



## AUTOMATED PROCUREMENT SYSTEMS ON ORGANISATIONAL PERFORMANCE SUPERMARKETS IN NAIROBI CITY COUNTY, KENYA

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### ABSTRACT

The main objective of the study is to determine the role of automated systems adoption on procurement performance in retail sector in Kenya. The research objectives are to find out the role of e-tendering, e-ordering on organizational performance of the retail sector. The study was carried out at supermarkets in Nairobi County. The study adopted a descriptive research design. The study sampled 81 respondents to participate in the study. The researcher adopted the simple random sampling method because it gives every member of the population equal chances of being selected. To carry out this study a structured questionnaire was developed and pre-tested. It contained both open and close ended questions. Questionnaires were distributed to the respondent and 14 days were given to respondent to complete questionnaire before collection. Questionnaires and interview schedules were used as the main tools for collection primary data. All the questionnaires were delivered to the respondents directly with the help of research assistants and picked later at the agreed date. Data analysis involved cleaning, sorting, coding and keypunching of raw data collection from the field and processing for purposes of interpretation by use of statistical package for social science version 28 (SPSS) analysis software and t-Trend analysis. For this study, quantitative data was analysed using SPSS and findings presented using descriptive statistical tools like graphs, tables and other measures of central tendency while qualitative data was analysed to establish patterns, trends and relationships from the information gathered. The study concludes that e-tendering has a significant effect on organizational performance of the retail sector in Kenya. In addition, the study concludes that e-ordering has a significant effect on organizational performance of the retail sector in Kenya.

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## INTRODUCTION

Automated procurement system, as it is popularly referred to, is one of the most recognized procurement best practices. It plays a central role to the performance of the procurement function and that of the organization because other best practices like green purchasing, partnering, total quality management (TQM), just-in-time (JIT) and risk management apply the concept of e-procurement (Munubi, Kinanga & Ondiba, 2017). It is based on the principles of Information Communication Technology (ICT) and its' applications. Masudin et al. (2021) investigated the influence of the adoption of e-procurement on organizational performance and found that its' implementation has a significant effect on company performance. The study also highlights the direct and indirect benefits of applying e-procurement. The direct benefits can increase efficiency and effectiveness in the operation process, data accuracy, and useful application process; while indirect benefits can improve customer services, make the procurement process more competitive and improve relationships with business partners.

According to UNDP (2018) organizational performance is the ability of an organization to meet its goals and achieve its overall mission. Modern automated information technology offers paperless means of doing business and delivers big savings over manual systems - from reduced administrative costs to shortened procurement and fulfilment cycles (Keanna, 2016). Automation of procedures for the purchase through e-procurement technology enables companies to achieve a reduction in costs (average 8-12%) of total purchases (Oteki, 2018). A good e-procurement system must have all elements that enable the buyers and sellers to interact effectively including all supply chain activities from procurement planning information to supplier evaluation. Both buyers and sellers should have access to each other's information as and when required electronically for smooth functioning of e-procurement. Rahim (2017) outlines that businesses generally experience operational, tactical and strategic benefits from implementing automated procurement systems. Operational benefits include paper cost savings, transaction cost savings, and a faster processing of purchase orders enabling timesaving. The study further discusses that e-procurement system has further contributed to the reduced maverick buying, better understanding the purchasing needs, and improved

decision-making ability as attainment of the tactical benefits.

Madzimure, Mafini & Dhurup (2020) conducted a study on e-procurement, supplier integration and supply chain performance in SMEs in South Africa and found that e-design and e-negotiation exerted a significant positive influence on supply chain integration. The study further revealed that supplier integration exerts a positive and significant linear relationship with both the tangible and intangible dimensions of supply chain performance. Olayeni (2019) also highlights that e-procurement leads to improved information management, provides significant opportunity for management to oversee the entire base supply and have control over the purchasing process. The system also leads to improved relationships with the suppliers and enables quick and timely payment of bills as the study further outlines. Masudin et al. (2018) examined inventory management and procurement practices and their impact on organizational performance. The results of the study found that automated procurement practice like e-product enhance organizational performance. The study also found that inventory management and implementation of world class procurement practices also enhance organizational performance.

