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Assessing the Impact of E-Sourcing Implementation on Tendering Procedures in Kenyan Public Universities

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Abstract: **Electronic sourcing is a digital procurement method that allows organizations to source goods and services through online platforms. This approach leverages digital tools to facilitate vendor selection, negotiation, bidding, and other procurement activities, promoting efficiency, transparency, and cost-effectiveness in the tendering process. Despite the advantages, many public organizations have been slow to adopt e-sourcing, particularly in countries like Kenya, where the digital infrastructure for e-sourcing is improving but not yet fully integrated across public sectors. The purpose of study was to establish the adoption elecronic sourcing (e-sourcing) and its effect on tendering process in public universities in Kenya. The study wsa grounded on Diffusion of Innovation Theory. The study employed descriptive research design that aimed to gather evidence through analysis in order to provide a description of the study population. The target population included 136 potential respondents from all 34 public chartered universities in Kenya targeting heads of procurement, heads of stores, heads of finance, and heads of ICT, who provided valuable insights based on their expert knowledge and experience in the application of electronic procurement systems. The study employed Slovin's formula to draw a sample size of 102 repondents. Primary data for the study was obtained through a structured questionnaire where 90 respondents completed them and returned for analysis. Data collected was scrutinized for consistency, accuracy, completeness, and uniformity in preparation for analysis. Data was coded and analyzed using the Statistical Package for Social Sciences (SPSS) for descriptive and inferential statistical and the findings were presented in tables. Results of the Model summary indicates R^2 value of 0.417 which means that approximately 41.7% of the variance in the effectiveness of the tendering process can be explained by e-sourcing. The results of regression, reveal that e-sourcing has a p-value = 0.000 and since the p- value is < 0.05, the null hypothesis was rejected. The study concluded that adoption of e-sourcing has statistically significant effect on tendering process in public universities in Kenya. Based on the regression analysis of e-sourcing and its effectiveness on the tendering process, the study recommendations that organizations should allocate resources to acquire and implement advanced e-sourcing platforms and tools because these technologies can streamline the procurement process, enhance supplier interactions, and lead to better pricing and quality.**

Keywords: **E-Procurement, E-Sourcing, Public Universities, Tendering Process, Transparency.**

1. INTRODUCTION

The era of the industrial revolution 4.0 has made many changes to world developments, especially in the field of technology. Technology has now been adopted in various fields, both in the private sector and in the public sector. In the public sector, this technological sophistication is known as E-Government which is now used in E-Procurement either in the adoption process or has used the E-Procurement system (Vaidya et al., 2017). Technology has provided many benefits to the government sector including in the field of public administration and in electronic procurement which can provide the best at a lower cost (Moon, 2018).

Supply chain planning is the intial stage of the tendering procedure employed by public entities, involving the formulation of acquisition plans for defined timeframes.It is the practice of considering the fundamental procurement procedure, pinpointing both existing and future requirements, and determining the best efficient method to obtain goods,

works and services (Basheka, 2009). The organization aims to establish processes that exhibit greater transparency and accountability. However, in developing countries, persistent challenges such as unjustified or concealed procurement planning, inadequate need assessments, political influence, limited government monitoring capabilities, and unreliable cost estimation continue to contribute to corruption (Ware, 2012).

1.1.1. E-Procurement Global Perspective

The increasing trend of E-procurement is gaining momentum in the public sector, catalyzing e-government initiatives globally. In recent years, numerous governments at both national and local levels worldwide have initiated e-procurement programs. The USA led the way with the introduction of the NASA Acquisition Internet Service as the first e-procurement initiative within the public sector Bulut & Yen (2013).

E-procurement has gained worldwide recognition primarily due to technological advancements. In the United States of America, for example, major progress in e-procurement was observed in the year 2000, shortly before the economic downturn. Ultimately in the concurrent year, it was noted that all government operations had established an automation at a minimum in one phase of their procurement operations with several actively engaging through online platforms tendering (Reddick 2004). The Malaysia government at certain stage released an official declaration urging all contractors to adopt the utilization of the e-procurement applications (Yossuf, 2011).

