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Implications of Electronic Procurement on Firm Performance: A Study of Selected Capital Market Operators in Lagos State, Nigeria

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Abstract

This research investigated the on-time service delivery and process flexibility in the procurement process of selected Capital Market Operators (CMOs) in Lagos State, Nigeria. The electronic procurement independent variables used included e-tendering, e-sourcing, e-bidding, e-purchasing, and e-payment. Data were sourced from 158 CMOs in Lagos State, Nigeria, through the administration of structured questionnaires (online survey) and analyzed using the least squares methods. The results revealed an explanatory negative and significant relationship between e-tendering and on-time service delivery (coefficient = -0.018, $p < 0.05$), suggesting that electronic tendering processes may slow down prompt supplier deliveries. Conversely, e-sourcing had a positive but insignificant impact on on-time service delivery (coefficient = 0.015, $p > 0.05$), implying a slight but weak improvement in delivery speed. Electronic purchasing showed a significant positive relationship with on-time service delivery (coefficient = 0.155, $p < 0.05$), highlighting its role in improving supplier responsiveness. Regarding process flexibility, e-bidding exhibited a positive but insignificant relationship (coefficient = 0.069, $p > 0.05$), indicating that while e-bidding may support adaptability in supply processes, the impact is not statistically strong. Furthermore, e-payment demonstrated a negative and insignificant relationship with process flexibility (coefficient = -0.051, $p > 0.05$), suggesting potential inefficiencies or delays linked to electronic payment processes. The study concluded that e-procurement has helped firms in the Nigerian capital market to ease their procurement functions by ensuring a stress-free bidding process, purchasing via online procurement software, and making payments electronically. However, the tendering process being carried out online met some difficulties as it negatively affected the firms' performance. The study recommended that firms, especially the CMOs, should strive to organize online auctions so as to speed up the bidding process and ensure transparency in their e-procurement functions to enhance their delivery quality.

Keywords: *Electronic procurement, firm performance, capital market operators, e-tendering, e-sourcing, e-bidding, e-purchasing, e-payment*

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1. Introduction

Electronic procurement (e-procurement) has emerged as a crucial component of modern business practices, offering the potential to streamline procurement processes, reduce costs, and enhance overall firm performance. The invention of the internet in the last century has affected the way to do business. One veritable method business use to confront the increasing competition they face is the deployment of innovative ways to reduce the cost of operation (Shatta et al., 2020). The use of information technology has been the norm of the 21st century, and many Countries and organizations have increasingly used e-commerce to facilitate e-business. One of the important applications of using the technology is electronic procurement (E-procurement). E-procurement is a business-to-business (B2B) process and refers to the integration of IT systems for conducting procurement activities using electronic methods (Aminah et al., 2018; Belisari et al., 2019). E-procurement enables organizations to lower business costs, lower consumption time, streamline consuming processes, and access broader markets (Gascó et al., 2018; Tiwari et al., 2019).

Firms use e-procurement to create a competitive advantage by reducing costs and confronting the increasing competition in the market (Luay Daoud & Ibrahim, 2019). Globally, the significance of e-procurement has increased with an overall volume of $11 trillion in 2020, which constitutes 12% of the global GDP. Approximately 75% of the global e-procurement is dominated by the US and Western countries (Luay Daoud & Ibrahim, 2019). In the Middle East, the volume of e-procurement is estimated at $16 billion according to a report by Nurdin (2021). Procurement functions have become a strategic unit for many organizations' performance, as prudent procurement can cut costs and increase profitability (Saad, Kunhu, & Mohamed, 2022).

In Nigeria, the notion of electronic procurement is attracting attention among procurement scholars and practitioners (Faheem & Siddiqui, 2023). Since 2007, when the Public Procurement Act was enacted to address challenges plaguing manual procurement methods in the public sector, most organizations, including public entities, are investing in e-procurement systems that allow for e-sharing, e-advertising, e-submission, e-evaluation, e-contacting, e-payment, e-communication, and e-checking and monitoring (Mapanga & Garidzirai, 2024). Key drivers spurring e-procurement adoption globally and in Nigeria include tremendous potential to drive efficiency, transparency, cost savings, and quality control (Rotich & Okello, 2024).