Nawi et al. (2016) carried out a case study of a Malaysian company to identify the differences in practice and performance based on demographic factors, as well as identifying any significant relationships between the practice and performance of e-procurement. The outcome of the research yielded pertinent information for the company in identifying the strengths and weaknesses of the internally developed e-procurement system, as well as enabling the organisation to highlight the practices and performance as a benchmark to measure the level of success of their own e-procurement system. Considering a wide variety of performance measures is important when defining organizational performance. Organizational performance should be measured under various perspectives; these include quality, efficiency, productivity, profitability and sustainability (Rono, 2017).

E-procurement is defined as the application of electronic commerce in procurement (Ahimbisibwe, Wilson & Ronald, 2018). It has the power to consolidate the supply chain function

under a single roof resulting in efficiency, satisfaction and improved performance of the organization. The ultimate goal of each organization is to cut costs, improve quality of her products and services offered for sale, build customer loyalty and boost performance in terms of profitability, return on capital, growth and expansion. A study by Oketch and Moronge (2016) note that the applications which form the e-procurement landscape are designed to automate the buying cycle, optimize spending, improve process and workflow, support bidding and tendering, maintain supplier management relationship and facilitate more effective search for products and services via the internet. Prior to the emergence of using the internet in procurement, different approaches were used. These approaches have evolved over the years to what we know now. Schoenherr (2019) discusses these approaches and associated technologies, and they include: electronic data interchange (EDI), materials requirement planning (MRP I), manufacturing resource planning (MRP II), and enterprise resource planning (ERP). Electronic data interchange (EDI) had been providing automated purchasing transactions between buyers and sellers since it was launched in the 1960's. In the 1970's we had the Enterprise Resource Planning (ERP), followed by the commercial use of the internet in the 1980's and in the 1990's came the universal application (Tate et al. 2018).

### Statement of the Problem

Automated procurement systems are increasingly becoming popular in the large organizations, both private and public, where procurement contracts are in place to manage spending activity. For such firms, the reduction in staff time for invoice processing provides an excellent return on investment. Procurement practices lead to improvements in information and material flows and are viewed as strategic functions that work to improve the organization's profitability, identify better sources of supply and reduce raw material prices and costs (Rono, 2017). Another study conducted by Mulandi & Ismail (2019) highlights that e-procurement ensures transactional efficiency in tendering, leads to increased competition among the bidders and reduces costs from e-auctions, reduces costs of transactions and leads to enhanced user satisfaction. Eadie et al. (2017) also indicate that e-procurement symbolizes an effective and vital development in the e-business employment in chain management

of supply, note that an organization which uses e-procurement benefits from reduction of price in tendering, reduction of time in sourcing of materials, lower costs of administration, procurement staff reduction as well as communication improvement.

Ongola's 2017 study on the factors affecting effective implementation of e-procurement in supply chain management in supermarkets in Nairobi and its environs found out that the adoption and running process of these systems is far from optimal and a lot needs to be done to streamline the functions of the e-platforms. Naivas Ltd. has an automated procurement system in place (Naivas Ltd. 2016). The study will investigate how this automated system in the retail sector affects organizational performance. Previous studies on e-procurement in retail in Kenya did not explore this relationship, rather they focused on the factors influencing implementation (Ongola, 2017; Lusweti & Odoyo, 2020). Munubi, Kinanga & Ondiba (2017) in their study of e-procurement in major supermarkets targeted four major supermarkets in Nairobi County namely; Nakumatt, Tuskys, Naivas and Uchumi; some of these retail giants have collapsed (Wasuna, 2021). There is therefore the need to explore and conduct current research on the effects of e-procurement and performance in the retail sector in Kenya.