According to an investigation carried out by the Commonwealth of Australia the year 2005, it was found that the Italian government, New Zealand, Scottish government , Western Australia and New South Wales were already implementing e-procurement systems for their public procurement processes. On a global scale, international entities such as the World Bank, Asia Pacific Economic Cooperation (APEC), Asian Development Bank (ADB), Inter-American Development Bank (IDB), and the African Development Bank (ADB) are actively endorsing e-procurement initiatives in developing countries. They offer financial support and guidance to assist in the implementation of e-procurement practices (Bulut & Yen, 2013). The worldwide transition to e-procurement reflects a collaborative endeavor to leverage technological progress for increased efficiency, transparency, and accountability in procurement procedures on a global level.

1.1.2. E-procurement Africa Perspective

The advancement of technology presents African governments with opportunities to transform their procurement practices, shifting from traditional paper-based processes to electronic procurement. This transition aims to improve e-government services for citizens and businesses in the digital economy (Mafini, Dhurup, & Madzimure, 2020). In South Africa and other African nations, there has been notable transformation in procurement processes, leveraging electronic commerce (e-Commerce) to replace manual phases of public procurement with digital alternative.

The implementation of e-procurement in Ghana's public procurement entities is characterized by varying stages of development, with notable absence of e-procurement in many instances. A significant challenge is the inadequate publication of tender notices, evaluations, and award notices, with a lack of proper documentation and storage of procurement process records. To address these issues, the adoption of an e-procurement information system utilizing web technology is proposed, facilitating electronic data storage and improving information dissemination. (Azanlerigu & Akay, 2015).

1.1.3. E-procurement in Kenya Perspective

Osir (2016) underscores that public procurement accounts for up to 70% of the revenue and operating budget for State Corporations. Citing Kamotho (2014), Osir (2016) demonstrates that government purchases made by public organazations in Kenya constitute over 11% of the GDP, emphasizing the sector's economic significance. However, despite these contributions, persistent public complaints from stakeholders highlight the inadequate procurement performance in Kenya's public entities. These concerns include prolonged procurement lead times, substandard service delivery, non-compliance with procurement policies, high costs for goods and services acquisition, as well as apprehensions about corruption and nepotism.

The Kenyan government acknowledges the importance of incorporating information communication technology (ICT) in community service delivery, leading to the effective adoption of e-procurement applications by several firms in the country. Recognizing ICT as a significant driver in achieving Vision 2030, there is a requirement to advance an ICT strategy that integrates the information technology sectors into the nationwide growth efforts. (Mambo,Ombui and Kagiri

,2015). The government has automated procurement through the Integrated Financial Management Information System (IFMIS). The Supplier Portal is an integral component of the IFMIS e-procurement method. It facilitates direct communication of essential information between public procuring entities and their suppliers.Additionally, it enables individuals who wish to engage in government business to register themselves and provides suppliers with the opportunity to participate in open bids and Requests for Quotations. Contractors interested in bidding for any publicly advertised services goods or works can now complete their firm registration on the Kenyan goverment Supplier Portal.

The tendering is a vital process of the supply chain which add competitive edge, reduce wastage and boost accountability and transparency in procurement process, the Kenya governmement have introduced reforms in public procurement through enactment of Act, Regulations and Circulars to give guidance and procedures of carrying out tendering process, contract award and feedback. The government has operationalize Public Procurement and Disposal Regulations 2020 which authorize all public entities in Kenya to advertise tender opportunities on an institutional website and on the public procurement information portal(PPIP) to enhance transparency and accountability. Therefore, this study examined e-procurement adoption and its effectiveness on tendering process of public universities.