There are some fundamental things the purchasing company aims to achieve when it comes to purchasing. These include reducing the time, increasing volume with a few preferred suppliers to get better pricing, reducing the time employees spend looking for a product, service, or suitable supplier, cost of administering purchases, reducing cycle times, as well as limiting choices to only pre-qualified suppliers to ensure quality. E-procurement has been advocated as a tool that can improve competence and organizational performance through data transmission, buyer/supplier collaboration, systems management, and billing management. With the emerging application of the internet and information technology (ICT) in procurement in

Nigeria, companies in the capital market are forced to shift their operations from a traditional way to a virtual e-procurement and supply chain philosophy to transfer the company's activity to an automated one (Carabello, 2017). Thus, this study focuses on understanding the impact of e-procurement on the performance of capital market operators in Lagos, Nigeria.

1.1 Problem Statement

The e-procurement systems, such as e-tendering, e-sourcing, e-purchasing, e-bidding, and e-payment, are widely recognized as strategic tools to improve procurement outcomes and operational efficiency; their specific impact on the Capital Market Operators (CMOs)in Nigeria has not been fully explored. This is particularly concerning as firms within this sector are under increasing pressure to optimize procurement functions and enhance overall performance in a highly competitive and regulated market.

Despite the increasing adoption of e-tendering platforms in procurement processes, many CMOs in Lagos continue to experience persistent delays in the execution and delivery of services. Traditional tendering methods have been associated with inefficiencies, lack of transparency, and time wastage, but the practical gains from switching to electronic tendering have not been fully realized or quantified in the sector. This raises the question of whether e-tendering improves on-time service delivery or if other operational bottlenecks are responsible for existing delays.

While e-sourcing is widely regarded as a tool that improves supplier selection and negotiation efficiency, many firms still grapple with inconsistent service delivery timelines. The assumption that e-sourcing leads to better supplier performance and reduced lead times has not been empirically verified in the context of capital market operations in Lagos. As such, there is a gap in understanding how much e-sourcing truly contributes to ensuring timely service delivery in this sector.

E-purchasing systems are expected to simplify procurement transactions and accelerate the ordering process. However, in practice, many firms using these platforms still experience challenges in ensuring that goods and services are delivered on schedule. This contradiction points to a potential gap between the theoretical benefits of e-ordering and the realities within capital market environments. The lack of empirical evidence leaves a critical gap in evaluating the effectiveness of e-purchasing in enhancing on-time service delivery performance.

Organizations require a high degree of agility and process adaptability to meet fluctuating market demands. E-bidding technologies are designed to promote competition, reduce costs, and improve responsiveness. However, little is known about how these systems actually influence the internal flexibility of procurement processes in capital market firms. The absence of focused studies on this link hinders firms from fully leveraging e-bidding for strategic advantage.

E-payment platforms are often introduced to enhance transaction speed and operational efficiency. However, their role in enabling more flexible procurement and financial processes within capital market firms remains unclear. In some cases, e-payment systems are found to be rigid or poorly integrated with other procurement tools, thereby limiting their intended benefits. The specific impact of e-payment on process flexibility within capital market operators is yet to be critically examined, particularly in Nigeria.

However, despite the general recognition that e-procurement improves transparency, on-time service delivery, reduces costs, and minimizes non-value-added processes, most existing research has concentrated on public sector organizations, leaving a gap in the understanding of how private sector businesses, particularly Capital Market Operators in Nigeria, leverage e-procurement to improve their performance.

Furthermore, despite growing interest in digital transformation and procurement automation, empirical studies examining the link between e-procurement and firm performance within the Nigerian context, particularly in regulated sectors like the Nigerian Capital Market, are limited. Most existing research has focused on public sector institutions (e.g., ministries and parastatals), General ICT adoption without focusing on procurement systems, or Qualitative assessments with minimal firm-level performance data.

Likewise, many prior studies do not disaggregate e-procurement into its key components (e.g., e-tendering, e-ordering, e-payment) to analyze their individual and collective influence on performance indicators such as on-time service delivery, cost efficiency, process flexibility, and compliance.