E-procurement systems have an impact to organizations and the economy. Nair et al. (2018) outlines that e-procurement is a key strategy for supermarkets to adopt as it ensures that they have a sustainable supply chain. To have a competitive advantage over key competitors, each supermarket seeks to increase its portfolio of goods and services it offers. In most cases, this means an increase in the number of suppliers. This only serves to make the supply chain complex; thus the adoption of e-procurement makes it easier to manage the system. It also established that e-procurement in supermarkets helps enhance cost efficiency by reducing wastage. Additionally, e-procurement contributes greatly towards better communication between the different departments and branches thus it helps ensure operational efficiency and effectiveness (Ongola, 2017). Studies prove that e-procurement automates the publication of tenders on web sites with search and alert facilities for vendors. This has been estimated to reduce costs by analysts and case

studies in the range of 5% to 30% (Hadden, 2016). It also increases the reach of procurement opportunities resulting in additional bids and is often used to replace traditional printing of tenders, saving millions of dollars in annual printing costs with estimated savings of up to 90% of transaction costs. Organizational efficiency is also improved with reduced process cycle time of 20 to 40%. In Kenya, e-procurement systems contributed to 26% of Gross Domestic Product as Public Procurement Expenditure in the year 2019 with a value of USD 77,647,345 of annual contracts (GPPD, 2020).

Benefits of e-procurement are now well documented as experienced by both public and private organizations. Yet, in developing countries, and more so in Africa, few organizations have reported benefits of e-procurement (Kabanda, Pitso & Kapepo, 2019). In Kenya, a number of studies have been conducted on the adoption and implementation of e-procurement in different sectors and how it affects the performance of an organization. Mwangangi (2017) studied the influence of e-procurement on performance of parastatals in Kenya. Nafula and Namusonge (2017) studied the effect of e-procurement practices on efficiency frontier of Kakamega county government. Barasa, Namusonge and Okwaro (2017) studied the effects of e-procurement on the organizational performance of county governments in Kenya: A case study of Bungoma County. Wanjiku (2019) investigated the effect of strategic procurement practices on organizational performance in public organizations while Chegugu & Yusuf (2017) examined the effect of electronic procurement on organizational performance in public hospitals. A few studies have therefore related e-procurement with organizational performance while only one study (Munubi, Kinanga & Ondiba, 2017) investigated such relationship in the retail sector. This study therefore sought to fill this knowledge gap by finding out the influence of electronic procurement practices in the retail sector in Kenya.

### Objectives of the Study

- i. To find out the extent to which e-tendering influences procurement system adoption in the retail sector in Kenya.
- ii. To analyze how e-ordering affects procurement system adoption in the retail sector in Kenya

## LITERATURE REVIEW

### Theoretical Review

#### Electronic Market Theory

Malone et al. (1987) theory states that: by reducing costs of coordination and transactions, IT will lead to an overall shift toward proportionately more use of e-markets – rather than hierarchies. Malone et al. (1987) make the argument that information technology (computers) has dramatically reduced the cost of processing and communication information. While this may seem trivially true, they identify three effects this may have on industrial organization. First, an electronic communication effect. This is an increase in the efficiency of communication that can positively impact both hierarchy and markets. Then an electronic brokerage effect. This allows buyers and sellers to interact directly with each other. In modern language this corresponds to networked markets and platforms (Berg et al. 2019). Finally, they point to an electronic integration effect. Here information technology does not just change the speed of communication but changes the processes that capture and deploy information. As Malone, Yates, and Benjamin describe it, it is this effect that largely drives their electronic markets hypothesis; the overall effect of this technology will be to increase the proportion of economic activity coordinated by markets. In this story, information technology economizes on communication costs, lowers transaction costs overall, and leads to more market activity relative to hierarchy.

