

## **ELECTRONIC TENDERING AND OPERATIONAL EFFICIENCY OF SOFT DRINK DISTRIBUTION COMPANIES IN PORT HARCOURT, NIGERIA**

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### **Abstract**

This study examined the relationship between electronic tendering (e-tendering) and operational efficiency of soft drink distribution companies in Port Harcourt. The objective of the study was to determine the extent to which improvements operational efficiency in terms of customer service, supplier quality and cost control of soft drink distribution companies in Port Harcourt can be ascribed to the practice of e-tendering. The study adopted a survey research design. The population of the study consisted 37 registered and functional soft drink distribution companies; and the entire population was surveyed. Primary was collected using questionnaire designed in 5-point Likert scale, and whose reliability was ascertained using the Cronbach's Alpha test. The Spearman's Rank Correlation served as test statistic, relying on SPSS version 24.0. The study found moderate positive relationship with customer service, weak positive relationship with supplier quality and very strong positive relationship with cost control. The study also found that the relationship between e-tendering and all the metrics of operational efficiency are statistically significant. Thus, the study concluded that e-tendering has positive significant relationship with operational efficiency of soft drink distribution companies in Port Harcourt. The study recommends that soft drink distribution companies in Port Harcourt that seek to boost their efficiency (customer service, supplier quality and cost control) adopt the practice of e-tendering to promote transparency and credibility in approval of qualified bid.

**Keywords:** Cost control, customer service, e-tendering, operational efficiency, supplier quality

### **Introduction**

In recent times, the operational efficiency of organizations has received a substantial amount of attention by academics, practitioners in the field of marketing and supply chain management. This is because improved operational efficiency manifests in reduced waste in time, effort and materials consumption, while producing high-quality product (Berger et al., 2013). The increased attention to operational efficiency is also borne out of need for firms to improve productivity and profitability.

According to Kalluru and Bhat (2009), operational efficiency raises firms' proficiency in curtailing unwelcome costs and maximize the potentials of resources to deliver quality products and improved customer services. However, operational efficiency depend skilled and proficient workers, adoption technological solutions, supply chain optimization, efficient procurement practices, economies of scale in production and distribution, among others.

Organizations face rapid market shifts, new technologies, and change in government policies that often disrupts their planned courses of activities, and to offset adverse effects of such disruption, they resort to using taking advantage of the very disruptions that threaten operations (Eisenhardt & Brown, 2009). Also, increase in competition challenges firms to seek ways of sustaining and improve upon their efficiencies through technological adoption.

The adoption of technological solution to better business performance has become a trend in recent time due to advances in computing, information and communication technologies; and one aspect of business that benefited immensely from this development is procurement. Firms, adopt different technological tools in the procurement function to reduced costs and accomplish higher profit margins (Berger et al., 2013). Electronic tendering or e-tendering which refers to the process conducting using digital tools and application to bid for contracts is one of the key facets of the face of technological solutions in procurement (Nelson et al., 2001).

According to Croom and Brandon-Jones (2004) e-tendering relies on the Internet and Internet-based information and communication technologies (ICTs) to carry out individual or all stages of the bidding process. While the benefits of e-tendering may be apparent, there is need for empirical validation. Thus, this study examined the nexus between e-tendering and operational efficiency of soft drink distribution firms in Port Harcourt, Nigeria.

## **Literature Review**

### **Theoretical foundation**

The theoretical foundation of this study consisted is Technology Adoption Model (TAM) of Davis (1989). TAM relates individual's behavioral intentions and their ICT use. It suggests that the actual behavior of a person is determined by their behavioral intention to use, which is in turn influenced by their attitude toward and perceived usefulness of the technology. However, attitude and perceived usefulness are in turn determined by ease of use (Chuttur, 2012).

TAM suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, and most notably perceived usefulness which is the degree to which a person believes that using a particular system would enhance their job performance. Adopting the TAM model requires an understanding of end-users requirements regarding usefulness and user friendliness (Chuttur, 2012).

TAM has been widely criticized, despite its frequent use, leading the original proposers to attempt to redefine it several times. Criticisms of TAM as a "theory" include its questionable heuristic value, limited explanatory and predictive power, triviality, and lack of practical value (Chuttur, 2012). Davenport (2013) suggests that TAM "has diverted researchers' attention away from other important research issues and has created an illusion of progress in knowledge accumulation. This theory is relevant to the current study given that e-procurement systems are ICT supported and hence automation is at the epicenter of modern day procurement processes.

### **Concept of electronic tendering**

E-tendering is the process of conducting the full procurement cycle on the internet including submission of price bids in a way that ensures that the effectiveness, economy and speed of the Internet is harnessed. It is the procedure of electronic request transmission through the internet so as to perform operations related to procurement (Munyao & Moronge, 2018). E-tendering is uses the Internet as a collaboration platform to provide and receive tendering information.