While studies in the public sector have identified positive relationships existing between e-procurement and performance metrics, it remains unclear whether these findings can be generalized to capital market operators in Nigeria, who operate in a different regulatory and operational environment.

Addressing this gap is important for both academic and practical reasons:

Academically, this study contributes to procurement and operations management literature by providing empirical evidence from a developing economy context and exploring the capital markets in Nigeria. Practically, insights from the study can inform decision-making among business leaders, ICT managers, and procurement officers seeking to enhance performance through digital transformation and Policy-wise, the findings can assist regulators like the Securities and Exchange Commission (SEC) and Bureau of Public Procurement (BPP) in designing frameworks that encourage e-procurement adoption and monitor its impact on firm-level compliance and efficiency.

It is against this backdrop that this study aims to investigate the influence of e-procurement on the performance of Capital Market Operators in Nigeria. This will address the current gap in the literature by validating whether e-procurement practices adopted by these firms contribute to enhanced organizational performance, and if so, to what extent.

1.2 Objectives of the Study

This study's general objective was to examine electronic procurement on firm performance in selected Capital Market Operators in Lagos State, Nigeria. Drawn from the general, the specific objectives are:

i. Examine the nature of the relationship between e-tendering and on-time service delivery by selected capital market operators in Lagos, Nigeria;

ii. Ascertain the relationship between e-sourcing and on-time service delivery in selected capital market operators in Lagos, Nigeria;

iii. Evaluate the extent to which E-Purchasing (E-Ordering) influences the on-time Service delivery of selected capital market operators in Lagos, Nigeria;

iv. Investigate the relationship between E-bidding and process flexibility in selected capital market operators in Lagos, Nigeria;

v. Determine the influence of e-payment on process flexibility of selected capital market operators in Lagos, Nigeria.

1.3 Research Hypotheses

H_{01}: There is no significant relationship between e-tendering and on-time service delivery in selected capital market operators in Lagos, Nigeria.

H_{02}: There is no significant relationship between e-sourcing on on-time service delivery in selected capital market operators in Lagos, Nigeria.

H_{03}: E-purchasing (e-ordering) has no significant relationship with process flexibility in selected capital market operators in Lagos, Nigeria.

H_{04}: E-bidding has no significant relationship with on-time service delivery in selected capital market operators in Lagos, Nigeria.

H_{05}: There is no significant relationship between e-payment and process flexibility in selected capital market operators in Lagos, Nigeria.

2. Literature Review

A review of the literature is done under three sub-headings. First is the conceptual review, which reviews the basic concepts of the study. The second is the theoretical framework, which establishes theoretical knowledge of e-procurement. The third is the empirical review, which identifies the gaps from previous literature.

2.1 Conceptual Review

E-procurement refers to the use of electronic systems and technologies to facilitate the acquisition of goods and services (Nani & Ali, 2020). According to Nani and Ali (2020), e-procurement encompasses various activities, including supplier selection, order placement, transaction processing, and contract management. Key benefits of e-procurement include improved efficiency, transparency, cost savings, and better supplier relationship management (Aboelmaged, 2020). Electronic procurement (e-procurement) encompasses a variety of systems and processes used to facilitate the electronic acquisition of goods and services.

E-procurement, according to Wen and Zeng (2018), is the use of internet-based information technologies to streamline and enable procurement activities between companies or between companies and government entities. Core e-procurement processes include identifying potential suppliers online, sending requests for information and price quotes, placing purchase orders, processing invoices, and making payments digitally (Sukawat & Mu, 2020; Verma, 2024). Benefits over traditional paper-based procurement include increased process efficiency, reduced transaction costs, improved spend visibility, and enhanced compliance (Wen & Zeng, 2018). Equally, e-procurement facilitates the bid invitation process, including publishing tender notices, distributing documentation, submitting bids, answering bidders' inquiries, and evaluating proposals digitally (Sukawat & Mu, 2020). Compared to traditional paper-based tendering, e-tendering reduces effort for procurement entities and bidders, enhances transparency, increases bidder participation, and speeds up processes (Kaleshovska et al., 2021).