A study by Nyaboe et el, (2025) on E-procurement procedures and performance in the County Government of Nyamira, Kenya, findings indicate that E-tendering exerts the strongest and most statistically significant positive effect on organizational performance. This suggests that organizations which effectively implement electronic sourcing are more likely to experience improvements in accuracy, processing speed, cost reduction, and transparency, which collectively enhance overall performance. E-Tendering shows a strong and statistically significant relationship with organizational performance. Its contribution highlights the critical role it plays in ensuring procurement efficiency and promoting transparency and accountability in public procurement processes. To enhance the effectiveness of e-procurement practices and improve organizational performance, County governments and public institutions should prioritize the adoption, integration, and optimization. Future studies could explore qualitative dimensions such as user perceptions, system usability, organizational culture, supplier readiness, and the role of ICT infrastructure, (Nyaboe, C., Maendo, D., Okello, S., 2025)

1.1.4. E-Procurement in Kenya Public Universities

Studies on e-sourcing adoption within Kenyan public universities indicate a significant shift in procurement approaches, yet full implementation remains inconsistent. Public universities that have adopted e-sourcing and e-procurement practices often report improvements in transparency, cost-effectiveness, and efficiency in the tendering process. For example Makori and Muiru (2023) identifies that although there has been progress, challenges like limited resources, resistance to change, and inadequate training are notable barriers to full adoption. This partial implementation highlights that while e-sourcing is beneficial, public universities face structural and financial constraints that slow down widespread adoption (Makori, A., & Muiru, P., 2023).

It seems that this problem has not been solved over along time because a study done in by Rotich et el., (2016) on procurement practices in Kenyan public institutions, including universities, revealed that e-sourcing enhances procurement performance by reducing corruption risks and promoting accountability. However, universities struggle with the technical infrastructure and capacity to maintain these systems effectively and further that similar implementation challenges, which reflect common barriers across various public sector institutions in Kenya (Rotich G, Muma B, & Micheni E., 2016).

The public universities in Kenya was commenced in the year 1961, due to an increase in demand for higher education, and growth in population has compelled the formation of universities in Kenya since the mid-1980s. As per the Commission of University Education(CUE) August 2022, there are 34 public universities in Kenya. The arrangement of public universities in Kenya positions the Vice-Chancellor, supported by deputy vice-chancellors, as the principal academic and administration officer. Due to the substantial increase in the population size, the expansion of university education in Kenya can be interpreted as a response to the overall need for education across various levels (Kamau, 2012). Therefore, this allows universities to handle their procurement functions prudently in order to ensure the availability of capital that can be used for more institutional growth in response to the growing need for expanded access to higher education (Kamau, 2012).

1.2. Statement of the Problem

Despite the advantages, many public organizations have been slow to adopt e-sourcing, particularly in countries like Kenya, where the digital infrastructure for e-sourcing is improving but not yet fully integrated across public sectors. According to studies, the adoption of e-sourcing in Kenya's public sector is still limited. For example, a report by the Kenya Institute for Public Policy Research and Analysis (KIPPRA) shows that less than 30% of public procurement activities are currently conducted online, despite government efforts to promote digital transformation (KIPPRA, 2022). Additionally, a survey by Transparency International Kenya found that only 20% of surveyed public sector organizations had integrated e-sourcing fully, citing factors such as cost and lack of capacity as primary barriers (TIK, 2023). These findings suggest that while e-sourcing is recognized for its benefits, the implementation in Kenya's public sector remains limited. The low adoption of e-sourcing underscores the need for more structured policies, enhanced digital infrastructure, and capacity-building initiatives to accelerate e-sourcing adoption across public organizations. Therefore, this study sought to found out whether organizations do understand the benefits of e-sourcing by examining the implementation of e-sourcing and its effects on the tendering process within public universities in Kenya being the biggest trainners of information and Communication Technology.

1.3. Objective of the study

To assess the effect of e-sourcing implementation on tendering process in public universities in Kenya.

1.4. Research hypothesis

$H0_1$: Implementation of e-sourcing has no statistically significant effect on tendering process in public universities in Kenya

2. LITERATURE REVIEW

2.1.Theoretical Literature Review

2.1.1.Diffusion of Innovation(DOI) Theory

The Diffusion of Innovation (DOI) Theory was introduced by Everett M. Rogers in his seminal book *Diffusion of Innovations* (1962). Rogers, a sociologist, explored how new ideas, products, and practices spread through societies and among various groups. The theory posits that innovations are adopted in stages over time by different adopter groups: innovators, early adopters, early majority, late majority, and laggards. The theory also identifies key factors that influence adoption, such as perceived benefits, compatibility, complexity, trialability, and observability of the innovation. Everett M. Rogers: As the originator, Rogers established DOI as a comprehensive framework for understanding innovation adoption. His research highlighted how communication channels, social systems, and individual adopter characteristics shape diffusion patterns.