E-tendering involves a number of processes, which include receipt of tender forms, submission of tender sum and final selection of successful tender for the contracts on the Internet (Matunga, et al., 2013). The aim of e-tendering is to improve productivity in the course of tendering, especially with reference to reduction in paper handling, savings in operational cost, and speedy communication and collaboration.

The use of less paperwork due to e-tendering results in fewer mistakes and more efficient purchasing process. Hence, e-tendering is a departure from manual means of handling paper to automated means of communication between parties. One of the key advantages of e-tendering is the remote accessibility of systems, which makes it possible for a tenderer to access the facilities of the tender engine from anywhere in the world without spatial constraints. In e-tendering, submission of quotation is done electronically by the vendor (Singh & Punia, 2011).

E-tendering entails the submitting and receiving tender information, expressions of interest for tender and awarding of tender through networked platforms (Ibem & Laryea, 2015). Betts et al. (2006) defines e-tendering as the process undertaken to get offers to form a contract between a client and a contractor; Tindsley and Stephenson (2008) define it as the use of internet technology in the purchasing process.

Wang et al. (2016) and Dawson et al. (2006) states that e-tendering relates to the issue and receipt of tender documentation through electronic means which facilitates the award of contracts. The main driver of e-tendering is competitive advantage achieved through improved work processes, price reduction, reduced sourcing time, improved communication, enhanced decision-making and market intelligence (Nagurney et al., 2011).

E-tendering eliminate paperwork, reduces time taken to submit and respond to queries, reduces risk of errors and increases visibility of responses to all interested parties. This increases the accuracy of tenders while reducing cost of managing the tender process (Brooks, 2008). Musau (2020) and Walker and Walker (2015) adds that e-tendering increase integrity and transparency, improves supplier response, provides quality management information, and increases level of security and authenticity of the tender process.

### **Concept of operational efficiency**

Operational efficiency is the ability of an organization to reduce waste, effort and materials consumption as much as possible, while producing high-quality product (Berger et al., 2013). Operational efficiency is also defined as the ratio between input required to keep the organization going and the output it provides. Input refers to what is put into a business to operate properly, while output refers to what is gained.

According to Kalluru and Bhat (2009), operational efficiency is the proficiency of a corporation to curtail the unwelcome and maximize resource capabilities so as to deliver quality products to customers. Operational efficiency depends on factors like proficient workforce, proper resource utilization, competent procurement policies, cost control, etc.

Operational efficiency is occurs when a firm produce high-quality product with as little resources as is possible. Relatively, more efficient firms tend to maintain more stability levels in terms of output and operating performance (Mills & Schumann, 2015). Operational efficiency is a metric that compares a company's profit with the cost required to make that profit (Reid & Sanders, 2007).

Operational efficiency of corporations has long been at the center of academic research and has received a substantial amount of attention. This is primarily due to the fact that operational efficiency improve performance and safeguard the stability of firms. Firms that operate more efficiently, improve their productivity and profitability (Berger & Mester, 2017). Operational efficiency is measured using different indicators. This study used customer service, supplier quality and cost control to represent operational efficiency.

## E-Tendering and Operational Efficiency

Oteki et al. (2017) established that e-tendering practice influence supply chain performance of sugar processing firms in Kenya; while Gathima and Njoroge (2018) reported that e-tendering practices had positive and significant relationship with performance government agencies in Kenya. Similarly, Gichuhi and Waruguru (2020) established that e-tendering has positive significant relationship with procurement performance of companies, and made a case of the adoption e-tendering by companies.

Also, Makhamara (2022) investigated the influence of e-tendering on performance of SMEs in Kenya and found that e-tendering has significant influence on performance of SMEs, and recommends that SMEs should utilize e-tendering to streamline their procurement process to reduce the costs associated with tendering. Relatedly, Khasandi et al. (2022) established that e-tendering practices influence supply chain performance; and recommends public and private organization that desire to reduce procurement process time, costs and errors, should adopt the e-tendering. In addition, Otieno et al. (2021) revealed that e-tendering had positive significant effect on supply chain performance.

These reports of positive significant effect of e-tendering on supply chain and organizational performance suggests that e-tendering has connection with operational efficiency. However, with a view to conducting statistical tests and interpretations, the following hypotheses are formulated:

- H<sub>1</sub>:** There is no significant relationship between e-tendering and customer service of soft drink distribution companies in Port Harcourt.
- H<sub>2</sub>:** There is no significant relationship between e-tendering and supplier quality of soft drink distribution companies in Port Harcourt.
- H<sub>3</sub>:** There is no significant relationship between e-tendering and cost control of soft drink distribution companies in Port Harcourt.