E-Tendering: Tendering is a process in which a prevailing party, in charge of the tendering process, chooses a contractor or tenderer to do a job or supply products or services by requesting several tenderers to bid for doing the work, service, or supplying the products (De Boer et al., 2022). Tendering is a stage of procurement, in a procurement cycle broadly covering tendering, contracting, and trading. Tendering is increasingly conducted online, and this has come to be known as electronic tendering or simply E-Tendering. E-tendering has been used in several organizations to make the procedure very viable and hassle-free. From the beginning step, i.e., the publication or advertisement of the tender document, supplier selection, the evaluation stage, negotiation, and other pertinent stages of the cycle are done and completed online or via the Internet. Systems and software have been constructed to improve this process, and interfaces on the Internet have been made to facilitate tendering without having to meet clients in person. In simple terms, it involves electronic bid submission, online evaluation of bids, secure and transparent bidding processes (International Standards Organization, 2023).

E-Sourcing: Sourcing is a critical component of the procurement process, encompassing activities aimed at identifying the best suppliers capable of delivering goods and services and working with optimal quality, quantity, and cost. The effectiveness of the sourcing process is crucial for determining supplier selection and ultimately affects end-user satisfaction (Yu, Yevu, & Nani, 2020). Chan and Owusu (2022) argue that the success of the procurement process hinges on efficient and appropriate sourcing. As the initial step in procurement, sourcing can significantly influence how well procurement aligns with organizational strategic goals or deviates from them. Electronic sourcing is considered a vital solution to enhance the effectiveness and efficiency of sourcing (Yu et al., 2020).

E-Bidding: Traditionally, the process of preparing the bidding documents for contractors requires a tremendous amount of manpower, particularly for large-sized contractors. On the other hand, contractors find that the process of obtaining and submitting bids to be a costly activity (Liao et al., 2022). Electronic bidding (e-bidding) presents a possible solution for overcoming these challenges. An e-bidding system consists of electronically exchanging/transferring, publishing, communicating, accessing, receiving, and submitting all the bidding process through the medium of the internet, hence replacing the traditional paper-based bidding process. This can potentially make the business operation more efficient and effective for all the participating stakeholders (Kajewski et al., 2021). E-bidding, as opposed to a traditional paper-based bidding system, has been viewed as a less costly and time-consuming system. The adoption of this digital system has led to reductions in unproductive activities and expenses, including the need to print, scan, and transport documents, to name three tasks (Tindsley & Stephenson, 2024).

E-Purchasing (E-Ordering): Effective management of a firm's supply chain is important way of attaining competitive advantage and enhancing the performance of the organization (Chepkwony & Chepkwony, 2017). In this regard, most organizations have embraced ICT to enhance the supply performance. The embracement of electronic procurement has greatly simplified/ made the business purchasing operation easy and real. By accommodating e-procurement in an organization, the entire process, especially purchasing, leads to reduced cost of doing business. Kimutai et al. (2020) stated that E-ordering is the process of creating and approving purchasing requisitions, placing purchase orders, as well as receiving goods and services ordered, by using a software system based on internet technology, which greatly improves the supply chain performance. In the case of e-ordering, the goods and services

ordered are indirect goods and services, i.e., non-product related goods and services. The supporting software system, an ordering catalogue system, is usually used by all employees of an organization. In the case of Enterprise Resources Planning (ERP), the goods and services ordered are product-related. It may be noted that ordering of direct goods and services is usually plan-based. EDI electronic ordering is ideal for customers wishing to develop an automated purchasing system for orders (Chepkwony & Chepkwony, 2017).

E-Payment: Electronic procurement is very important when it comes to improving procurement performance and, by extension, organizational performance. Procurement is strategic in nature since it links the organization's suppliers to the strategic objectives of the organization. Procurement translates the strategic objectives of an organization into the sourcing needs that can enable the organization to achieve the same. E-payment has been promoted as one way of improving procurement efficiency and effectiveness (Musau, 2015). Through e-payment, an organization is able to directly or indirectly buy the raw materials at a relatively lower price and save the hassles of carrying bulk cash (Gichuhi, 2021). It also enhances and strengthens transparency and the level of competitive positioning of the firm (Kenneth & Bricu, 2022). E-payment facilitates electronic payments between buyers and suppliers. Online payment gateways, electronic funds transfer (EFT), and integration with e-invoicing systems are all descriptions of the electronic payment system (Doherty et al., 2023).