According to traditional economics, buyers always look for goods and services from a wide variety of suppliers. However, they have no influence on many essential market factors. Market services of supply and demand are the ultimate determinant of the design, delivery schedule, price, and quality of the products. Given that all buyers have to search all suppliers, they have no alternative other than incur transactional and co-ordination costs. In this regard, in case these outlays are superfluous, hierarchical dexterity between different stakeholders, especially buyers and suppliers, is most favourable. EMH predicts that by bringing down coordination cost, information technology will change the direction of the firm to market-based form of economic activity from hierarchical (Malone, Yates and Benjamin, 1987). EMH predicts IT transformation will occur in different stages from hierarchies to biased electronic

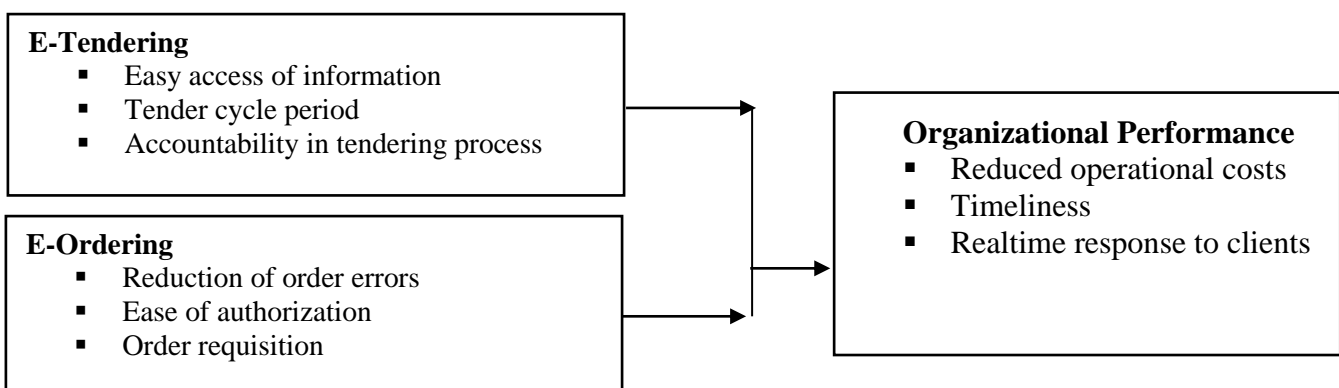
market. It also ranges from partial markets to impartial one. This process of change has been ongoing for several years and continues to date. When supply chain managers use electronic networks to bring down search costs, ICT get an e-brokerage as well as market effect. When buyers and sellers are connected through a shared network and provide the essential tools, the customers get opportunity electronic networks help buyers to quickly and swiftly assess the offerings of several suppliers. This hypothesis that is being used in this study is relevant in that when companies adopt e-tendering, coordination costs reduce as all the information is easily and freely shared between the buyers and sellers. From the theoretical framework, e-tendering practice is therefore explained by the Electronic Market Hypothesis.

**Dynamic Capability Theory**

The aspect of dynamic capability was first coined by David Teece, Gary Pisano and Amy Shuen (Chien & Tsai, 2012). The theory describes a business aptitude to organize its assets in an effort to improve performance deliberately. According to Chien and Tsai (2012), dynamic capability is the aptitude of firms and other institutions to adjust their resource base purposefully. An organization should be able to respond satisfactorily and appropriately to a wide variety of external factors. This requires the adoption of

**Conceptual Framework**

**Independent Variables**



**E-tendering**

Supply chain departments over the years have come under pressure to reduce costs while maintaining timeliness and quality. Inconsistent procurement policies can result in the cancellation of projects, cost overruns and delays, staff dissatisfaction and litigation. Procurement policies must reflect the needs of the organization. With

different strategies that will harness multiple capabilities of the organization and put them into use. This will give the company the ability to integrate, develop, and leverage on the environmental competitive advantage. Indeed, the current business world is very dynamic. Changes ranging from organizational structures, culture, marketing and customer’s tastes and preferences are taking a different path. Krajewskiet al (2009) indicates that efficient supply chains have the aptitude of make to stock, low inventory investment, and low capacity cushion. They also have the qualities to make to short lead-time, timely delivery, and emphasis low process. Changes in marketing strategy, organizational structure as well as tastes and preferences among customers is prevalent and as such retailers should be able to process customers’ orders quickly. Evidently, e-ordering integrates the in-house and external procurement components to address dynamics in the way organizations achieve operational excellence by reducing cost and saving on time used to purchase goods (Mwenga, 2016). This theory is related to e-order processing’s ability to cope and change with dynamic markets such that it is able to provide goods and services to customers in a highly dynamic and competitive environment. From the theoretical framework, the Dynamic Capability Theory explains e-ordering practices.