Supporters of this theory include Geoffrey Moore in his book known as *Crossing the Chasm* (1991) wherein Moore expanded on Rogers' model, emphasizing the challenges in moving from early adopters to the early majority, especially in technology adoption. Another supporter of the theory is Joe Tidd and Frank M. Hull who are authors of *Managing Innovation: Integrating Technological, Market and Organizational Change* (2013) who further examined DOI's applications in technology and market-driven innovations, identifying strategic approaches to managing innovation diffusion. Despite its foundational value, DOI has faced a critique of contextual Limitations by Greenhalgh (2004) arguing that DOI oversimplifies complex social and cultural contexts that influence adoption rates, making it difficult to generalize across different industries or regions (Greenhalgh et al., 2004).

The DOI Theory is relevant to the adoption of E-sourcing and improving tendering process effectiveness as follows; (1). As e-sourcing solutions are introduced, the tendering process goes through stages of acceptance among organizations. Early adopters in an organization might start using e-sourcing for procurement, gradually influencing others to follow. This process aligns with Rogers' DOI framework, where different groups adopt the technology over time. (2). DOI identifies perceived benefits and ease of use as factors influencing adoption. For E-sourcing and tendering, these characteristics include cost savings, transparency, efficiency in supplier evaluation, and reduction in procurement lead time. When users perceive the E-sourcing system as compatible with their needs and easy to use, adoption is more likely. (3). Early adopters within sectors like public procurement set a precedent that can influence wider adoption across the

industry. As E-sourcing is proven effective, more organizations are encouraged to adopt it to remain competitive and align with best practices, which can enhance the effectiveness of the tendering process through broader industry adoption. (4). DOI also highlights barriers, such as complexity and resistance from traditional procurement practitioners who may be hesitant to switch to digital systems. Understanding these barriers helps managers address resistance and facilitates a smoother adoption process, ensuring the benefits of E-sourcing are realized.

According to the research conducted by Ndei and Mutuku (2021) on e-procurement and organizational performance in Kenya, it was posited that the DOI theory has demonstrated the widespread acceptance and adoption of e-ordering, e-sourcing and e-payment systems, leading to the abandonment of manual purchasing processes.This model has helped organizations in gaining a deeper understanding of how buyers adopt and engage with new technologies over a period. Additionally it provides insights into how knowledge or innovation progresses via various phases of adoption by different entities involved in the process.Since DOI theory is depending upon the perceptions of technology characteristics and user perspectives of the system, it significantly influences the adoption of e-procurement by both purchasers and tenderers. Hence, this theory was used in answering e-sourcing,e-payment and e-ordering research questions pertaining to the adoption of online procurement and its effectiveness on tendering process in public universities in Kenya.

2.2.Conceptual Framework

A conceptual framework refers to a collection of overarching concepts and values derived from pertinent areas of study. It serves as a structural framework for organizing and presenting subsequent discussions or presentations (Biklen, 2003). In this research, the dependent variable is the tendering process and the independent variable is e-sourcing.