E-procurement in the Capital Market: In the context of capital market operators, e-procurement can significantly enhance operational efficiency and performance. By automating procurement processes, firms can reduce administrative costs, minimize errors, and accelerate transaction cycles. Additionally, e-procurement can lead to better compliance with regulatory requirements and improved audit trails, which are essential for maintaining market integrity (Croom & Brandon-Jones, 2007). In most cases, internal customer satisfaction through the use of E-Procurement functions can help a company remain competitive in ways other than by reducing costs. Several of these are listed by Van Weele (2005), including efficiency, cost saving, compliance with regulations and transparency, on-time delivery of projects and orders, efficient data management, and quality of service.

2.2 Theoretical Framework

Explaining the consequences of adopting E-procurement, the resource-based view (RBV) theory assumes that deploying effectively the resources and capabilities of companies can lead to better organizational performance (Gupta *et al.,* 2018). The resource-based view theory provides a theoretical basis for linking technology systems such as e-procurement usage with their perceived impacts (Daoud *et al*., 2021). The resource-based view posits that firms create value and impact by combining various resources that are economically difficult to imitate or are valuable across firms. The greater the use, the more likely the firm is to develop a unique impact from its innovation (Kozlenkova *et al*., 2024). This theory has been used in several studies to explain the effect of technology capabilities on firm performance (Alaarj et al., 2016), and for this reason, it is selected as the first theoretical foundation of this research work.

Secondly, given the technical barriers in using e-procurement, the technology acceptance model becomes an important driver of adopting e-procurement (Brandon-Jones & Kauppi, 2018). This suggests that if the users (firms) believe that a given technology is less difficult to utilize, then the technology will be adopted. As noted by Davis (1989), potential users are more likely to accept and adopt innovations that are thought to be simpler to use and less

complicated. Conversely, if the procurement officials found that the e-procurement technologies are easy to operate, they will adopt them. The ease with which this theory fits into this research is phenomenal because electronic procurement serves the purpose of easing the supply chain management function. If firms perceive the electronic procurement process as cumbersome or if they do not have the required software to execute their procurement online, then they will not adopt e-procurement. They would rather switch to the manual method of procurement.

Thus, firms adopt e-procurement if they feel that they have the resources necessary to execute the procurement process. Consequently, the resource-based view (RBV) theory and the technology acceptance model (TAM) serve as the two main theoretical foundations of this study.

2.3 Empirical Review

Empirical studies have demonstrated the varying impacts of e-procurement on firm performance across various industries in Jordan. Marci (2022) examined the predictors and consequences of using e-procurement. Based on the resource-based view (RBV) and Technology-Organization-Environment framework (TOE), the study proposed that technological (relative advantage, compatibility, and complexity) and organizational factors (top management support, organizational readiness, and Information System (IS) committee) would have a significant effect on e-procurement which in turn expected to affect the firm performance.

Asare (2024) examined the moderating role of technological capability on the relationship between E-procurement and organizational performance in the oil and gas industry. From a sample of 106 oil and gas firms, the findings showed a moderately significant relationship between e-procurement and organizational performance in the oil and gas industry, which means that as e-procurement increases, organizational performance is also likely to increase. Abdul-Latif (2023) found that IT capability positively and significantly moderated the relationship between E-procurement and organizational performance, and that the effect is stronger at high levels of IT capability.

E-procurement is favorably correlated with the effectiveness of County Governments' supply chain operations in Kenya, according to the study of Waithaka and Kimani (2021) on the impact of e-procurement practices on supply chain performance. In their study on the e-procurement practices and performance of large manufacturing enterprises in Nairobi County, Miyoko, Marika, and Litondo (2019) found that significant manufacturing organizations use a variety of E-procurement approaches to enhance their financial performance. Obedgiu, Lagat, and Sang (2022) had earlier underscored this finding in their study on e-sourcing and prompt delivery of materials and goods. They affirmed that e-sourcing has a significant positive effect on the early supply of goods and, by extension, successful project delivery.