appropriate policies in place, selecting the right electronic tendering tools and techniques through careful analysis can help an organization to address its procurement challenges (Oteki, 2018). According to Waganda (2018) e-tendering is a procedure in e-procurement applied in supplier selection in order to find a competent supplier using internet-based ICT infrastructures or on the

basis of electronic transaction through the internet. It is expected to reduce face to face transaction as well as prevent collusion. In e-tendering, the issuing party (procurer) uses an electronic platform to advertise the tender requirements. He or she posts the call for tenders on an electronic platform, where the interested suppliers can access, download, and re-upload the tender responses. On receiving the responses, the procurer evaluates them on the same electronic platform, and based on the analysis of the different applicants, the procurer can create and issue an electronic contract to his/her preferred candidate.

In the current era, Security is always prime thing to achieve in almost all aspects of business and organizations. Most of the businesses are tending towards remote transactions with the aid of web-based computer systems. For the remotely controlled business, e-tendering becomes most efficient and prominent approach. This process involves a seller, a buyer and a mediator web-based computer system. Companies with authority to issue digital certificates play a crucial role in e-tendering. In the e-tendering process buyer and bidder act as key persons. When this process begins, the buyer and bidder both have to be registered for accessing the web portal of e-tendering. Without registration a buyer cannot publish any tender and the bidder cannot bid for the tender as well (Oteki, 2018). Adopting e-tendering in pre contract stage, yields several benefits which can be experienced directly and indirectly. In an economic point of view, e-tendering enhances the efficiency through transaction cost savings and reduce the direct procurement costs, maintaining transparency, accountability, ease of use and speedy exchange of information including other intangible benefits such as reduced administrative costs. Eventually, e-tendering will lead to pave the way to reduce the time, cost and resources of a project from which the triple bottom line of the sustainability can be accomplished to a great extent.

Alyahya & Panuwatwanich (2017) created an e-tendering model for the public construction sector in Saudi Arabia. The study noted that a high-speed internet network (broadband) is very important for web based e-tendering. Three stages had a perceived effect on the efficiency of e-tendering in the study. These stages include: preparation and analysis of contract documents, distribution and receipt of bids from suppliers/contractors and the

analysis of bids or offers made. The study also identified the barriers to the efficiency of e-tendering as: security of transactions, insufficient IT infrastructure and government regulations. Gayashan et al. (2017) also identified major threats that are present at each key step in the tendering process such as: prequalification and registration, public invitation, tender submission, close of tender, tender evaluation, award of tender and archiving. These threats include: integrity and confidentiality threats, impersonation, non-repudiation and DOS attacks.

Waka (2016) studied e-tendering adoption and the procurement performance of oil marketing firms in Kenya. The study employed an explanatory approach and the analysis established that an association existed between e-tendering adoption and procurement performance. Findings from the study also indicated that most oil marketing firms in Kenya still apply the traditional tendering method to a large degree. Kisurkat (2017) also carried out a study of the impact of tendering on the performance of the public institutions in Kajiado County and concluded that entities that conduct tendering procedures as per the legislative act improves the performance of their department.

### **E-Ordering**

Traditionally, the ordering process between various parties was organized through mail, phone, fax and electronic data interchange (EDI) and more recently through the internet. E-ordering has evolved into the use of electronic technologies to streamline and enable the ordering activities of an organization. The benefit of e-ordering has contributed great saving in bottom line procurement costs of many companies worldwide and hence technology use is a significant tactic in most companies' e-business strategies (Munyao & Moronge, 2018). According to the UN Procurement Practitioner's Handbook (2016), e-ordering is defined as the process of creating and approving procurement requisitions, placing purchase orders, as well as receiving goods and services ordered, by using software systems based on the Internet. Kim (2017) also states that e-ordering improves greatly the performance of the supply chain because the placement of purchasing orders and reception of services and goods are ordered is enabled by using the technology of the internet. Since the Internet is booming, having an online ordering system can boost sales to some extent as it eases customers to place an order for the company's services. People can place orders

from their home as long as they have a computer/laptop with internet connection thus improved supply chain performance.

