significance of the chi-square statistics. According to the findings presented in Table 3.4, Bartlett's test statistics for all variables yielded p-values of 0.000, indicating statistical significance at a significance level of 0.05. This suggests that the item correlation matrix deviates from being an identity matrix. Hence, the data obtained from the pilot study is deemed sufficient and appropriate for conducting factor analysis.

Reliability testing
Reliability was examined using Cronbach's alpha, a statistical measure with a range of values from 0 to 1. Values below 0.70 were deemed to possess less dependability and were deemed unacceptable, whilst values ranging from 0.7 to 1.00 indicated a high level of reliability (Cooper & Schindler, 2011).

Table 1.4: Cronbach’s alpha results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach’s alpha</th>
<th>Number of items</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET</td>
<td>0.941</td>
<td>10</td>
<td>Reliable</td>
</tr>
<tr>
<td>SCP</td>
<td>0.797</td>
<td>10</td>
<td>Reliable</td>
</tr>
</tbody>
</table>

According to the data presented in Table 3.3, the variables exhibited Cronbach's alpha values of 0.941 and 0.797, all of which exceeded the threshold of 0.7. This finding suggests that the variables of all the constructs examined in the study had high levels of reliability.

Data analysis and presentation
The acquired data followed a process of cleaning, sorting, and coding before the analysis, which was conducted using the Statistical Package for Social Sciences (SPSS) software, specifically version 27. Both descriptive and inferential statistics were employed for the purpose of analyzing the data. The Pearson product moment correlation coefficients were employed to demonstrate the magnitude and direction of associations among the variables under investigation. The researcher employed a multiple linear regression analysis to ascertain the correlation between electronic tendering and supply chain performance in county governments within the western region of Kenya. The regression equation was as follows;

\[ Y = \beta_0 + \beta_1ET + \epsilon \]

Where:
- \( Y \) = supply chain performance
- \( \beta_0 \) = Constant Term
- \( \epsilon \) = error term
ET = Electronic tendering

Data Analysis, Presentation and Discussion

Descriptive statistics

The first aim of this study was to examine the effect of electronic tendering on the supply chain performance within the county governments in the western region in Kenya. Based on the analysis of descriptive data, it has been seen that numerous county governments exhibit inefficiencies and ineffectiveness in their document preparation processes during tendering. Additionally, there is a notable issue with the successful submission of tendering papers to both buyers and sellers. Furthermore, there is a concerning vulnerability in terms of illegal access to electronic documents.

Inferential statistics

Correlational analysis

This study utilized the Pearson product-moment correlation coefficient to assess the magnitude and direction of the association between the independent variables of the study and the dependent variable. The correlation coefficient is a statistical measure that ranges from -1 to +1 (Sekran, Bougie & Roger, 2010). The statistical significance of the correlation coefficient was evaluated at a confidence level of 95% using two-tailed tests, as presented in Table 4.36. Consequently, the criteria for rejection were established using a significance level of 0.05, whereby values beyond this threshold were considered statistically insignificant, while values falling below it were considered statistically significant.

<table>
<thead>
<tr>
<th>Table 1.5: Correlation analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td>ET</td>
</tr>
<tr>
<td>Y⁰</td>
</tr>
</tbody>
</table>


The correlation coefficient of electronic tendering with supply chain performance showed a coefficient of -0.711 and p-values of 0.00. This suggests a significant and strong correlation between the utilization of electronic tendering and the overall supply chain performance within county government.

Model summary

The model summary provides an assessment of the extent to which electronic procurement is associated with the supply chain performance of county governments in the western region. The multiple correlation coefficient, denoted as R, quantifies the strength and direction of the linear association between the actual values and the anticipated values of supply chain performance in a model. A higher value of R indicates a more strong correlation. The coefficient of determination, sometimes referred to as R Square, is a statistical measure that quantifies the proportion of the variance in the dependent variable that can be explained by the independent variable.

<table>
<thead>
<tr>
<th>Table 1.6: Model summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

a. Dependent Variable: supply chain performance
b. Predictors: (Constant), electronic tendering, sourcing, ordering and payment

Table 1.6 presents an R value of 0.678, indicating a strong relationship between electronic tendering and supply chain performance in county governments located in the western region, Kenya. The R Square value of 0.460 indicates that about 46.0% of the variability in supply chain performance can be attributed to the influence of electronic tendering. The remaining 54.0% of the variance in supply chain performance can be attributed to other factors that are not accounted for in the current model.

4.8 Analysis of variance

The application of Analysis of Variance (ANOVA) is employed to assess the reliability of a model in predicting a result. The study's significance level was established at 5%, requiring a probability value below 0.05 for statistical significance.
Table 1. 7: ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of squares</th>
<th>Df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>16,432</td>
<td>1</td>
<td>16,432</td>
<td>26.522</td>
<td>.007b</td>
</tr>
<tr>
<td>Residual</td>
<td>73,729</td>
<td>119</td>
<td>0.619</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>90,161</td>
<td>120</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: supply chain performance  
b. Predictors: (Constant), electronic tendering.