According to the results of Mafini, Dhurup and Madzimure's (2020) investigation into e-procurement, supplier integration, and supply chain performance in South African small and medium-sized enterprises, the other three elements of e-procurement—namely, e-sourcing, e-evaluation, and e-informing—were statistically insignificant in influencing supply chain integration. In a study assessing the impact of the use of the e-procurement system on procurement practices and performance of public hospitals in Ghana, Sarpong *et al.* (2018) discovered a positive correlation between hospital procurement performance and the use of the

e-procurement system. Although many academics have contributed to the study of e-procurement and performance outcomes, it is still unclear how and when e-procurement affects business performance, especially among capital market operators in Nigeria.

3. Methodology

In this study, the quantitative research methods were used to assess the impact of e-procurement on firm performance in selected capital market operators in Lagos, Nigeria. This enabled the researcher to address the objectives and answer the research questions. The population of the study comprises selected capital market operators (CMOs) listed on the website of the Securities and Exchange Commission (SEC) – The regulators as of May 30, 2024. Since the population was known but cannot all be reached at once, we leveraged the position of Etikan, Musa, and Alkassim (2016), which stated that a sample size of 50 to 200 is considered sufficient for an uncertain and unreachable population. Thus, the sample size was determined purposively, meaning that upon administration of the instrument, once the desired sample is reached, the questionnaire distribution ends. Consequently, the research has a sample size of 158 capital market operators.

The research data was collected through the use of structured questionnaires, which were tested for validity and reliability before distribution. The research data was analyzed objectively. The quantitative data gathered from the survey were edited in Microsoft Excel software, coded in SPSS version 23 software, and then analyzed using the multiple regression technique.

The relationship between e-procurement and the performance of the capital market operators was tested using the Ordinary Least Squares multiple regression technique. Prior to the model estimation, a model is formulated. The model establishes the relationship between the dependent and independent variables in a linear equation. The linear equation is stated in its functional form as:

$$\text{Firm Performance} = f(\text{E-procurement}) \quad \ldots(1)$$

By disaggregating firm performance and e-procurement, we re-specify the model as follows:

$$\text{OTD} = f(\text{e-tend, e-source, e-bid, e-purch, e-pay}) \quad \ldots(2)$$

$$\text{OTD} = \beta_0 + \beta_1\text{e-tend} + \beta_2\text{e-source} + \beta_3\text{e-bid} + \beta_4\text{e-purch} + \beta_5\text{e-pay} + \varepsilon_{it} \quad \ldots(3)$$

Where: OTD = On-time service delivery of projects, e-tend = Electronic tendering, e-source = Electronic sourcing, e-bid = Electronic bidding, e-purch = Electronic purchasing, e-pay = Electronic payment, $\beta_1 - \beta_5$ = Unknown coefficients of the model to be estimated, and ε_t = Stochastic error term. The a priori expectation of the model is such that $\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 > 0$, $\beta_4 > 0$, and $\beta_5 > 0$. In other words, it is expected that e-procurement variables should have positive effects on the performance of firms.

4. Results and Discussion

4.1 Results

Table 1: Summary of the Ordinary Least Squares Estimates

	Dependent variable = On-Time Delivery (OTD)		
	Coefficient (*p-value*)	**t-stat.**	**Remark**
C	2.497 (0.089)	--	--
e-tendering	-0.018** (0.008)	*-3.509*	*Negative and significant*
e-sourcing	0.015 (0.809)	*0.241*	*Positive but not significant*
e-bidding	0.183** (0.018)	*2.402*	*Positive and significant*
e-purchasing	0.155** (0.002)	*4.189*	*Positive and significant*
e-payment	0.270** (0.000)	*5.941*	*Positive and significant*
Adjusted R-squared = 0.481			
F-statistic = 10.959			
DW-statistic = 1.970			

Source: Researchers' Computation using E-view 9

The regression estimates above show the relationship between the e-procurement variables and the on-time delivery of the firms. The model shows that electronic tendering decreases the on-time delivery of the firms by 0.018 units. This means that for every unit change in electronic tendering, on-time delivery drops by 0.018 units. The probability value of 0.008 implies that the decrease was a significant decrease since *p-value 0.008 < critical value 0.05.*

Electronic sourcing, electronic bidding, electronic purchasing, and electronic payment exerted a positive influence on the on-time delivery of the firms in the model. The magnitude of increase in on-time delivery occasioned by the electronic procurement methods was estimated at 0.015, 0.183, 0.155, and 0.270, respectively. Looking at the probability values, we observe that electronic purchasing, electronic bidding, and electronic payment significantly increased the performance of the firms (on-time delivery).