Chepkwon and Lagat (2016) on their study on e-ordering and e-informing on supply chain performance in retail marketing outlets in Kenya found that e-ordering has a positive and significant effect on supply chain performance. The study also concluded that e-ordering increases productivity and improves customer service since products and services can be purchased electronically. As a result, there is reduced dependency on manual intervention since the online ordering system caters for the supply chain functions. The study recommended that there's a need to electronically consult references for product/service quality so as to heighten supply chain performance. Nancy (2017) also investigated e-ordering and e-informing on performance of supply chain in Kenyan state corporations in Nairobi County and employed an explanatory research design. The findings of the multiple regression model used in the study indicated that e-ordering has a significant and positive impact on performance of supply chain. The study also concluded that e-ordering that is the element of the dimensions of procurement raises the performance of supply chain.

### Empirical Review

Ngeno and Kinoti (2017) explored the effect of e-procurement on effective supply chain management process in energy sector in Kenya. The purpose of the study was to assess the effect e-procurement on effective supply chain management process in energy sector in Kenya. The study applied the research design where both qualitative and quantitative techniques were used. The study aimed at collating and collecting information from the respondents. The study employed stratified random sampling technique in coming up with sample size of 152 respondents from a total of 246 target population in the energy sector. All the variables, that is, electronic data interchange, e-tendering, supply chain integration were found to have influence on effective supply chain management process on energy sector.

Chegugu and Yusuf (2017) conducted a study on effect of electronic procurement on organizational performance in public hospitals and found out that majority 58% of the respondents strongly agreed that there is increased competitiveness in the tender bid process in hospitals. In addition to the

main finding, 6% of the respondents agreed, 8% of the respondents were undecided, 18% of the respondents disagreed and another 10% of the respondents strongly disagreed to the statement. Another 52% of the respondents also revealed that there is an improved level of accessibility to medicine and services in the hospital. Other responses on the statement were that 8% of the respondents agreed, 16% of the respondents were undecided, 20% of the respondents disagreed and finally, 4% of the respondents strongly disagreed. Finally, 50% of the respondents revealed that the system has reduced the load of work and speeding the selection of the right supplier and thus reduced the cost of the tendering process.

Evans *et al.* (2018) also investigated the electronic order processing influence on the performance of supply chain of Kenya's sugar processing firms. The study applied a mixed research design and the population target entailed 12 sugar processing firms. The results from the study revealed that a significant relationship exists between electronic order processing and performance of the supply chain therefore concluding that electronic order processing practices enhance supply chain performance.

### RESEARCH METHODOLOGY

The research design was a case study of the Naivas Supermarket Limited. The unit of analysis was the 29 major supermarkets in Nairobi City County. Therefore, the unit of observation was 183 respondents, comprising of one strategy planning director, two strategy operation managers and three strategy implementation officers who were selected as they are the ones informed about matters of strategy and because they participate in the formulation, execution and monitoring of the strategy implementation practices that are functional in their respective retail firms. This study adopted stratified sampling whereby the population is divided into subgroups and a random sample is taken from each subgroup. The sample size of the study was determined using Yamane's Formula. The study out of the targeted 403 population size provided for 81 questionnaires which have been determined by Yamane 1997 formulae. Proportionate stratified sampling were used to determine the specific sample size of each stratum. The questionnaire is a research instrument based on different set of questions for the purpose of gathering information from the respondents across various fields. This study is expected to produce

both quantitative and qualitative data. Quantitative data was analysed by employing descriptive statistics and inferential analysis using statistical package for social science (SPSS). Correlation analysis to establish the relationship between the independent and dependent variables were employed. The purpose of doing correlation is to allow the study to make a prediction on how a variable deviates from the normal. The hypothesis testing was done at 5% level of significance and SPSS was used for this purpose. The data was then presented using frequency distribution tables, bar charts and pie charts for easier understanding.