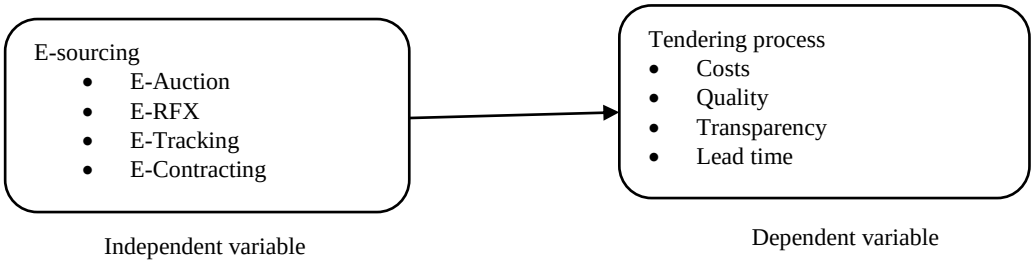

Figure 2.1: Conceptual Framework

2.2.1.E-sourcing

E-sourcing is the method of pinpointing potential bidders using information technology equipment and systems with aid of a worldwide network in the local, regional and global arenas to find the best-suited suppliers for goods, works, and services for the firms or organizations need in the supply chain channels. E-Auction is a online public sale in which goods or products are sold to the highest bidders through competive bidding process. E-RFX is a abrevation of Electronic Request for Quotation(RFQ), Electronic Request for Proposal(RFP) or Electronic Request for Information(RFI). E-Tracking is an electronic monitoring of procurement of proroducts and services in supply chain network. E-Contracting is an electronic agreement formulated online in digital format between the buyer and suppliers. E-sourcing will revolutionize the tendering process in public universities in Kenya by digitizing and automating procurement activities, promoting transparency and competition, standardizing processes, enhancing collaboration and communication, improving bid management and evaluation, and enabling performance tracking and analysis. By embracing e-sourcing technologies, universities can streamline procurement operations, drive efficiency, and deliver better value for money in procurement outcomes.

2.2.2.Tendering process

The tendering process is bid solicitation,bid submission,bid selection, bid evaluation, and contract awarding of goods, work, or services by ensuring the best-fit supplier is selected in consideration for value for money and minimization of wastage. A supplier fitting this description is expected to be financially stable, possess technical expertise, have a strong commercial reputation, and be considered the most suitable choice for the given task**.** It is believed that adoption of e-procurement will revolutionize the tendering process in public universities in Kenya by digitizing and automating procurement activities, enhancing transparency and accountability, improving supplier participation, reducing costs,

ensuring compliance, and enabling data-driven decision-making. By embracing e-procurement, universities can modernize their procurement practices, achieve greater efficiency and effectiveness, and ultimately deliver better value for money in procurement outcomes.

3. RESEARCH METHODOLOGY

The study applied descriptive research design that aimed to gather evidence through analysis in order to provide a description of the study population. The target population included 136 potential respondents from all 34 public chartered universities in Kenya targeting heads of procurement, heads of stores, heads of finance, and heads of ICT, who provided valuable insights based on their expert knowledge and experience in the application of electronic procurement systems. The study employed Slovin's formula to draw a sample size of 102 repondents. Primary data for the study was obtained through a structured questionnaire where 90 respondents completed them and returned for analysis. Data collected was scrutinized for consistency, accuracy, completeness, and uniformity in preparation for analysis. Descriptive analysis summarized data set using numerical measures inform of mean and standard deviation and the results were presented in form of tables. Simple regression was carried out to investigate the association between dependent variable and independent variable. Regression model for prediction is, $Y = \beta_0 + \beta_1 X_1 + \varepsilon$, Where Y = Tendering process (Dependent variable), β_0,β_1, are regression slopes that need to be projected, X_1= e-sourcing and ε = residual error.

4. DATA ANALYSIS, RESULTS AND DISCUSSION

4.1. Descriptive statistics on E-sourcing

The researchers wanted to know the opinion of respondents on the value of e-sourcing tools across different functions, including pricing, supplier management, transaction monitoring, and compliance as shown in Table 1.1. First the respondents were asked their opinion on whether e-auctions promote competitive pricing for bidded goods and services. With a mean score of 4.48, there is strong agreement that e-auctions indeed facilitate competitive pricing while the standard deviation of 0.64 indicates relatively low variability in responses, reflecting a consistent positive perception of e-auctions' impact on achieving competitive prices. Then respondents were asked if RFX tools improve supplier search, tender responses, supplier ranking, and rating processes to which a response with a mean of 4.30 suggests that respondents generally agree on the value of RFX tools in enhancing supplier management and a standard deviation of 0.68 indicates some variability, but responses are still fairly aligned, suggesting confidence in the RFX tools' benefits, though perceptions might vary slightly more here compared to other e-sourcing tools. Further respondents were asked whether e-tracking effectively monitors all transactions and consignments. The high mean score of 4.51 shows strong agreement that E-tracking is effective for this purpose while a standard deviation of 0.60, being the lowest among the statements, indicates highly consistent responses, reflecting broad consensus and high confidence in E-tracking as a reliable monitoring tool. Finally respondents were asked their opinion on whether e-contracting enhances accuracy, transparency, compliance, and cost-effectiveness where a response of a mean of 4.32 suggests agreement that e-contracting delivers these benefits, however, with a standard deviation of 0.79, there is slightly more variability in responses for this statement, indicating that while many respondents see e-contracting positively, some may view its benefits with less certainty compared to other e-sourcing tools. In overall analysis, the high mean scores (ranging from 4.30 to 4.51) reflect a strong agreement among respondents on the value of e-sourcing tools across different functions, including pricing, supplier management, transaction monitoring, and compliance. The standard deviations, all less than 1, point to a general consistency in responses, with minimal disagreement, indicating a shared belief in the positive impact of e-sourcing in procurement processes. E-tracking has the strongest consensus (lowest SD of 0.60), suggesting it is viewed as particularly effective, while E-contracting shows the most variability with the highest SD of 0.79, hinting at some diversity in perceptions regarding its effectiveness.