According to the findings presented in Table 4.13, the calculated F value of 13.752 exceeds the critical F value of 2.45. This result suggests a strong relationship between electronic tendering and supply chain performance within county governments located in the western region. The F-statistic yielded a p-value of 0.007, which was found to be less than the conventional significance level of 0.05. This result suggests statistical significance and indicates that the model adequately fits the data.

Regression coefficients analysis

Regression coefficients serve as estimations of population factors that aid in elucidating the relationship between electronic tendering and the supply chain performance of county governments in the western region, Kenya.

Table 1. 8: Regression coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>B</td>
<td>Std. Error</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.257</td>
<td>.881</td>
<td>7.104</td>
</tr>
<tr>
<td>ET</td>
<td>-.771</td>
<td>.180</td>
<td>-4.273</td>
</tr>
</tbody>
</table>

a. Dependent Variable: supply chain performance  
b. Predictors: (Constant), electronic tendering.

According to the findings presented in Table 1.8, the constant value of 6.257 exhibits statistical significance at a 95% confidence level, as evidenced by a p-value of 0.000, which is less than the predetermined threshold of 0.05. The findings indicate that in cases where county governments have not implemented electronic tendering systems, the average supply chain performance of public institutions in western Kenya, as assessed by inventory cost, was roughly sh. 1.81 million (Antilog of 6.257). The coefficients for electronic tendering (ET), is -0.771. These regression results produced a regression model (4.1).

Log Y= 6.257 - 0.771 ET ................................................................. (4.1)

Discussions

The aim of this study was to examine the effect of electronic tendering on supply chain performance within the county governments of the western region, Kenya. The null hypothesis posited that the implementation of electronic tendering does not yield a statistically significant effect on the performance of supply chains in county governments located in the western region, Kenya. The regression analysis findings presented in Table 4.13 indicate that electronic tendering exhibited a regression coefficient of 0.771, accompanied by a p-value of 0.000. The coefficient suggests that implementing electronic tendering, as a part of electronic procurement, would enhance supply chain efficiency by decreasing the logarithmic average of inventory cost by 0.771 units, resulting in a reduction from 6.257 to 5.486. Consequently, the inventory cost would be approximately 0.306 million (the antilogarithm of 5.486). The resultant t statistic of 4.273 was deemed statistically significant, since it exceeded the estimated t critical value of 1.980. The obtained p value of 0.000 was found to be statistically significant at a 95% confidence interval, as it was lower than the predetermined significance level of 0.05. This indicates that the implementation of electronic tendering had significant effects on the performance of supply chains in county governments located in the western region. Hence, the present analysis rejects the null hypothesis that the implementation of electronic tendering does not yield a statistically significant impact on the performance of supply chains within county governments situated in the western region, Kenya.

The results of the study were similar to the findings of descriptive statistics that indicated most respondents were in agreement that electronic tendering increases the percentage of document preparation, electronic tendering helps to improve the efficiency of the procurement officers since tendering cannot be modified and electronic tendering increases efficiency due to reduced tender handling time in county government of western Kenya.

The findings are in line with the results from a study by Sylvester, (2019), who found that electronic tendering had positive and significant effect on supply chain performance of county governments in Kenya. The results were also...
similar to that the study conducted by Otieno, Aliata, and Midida, (2021), and found that electronic tendering has a positive and significant impact on supply chain performance. The results also support technology acceptance theory that explains that adoption of e-procurement necessitates changes within the county government, such as reengineering the existing system, which have an impact on how activities are completed therefore improving supply chain performance. The theory of technological acceptance was applicable because the electronic tendering adoption in an organization was implemented since the employees within the county government found it easy to use hence improving the supply chain performance.

**Conclusion**

The findings of the descriptive statistics indicate that a significant proportion of the participants agreed that the implementation of electronic tendering has a positive impact on supply chain performance in various county governments in the western region of Kenya. This improvement is primarily attributed to the reduction in inventory costs, achieved through the streamlining of tender processing time, simplification of tendering document preparation, and enhanced documentation practices. Based on the inferential statistics analysis, it was determined that there exists a statistically significant association between electronic tendering and supply chain in the county governments of the western region of Kenya. This conclusion is supported by a regression coefficient of -0.771 and a p-value of 0.000. Hence, it can be concluded that the implementation of electronic tendering has a significant effect on the performance of the supply chain within the county government of the western region in Kenya.

**Recommendations**

The findings of the descriptive statistics revealed that a significant proportion of the participants expressed agreement with the notion that the process of documentation preparation during tendering in County Government lacks efficiency and effectiveness. It was therefore recommended that county government should effectively adopt electronic tendering and train its employees on how to use electronic tendering efficiently in order to help in preparation of documents during tendering process. Majority of the respondents agreed tendering documents are not successfully submitted to buyers and sellers. From these results, it is recommended that electronic tendering should be adopted to easy the process of document submission during tendering. This will help through ensuring that there is no errors during document submission which can result to high inventory costs.

Most of the respondents agreed that electronic documents can be easily accessed by unauthorized person in counties in western Region, Kenya. It is therefore recommended that counties should improvise strong security that will help in preventing unauthorized person from accessing county government documents.

**REFERENCES:**