**DATA ANALYSIS**

**Descriptive Statistics**

**E-Tendering and Organizational Performance**

The first specific objective of the study was to find out the extent to which e-tendering influences procurement system adoption in the retail sector in Kenya. The respondents were requested to indicate their level of agreement on various statements relating to e-tendering and procurement system adoption in the retail sector in Kenya. A 5 point Likert scale was used where 1 symbolized strongly disagree, 2 symbolized disagree, 3 symbolized neutral, 4 symbolized agree and 5 symbolized strongly agree. The results were as presented in Table 1.

**Table 1: E-Tendering**

|   | Mean         | Std. Dev.    |
|---|--------------|--------------|
| Real time gross settlement greatly reduces delivery time            | 3.917        | 0.805        |
| Mobile payments greatly reduce delivery time                        | 3.855        | 0.981        |
| E-cards and E-cheques greatly reduce delivery time                  | 3.849        | 0.923        |
| Real time gross settlement greatly influences customer satisfaction | 3.803        | 0.874        |
| Mobile payments greatly influence customer satisfaction             | 3.787        | 0.901        |
| E-cards and E-cheques greatly influences customer satisfaction      | 3.715        | 0.873        |
| Real time gross settlement greatly reduces costs                    | 3.702        | 0.863        |
| Mobile payments greatly reduce costs                                | 3.689        | 0.824        |
| E-cards and E-cheques greatly reduces costs                         | 3.621        | 0.835        |
| <b>Aggregate</b>  | <b>3.843</b> | <b>0.922</b> |

From the results, the respondents agreed that real time gross settlement greatly reduces delivery time (M=3.917, SD=0.805). In addition, the respondents agreed that mobile payments greatly reduce delivery time (M=3.855, SD=0.981).

Further, the respondents agreed that E-cards and E-cheques greatly reduce delivery time (M=3.849, SD=0.923). The respondents agreed that real time gross settlement greatly influences customer satisfaction (M=3.803, SD=0.874). The respondents also agreed that mobile payments greatly influence customer satisfaction (M=3.787, SD=0.589).

From the results, the respondents agreed that e-cards and E-cheques greatly influences customer satisfaction (M=3.715, SD=0.873). In addition, the respondents agreed that real time gross settlement greatly reduces costs (M=3.702, SD=0.863). Further, the respondents agreed that mobile payments greatly reduce costs (M=3.689, SD=0.824). The respondents agreed that E-cards and E-cheques greatly reduces costs (M=3.621, SD=0.835).

**E-ordering and Organizational Performance**

The second specific objective of the study was to analyze how e-ordering affects procurement system adoption in the retail sector in Kenya. The respondents were requested to indicate their level of agreement on various statements relating to e-ordering and procurement system adoption in the retail sector in Kenya. The results were as presented in Table 2

**Table 2: E-ordering**

|  | Mean         | Std. Dev.    |
|--|--------------|--------------|
| Electronic requisitioning greatly reduces delivery time            | 3.920        | 0.815        |
| Supplier portals greatly reduces delivery time                     | 3.888        | 0.901        |
| Electronic catalogues reduce delivery time                         | 3.835        | 0.793        |
| Electronic requisitioning greatly influences customer satisfaction | 3.813        | 0.884        |
| Supplier portals greatly influence customer satisfaction           | 3.798        | 0.786        |
| Electronic catalogues greatly influence customer satisfaction      | 3.788        | 0.892        |
| Electronic requisitioning greatly reduces costs                    | 3.754        | 0.892        |
| Supplier portals greatly reduce costs                              | 3.742        | 0.894        |
| Electronic catalogues greatly reduce costs                         | 3.694        | 0.861        |
| <b>Aggregate</b>   | <b>3.828</b> | <b>0.897</b> |

From the results, the respondents agreed that electronic requisitioning greatly reduces delivery time (M=3.920, SD=0.815). In addition, the respondents agreed that supplier portals greatly reduces delivery time (M=3.888, SD=0.901). Further, the respondents agreed that electronic



catalogues reduce delivery time (M=3.835, SD=0.793). The respondents agreed that electronic requisitioning greatly influences customer satisfaction (M=3.813, SD=0.884). The respondents also agreed that supplier portals greatly influence customer satisfaction (M=3.798, SD=0.786).