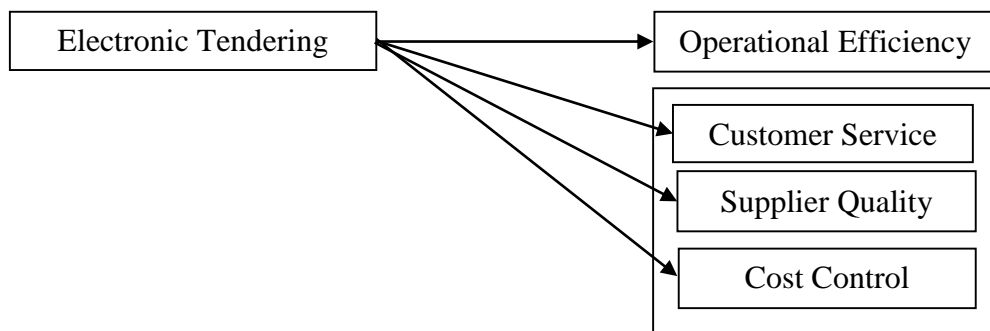


Fig. 1: Conceptual framework of relationship between e-tendering and operational efficiency

## Methodology

This study examined the relationship between e-tendering and operational efficiency of soft drink distribution firms in Port Harcourt, Nigeria. The study adopted a survey research design. The population of the study consisted 37 registered and functional soft drink distribution companies. The entire population was studied. Primary data was obtained through copies of questionnaire administered to management staff of the soft drink distribution company. A total of 111 copies of questionnaire was administered, although only data gleaned from 90 copies of questionnaire was used in the final analyses. The validity of the data collection instrument was determined through face validity, while the Cronbach's alpha test was used to assess the reliability of the study instrument, using 0.7 as the threshold (Nunally, 1978). Spearman's Rank

Correlation was used to test the hypotheses formulated for the study with the aid of the Statistical Package for Social Sciences (SPSS) version 22.

## Results and Interpretation

**Table 1: Correlation between E-tendering and Customer Service**

		E-tendering		Customer Service
Spearman's rho	E-tendering	Correlation Coefficient	1.000	.520**
		Sig. (2-tailed)		.000
		N	90	90
	Customer Service	Correlation Coefficient	.520**	1.000
		Sig. (2-tailed)	.000	
		N	90	90

\*\*Correlation is significant at the 0.01 level (2-tailed).

The result as depicted in Table 1 reveals a moderate positive relationship between e-tendering and customer service of soft drink distribution companies. The facts show that e-tendering is significantly associated with customer service ( $\rho = .520$ ;  $P < 0.05$ ). This suggests that e-tendering enhances customer, and by extension, operational efficiency of soft drink distribution companies in Port Harcourt. Hence, the null hypothesis was rejected.

**Table 2: Correlation between E-tendering and Supplier Quality**

		E-tendering		Supplier Quality
Spearman's rho	E-tendering	Correlation Coefficient	1.000	.320**
		Sig. (2-tailed)		.000
		N	90	90
	Supplier Quality	Correlation Coefficient	.320**	1.000
		Sig. (2-tailed)	.000	
		N	90	90

\*\*Correlation is significant at the 0.01 level (2-tailed).

The result in Table 2 reveals a weak, but positive relationship between e-tendering and supplier quality of soft drink distribution companies. The statistics show that e-tendering has a weak relationship with supplier quality, but the relationship is statistically significant ( $\rho = .320$ ;  $P < 0.05$ ). This suggests that e-tendering contributes to supplier quality as a measure of operational efficiency of soft drink distribution companies. Thus, the null hypothesis was rejected.

**Table 3: Correlation between E-tendering and Cost Reduction**

		E-tendering		Cost Reduction
Spearman's rho	E-tendering	Correlation Coefficient	1.000	.971**
		Sig. (2-tailed)		.000
		N	90	90
	Cost Reduction	Correlation Coefficient	.971**	1.000
		Sig. (2-tailed)	.000	
		N	90	90

\*\*Correlation is significant at the 0.01 level (2-tailed).

The in Table 3 reveals a very strong positive relationship between e-tendering and cost reduction of soft drink distribution companies. The data indicates that e-tendering is

significantly associated with cost reduction ( $\rho=.971$ ;  $P<0.05$ ). This suggests that e-tendering enhance operational efficiency in terms of cost reduction. Hence, the null hypothesis was rejected.

### Conclusion and Recommendations

Based on the findings, the study concludes that e-tendering has positive and significant effect on operational efficiency of soft drink distribution companies in Port Harcourt. This advances the position that e-tendering is a determinant of operational efficiency of soft drink distribution companies. So, these firms can enhance operational efficient and overall performance by adopting e-tendering in their procurement activities. Based on the findings and conclusion, the study recommends that management of soft drink distribution companies in Port Harcourt should adopt the practice of e-tendering to promote transparency and credibility in approval of qualified bids.

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