Table 1.1. E-sourcing

Statements on e-sourcing	Mean	Std. Dev
E-auctions promote competitive pricing for bidded products	4.48	0.64
RFX tools improve supplier searches, tender responses, and enable better supplier ranking and rating	4.30	0.68
E-tracking effectively monitors all transactions and consignments	4.51	0.60
E-contracting enhances accuracy, transparency, compliance, and is cost-effective	4.32	0.79

4.2. Descriptive statistics on Tendering process

Statements on characteristics of tendering process were put forward to respondents for the researchers to gauge tendering performance as shown in Table 1.2. First respondents were asked their opinion on whether a well-managed tendering process reduces costs, to which the mean of 4.59 and standard deviation of 0.62 indicate strong agreement that an efficient process indeed reduces costs. Further, respondents were asked whether a well-managed tendering process improves the quality of goods, work, and services, with a mean of 4.48 and a standard deviation of 0.62 supporting the view that effective tendering enhances quality. Also respondents shared their views on whether a transparent tendering process enhances accountability, with a mean of 4.62 and a standard deviation of 0.57 showing high agreement that transparency in tendering is beneficial. Finally respondents were asked whether a well-managed tendering process reduces lead time in procuring goods, work, and services, with a mean of 4.48 and a standard deviation of 0.67 suggesting that an efficient process significantly shortens lead times. The respondents high means across all statements (ranging from 4.48 to 4.62) reflect strong agreement among respondents regarding the benefits of an effective and efficient tendering process in reducing costs, improving quality, enhancing transparency, and reducing lead time. The low standard deviations (0.57 to 0.67) show a consistent perception, with minimal variation in responses, which could indicate a shared positive perception of the tendering process's effectiveness across the surveyed group.

Table 1.2. Tendering process

Statetment of Tendering Process	Mean	Std. Dev
A well-managed tendering process reduces costs	4.59	0.62
An effective tendering process improves the quality of goods, work, and services	4.48	0.62
A transparent tendering process promotes accountability	4.62	0.57
An efficient tendering process shortens the lead time for procuring goods, work, and services	4.48	0.67

4.3.Inferential Results

4.3.1. Model Summary e-sourcing and its effectiveness on tendering process

As shown in Table 1.3, the model summary indicates that the correlation coefficient R = 0.646 indicates a moderate to strong positive relationship between e-sourcing and the effectiveness of the tendering process. This value suggests that as the effectiveness of E-sourcing increases, the effectiveness of the tendering process also tends to improve. The R^2 value of 0.417 shows that approximately 41.7% of the variance in the effectiveness of the tendering process can be explained by e-sourcing. While e-sourcing contributes significantly to the effectiveness of the tendering process, other factors that are not included in this model account for the remaining 58.3% of the variance. This highlights that while E-sourcing plays an important role, it is only one of multiple factors influencing the tendering process. On the other hand Adjusted R^2 value of 0.410 adjusts for the number of predictors in the model (in this case, just one predictor of e-sourcing and this value is slightly lower than R^2, which is typical as it accounts for the model's simplicity with only one predictor. The Adjusted R^2 indicates that about 41.0% of the variability in the effectiveness of the tendering process is explained by the model, providing a reliable measure for generalizing these findings to a broader context. The standard error of the estimate of 1.484, represents the average distance that observed values fall from the regression line. A lower standard error would indicate a better fit of the model to the data. In this context, 1.484 suggests that while there is a fair level of precision, the predictions of tendering effectiveness based on e-sourcing alone still have some degree of variability implying that there is some room for additional predictors to improve the model's accuracy.