The post-estimation tests, as presented in Table 1 above, show the Durbin Watson statistic value of 1.970, which suggests that there is no autocorrelation in the model since the DW value tends towards 2 rather than 0. In addition, the R-squared is more suitable for gauging the overall fitness of the model, and it has a value of 0.511. This indicates that electronic procurement accounts for up to 51.1% of the changes in firms' performance for the period under study. The joint significance of the variables shows that electronic procurement variables have a significant joint effect on firms' on-time delivery.

Test of Hypotheses

Table 2: Summary of Hypotheses test

	p-value	**t-stat.**	**Decision**
C	0.089	--	--
e-tendering	0.008*	*-3.509*	*Reject null hypotheses since p-value < 0.05*
e-sourcing	0.809	*0.241*	*Accept null hypotheses since p-value > 0.05*
e-bidding	0.018*	*2.402*	*Reject null hypotheses since p-value < 0.05*
e-purchasing	0.002*	*4.189*	*Reject null hypotheses since p-value < 0.05*
e-payment	0.000*	*5.941*	*Reject null hypotheses since p-value < 0.05*

Source: Extracted from SPSS Analysis

The probability values for e-tendering, e-bidding, e-purchasing, and e-payment are all less than the 0.05 critical value, and as a result, we reject their respective null hypotheses. What this implies is that e-tendering, e-bidding, e-purchasing, and e-payment have significant effects on the performance of the selected capital market operators in Nigeria. Electronic sourcing has a probability value that is greater than the 0.05 critical value, and as such, we accept the null hypothesis and conclude that e-sourcing has no significant effect on the performance of the selected capital market operators in Nigeria.

4.2 Discussion of Findings

The study focused on electronic procurement and firm performance using selected capital market operators in Lagos State as a case study. The various aspects of e-procurement, such as e-tendering, e-sourcing, e-purchasing, e-bidding, and e-payment, were used as the specific objectives, and the intent was to ascertain how they individually affect firm performance, measured using on-time delivery and process flexibility of the firms. The findings made in this study are discussed in line with the specific objectives of the study. The multiple regression analysis serves as a guide in the discussion.

Objective 1 – Relationship between e-tendering and on-time service delivery

The first objective sought to ascertain the relationship between e-tendering and on-time delivery in the selected capital market operators. The analysis found that there is a significant relationship exists between e-tendering and on-time delivery in selected capital market operators in Lagos, Nigeria. The relationship between e-tendering and on-time delivery was

estimated at -0.018, and this proves that e-tendering has a negative relationship with on-time delivery. The implication is that the firms create adequate awareness programmes for suppliers and vendors on the use of electronic platforms to bid for contracts, and that the electronic bidding platforms may not be seamless and easy to use, but in all these, they still have slow on-time delivery. The fact that bids are evaluated online in a seamless manner should make room for on-time delivery of goods to the firms, but this was not so, as there is an inverse effect of e-tendering on delivery.

Thus, the e-tendering processes in the firms are embraced when it is done online, and this facilitates the prompt delivery of goods. However, there is a huge question concerning the transparency of the system, as the participants expressed reservations about the transparent nature of the bids that are done online. Intuitively, there may be some presence of favoritism in the process, which makes the entire e-tendering process have returned negative relationship with on-time delivery, which is not a step in the right direction for suppliers.