Table. 1.3 Model Summary E-sourcing and its effectiveness on Tendering Process

Model	R	R Square	Adjusted R Square	Std. Error
1	.646[a]	.417	.410	1.484

a. Predictors: (Constant), Electronic Sourcing

4.3.2. ANOVA for e-sourcing and its effectiveness on tendering process

As shown in Table 1.4, the regression sum of squares represents the portion of the variance in the tendering process that can be explained by e-sourcing (predictor) with a value of 138.656 indicating that a substantial part of the variation in the tendering process is explained by e-sourcing. The residual sum of squares reflects the variance in the tendering process not explained by e-sourcing with a value of 193.844 showing there remains some unexplained variability, indicating that other factors outside of e-sourcing also influence the tendering process. The total sum of squares represents the overall variance in the tendering process, totaling 332.500. This is the combined effect of explained and unexplained variance in the model. The model has 1 degree of freedom for the regression, corresponding to the single predictor, e-sourcing. The residual has 89 degrees of freedom (total sample size of 90 minus 1 for the predictor), which is used to calculate the mean square for the residual variance. The mean square for the regression (138.656) indicates the average variation explained by e-sourcing. The mean square for the residuals (2.178) indicates the average unexplained variance. These values are used to calculate the F-ratio. The F-statistic value of 63.662 measures the ratio of the explained variance to the unexplained variance in the model. A higher F-value indicates a strong relationship between e-sourcing and the tendering process. This large F-value suggests that the regression model, with E-sourcing as a predictor, is statistically significant in explaining tendering effectiveness. The significance level (p-value) of .000 indicates that the relationship between e-sourcing and the effectiveness of the tendering process is statistically significant at the conventional alpha level (e.g., $p < 0.05$). This extremely low p-value suggests strong evidence against the null hypothesis, confirming that E-sourcing has a significant impact on the tendering process.

Table 1.4. ANOVA for e-sourcing and its effectiveness on Tendering Process

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	138.656	1	138.656	63.662	.000[a]
	Residual	193.844	89	2.178		
	Total	332.500	90			

a. Predictors: (Constant), ElectronicSourcing

b. Dependent Variable: TenderingProcess

4.3.3. Simple regression for e-sourcing and its effectiveness on tendering process

As shown in Table 1.5, the regression model can be expressed in the following equation; Tendering process effectiveness = 7.942 + 0.581(e-sourcing). Constant (Intercept) value of 7.942 represents the expected value of the tendering process when e-sourcing is equal to zero and it can be interpreted as the baseline effectiveness of the tendering process without the influence of e-sourcing. The coefficient for electronic sourcing (e-sourcing) equals 0.581 indicating that for each one-unit increase in e-sourcing, the effectiveness of the tendering process increases by approximately 0.581 units. This suggests a positive relationship between e-sourcing and tendering effectiveness, meaning that improved E-sourcing practices contribute to greater effectiveness in the tendering process. The standardized coefficient (Beta) represents the change in the dependent variable (tendering process effectiveness) in standard deviations for a one standard deviation change in the predictor (e-sourcing). A Beta of 0.646 indicates a strong positive impact of E-sourcing on tendering effectiveness, suggesting that it is a significant predictor in the model. The standard error indicates the average distance that the estimated coefficients fall from the actual average value of the dependent variable. A smaller standard error for e-sourcing (0.073) compared to the constant suggests that the estimate for E-sourcing's impact on tendering effectiveness is relatively precise. The T-statistic tests the null hypothesis that the coefficient is equal to zero (no effect). A T-statistic greater than 2 (in absolute value) is generally considered statistically significant. The T-value of 7.934 for e-sourcing is significantly higher than 2, indicating that e-sourcing coefficient is statistically significant predictor of the tendering process effectiveness. The p-value for both the constant and the coefficient of e-sourcing is 0.000, indicating that the results are statistically significant at the conventional alpha level ($p < 0.05$). This strong significance supports the conclusion that e-sourcing is an important factor in enhancing the effectiveness of the tendering process.