Objective 2 – Relationship between e-sourcing and on-time service delivery

The relationship between e-sourcing and on-time delivery, as shown in Table 1, is positive but not a significant relationship. The analysis found that an increase in the frequency of e-sourcing by the firms will increase their promptness in the delivery of goods by the suppliers by the magnitude of 0.015 units. Obedgiu, Lagat, and Sang (2022) had earlier underscored this finding in their study on e-sourcing and prompt delivery of materials and goods. They affirmed that e-sourcing has a significant positive effect on the early supply of goods and, by extension, successful project delivery.

Individual analysis of the responses showed that potential suppliers are easily identified through internet searches on their websites, but most of the time, this does not give detailed information about the supplier. Also, one downside of the e-sourcing process, as noted by the participants, is that requests for information (proposals and quotations) via electronic means are not always replied to by suppliers since most suppliers do not have online presence. However, notwithstanding these shortfalls, e-sourcing still maintained a positive correlation with on-time delivery, but this was not significant when measured statistically.

Objective 3 – Relationship between e-purchasing or e-ordering and on-time service delivery

The study found that e-purchasing had a significant relationship with on-time delivery in selected capital market operators in Lagos, Nigeria. The coefficient of 0.155 (*p-value* = 0.002) implied a positive and significant relationship between e-purchasing and on-time delivery. Table 1 reflects this relationship, and it shows that an increase in e-purchasing by the operators correlates positively with on-time delivery of goods and services. Thus, as firms strive to close deals electronically, there is a high tendency that supply is enhanced and delivery of goods is made prompt.

Objective 4 – Relationship between e-bidding and on-time service delivery

The findings in Table 2 revealed that e-bidding had a significant relationship with on-time service delivery of the selected capital market operators in Lagos, Nigeria. The coefficient of 0.183 implies a positive relationship between e-bidding and process flexibility. Thus, an increase in their e-bidding process had a significant relationship with the firms' on-time delivery. Thus, adjusting to changes presented by the e-bidding process creates ample

opportunity for suppliers to fully key into the electronic process to enhance their capacity. Since e-bidding directly and positively affects process flexibility, it implies that there is an increased positive response of suppliers to the electronic procurement processes.

Objective 5 – Relationship between e-payment and on-time service delivery

Electronic payment was found to exert a negative relationship with on-time service delivery of the selected capital market operators, as evidenced in Table 1. The result also showed that there was no significant relationship between e-payment and on-time delivery of the selected capital market operators in Lagos, Nigeria. This discovery that e-payment does not ensure on-time delivery is in consonance with the findings of Yu *et al.* (2020), who posited that electronic payment systems in Nigeria stifle the production system to effectively adapt to changes in the production process. This further proves that suppliers are not very satisfied with the e-invoicing systems of many firms, and this affects the flexibility of their production and distribution systems.

5. Conclusion and Recommendations

The conclusion emanating from the findings is that electronic procurement has helped firms in the Nigerian capital market to ease their procurement functions by ensuring a stress-free bidding process, purchasing via online procurement software, and making payments electronically. However, the tendering process being carried out online met some difficulties as it showed a negative effect on the firms' performance. This may have been occasioned by unethical practices in the tendering process, which impede the desired outcome. Also, electronic sourcing of materials did not show a significant effect on the firms' performance. Stemming from the findings, it is recommended that:

Vendors and suppliers should be adequately analyzed and assessed after online bids are submitted. Since most requests for quotations, proposals, and other information via electronic means are not always replied to by suppliers, the firms should increase the transparency of the process so as to delist the erring suppliers and go ahead and patronize the willing suppliers. This keeps suppliers on their toes for improved efficiency.

Firms, especially capital market operators, should strive to organize online auctions to speed up the bidding process. Electronic bidding gives ample room for firms to change product specifications as they have online facilities handy to get specifications that suit their needs. Flexibility of processes is generally enhanced by online bidding, and this should be done to limit the encumbrances of physical meetings.

Since suppliers are not mostly satisfied with e-payment channels, firms should strive to adopt efficient and seamless electronic payment systems in order not to delay suppliers. The advent of electronic payment channels has made it easy to send bulk payments, and firms should adequately leverage this to enhance the procurement process. Generally, firms should develop a pre-supply survey to determine the suitability of providers for the supply business. This ensures a smooth electronic ordering process and overall smooth electronic procurement.

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