Table 1.5. Regression for E-Sourcing and its effectiviness on Tendering Process

Model		Unstandardized Coefficients		Standardized Coefficients		
			Std. Error	Beta	T	Sig.
1	(Constant)	7.942	1.298		6.118	.000
	E- Sourcing	.581	.073	.646	7.934	.000
a. Dependent Variable: Tendering process						

4.3.4. Hypothesis test

Adoption of e-sourcing has no statistically significant effect on tendering process in public universities in Kenya. The results of regression, reveal that e-sourcing has a p-value = 0.000. Since the p- value is less than < 0.05, the null hypothesis was rejeted. It was concluded that adoption of e-sourcing has statistically significant effect on tendering process in public universities in Kenya.

5. SUMMARY, CONCLUSION AND RECCOMMEDATIONS

5.1 Summary findings of e-sourcing on effectiveness on the tendering process

The objective of the study was to assess the adoption of e-sourcing and its effectiveness on the tendering process in public universities in Kenya. Respondents' perceptions were sought on the effectiveness of e-sourcing components. The findings indicate that: Respondents perceive e-auctions positively suggesting that e-auctions effectively foster competition among suppliers, resulting in better pricing for bid products. RFX processes received favorable perceptions from respondents indicating that respondents believe RFX enhances various aspects of supplier interactions, leading to improved sourcing outcomes. Respondents strongly agreed that e-tracking effectively traces all transactions and consignments also suggesting that e-tracking systems are viewed positively for their ability to provide visibility and traceability throughout the procurement process and finally e-contracting also received positive perceptions from respondents indicating that respondents believe e-contracting systems contribute to improved accuracy, transparency, compliance, and cost-effectiveness in procurement activities. Hene, the analysis suggests that respondents have a positive perception of various aspects of e-sourcing systems, including e-auctions, RFX processes, e-tracking, and e-contracting. These findings underscore the perceived benefits of adopting e-sourcing systems in terms of fostering competition, improving supplier interactions, enhancing traceability, and ensuring accuracy and compliance in procurement activities.

5.2. Conclusion for e-sourcing on effectiveness on the tendering process

The p-value for the coefficient of e-sourcing is 0.000, indicating that the results are statistically significant at 95% level ($p < 0.05$). This strong significance supports the conclusion that e-sourcing is an important factor in enhancing the effectiveness of the tendering process. The model results indicates that as organizations enhance their E-sourcing practices, they can expect to see improvements in the overall effectiveness of their tendering processes. The results suggest that organizations should prioritize the implementation and optimization of E-sourcing strategies to maximize their tendering outcomes.

5.3 Recommendations

Based on the regression analysis of e-sourcing and its effectiveness on the tendering process, the researchers advance the following recommendations for organizations to enhance their tendering outcomes: First, organizations should allocate resources to acquire and implement advanced e-sourcing platforms and tools. These technologies can streamline the procurement process, enhance supplier interactions, and lead to better pricing and quality. Second, organizations should provide training for procurement staff on e-sourcing best practices and tools. A well-informed team can leverage E-sourcing more effectively, leading to better decision-making and improved outcomes in the tendering process. Third, organizations should ensure that e-sourcing initiatives are integrated with other business functions such as finance, logistics, and project management. This alignment can facilitate smoother operations and better outcomes across the organization. Fourth, organizations should engage stakeholders both internal and external to gather feedback on the e-sourcing process and its effectiveness. This can provide insights into areas needing improvement and help tailor the e-

sourcing strategy to better meet organizational goals. Fifty and finally, organizations should keep abreast of emerging trends and technologies in e-sourcing and procurement. Adapting to changes in the market can provide a competitive advantage and ensure that the organization remains at the forefront of procurement practices.

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