From the results, the respondents agreed that electronic catalogues greatly influence customer satisfaction (M=3.788, SD=0.892). In addition, the respondents agreed that electronic requisitioning greatly reduces costs (M=3.754, SD=0.892). Further, the respondents agreed that supplier portals greatly reduce costs (M=3.742, SD=0.894). The respondents agreed that electronic catalogues greatly reduce costs (M=3.694, SD=0.861).

**Organizational Performance of the Retail Sector in Kenya**

The respondents were requested to indicate their level of agreement on various statements relating to organizational performance of the retail sector in Kenya. A 5 point Likert scale was used where 1 symbolized strongly disagree, 2 symbolized disagree, 3 symbolized neutral, 4 symbolized agree and 5 symbolized strongly agree. The results were as presented in Table 4.10.

**Table 3: Organizational Performance of the Retail Sector in Kenya**

|   | Mean         | Std. Dev.    |
|---|--------------|--------------|
| The performance of our firm has improved over the years   | 3.968        | 0.905        |
| The profitability of our firm has improved as a result of implementing automated procurement system | 3.959        | 0.885        |
| The market share of our firm has significantly improved   | 3.900        | 0.605        |
| The level of customer satisfaction has improved   | 3.885        | 0.981        |
| There are few customer complaints concerning the quality of our services                            | 3.877        | 0.878        |
| <b>Aggregate</b>  | <b>3.895</b> | <b>0.833</b> |

**Inferential Statistics**

**Correlation Analysis**

**Table 4: Correlation Coefficients**

|                                 | Pearson Correlation | Organization Performance | E-Tendering | E-Ordering |
|---------------------------------|---------------------|--------------------------|-------------|------------|
| <b>Organization Performance</b> | 1                   |                          |             |            |
| <b>E-Tendering</b>              | .881**              |                          | 1           |            |
| <b>E-Ordering</b>               | .805**              | .289                     |             | 1          |

From the results, there was a very strong relationship between e-tendering and organizational performance of the retail sector in Kenya (r = 0.881, p value =0.000). The relationship was significant since the p value 0.000 was less than 0.05 (significant level). The findings are in line with the findings of Ngeno and Kinoti (2017) who indicated that there is a very strong relationship between e-tendering and organization performance. Moreover, the results revealed that there is a very strong relationship between e-ordering and organizational performance of the retail sector in Kenya (r = 0.805, p value =0.003). The relationship was significant since the p value 0.003 was less than 0.05 (significant level). The findings conform to the findings of Barasa and Namusonge (2017) that there is a very strong relationship between e-ordering and organization performance.

**Regression Analysis**

**Table 5: Model Summary**

| Model | R    | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|------|----------|-------------------|----------------------------|
| 1     | .931 | .867     | .868              | .10428                     |

The model summary was used to explain the variation in the dependent variable that could be explained by the independent variables. The r-squared for the relationship between the independent variables and the dependent variable

was 0.867. This implied that 86.7% of the variation in the dependent variable (organizational performance of the retail sector in Kenya) could be explained by independent variables (e-tendering, e-ordering, e-inventory practices and e-supplier practices).

**Table 6: Analysis of Variance**

| Model      | Sum of Squares | df | Mean Square | F      | Sig.              |
|------------|----------------|----|-------------|--------|-------------------|
| Regression | 41.081         | 4  | 10.270      | 95.981 | .000 <sup>b</sup> |
| 1 Residual | 7.254          | 68 | .107        |        |                   |
| Total      | 48.335         | 72 |             |        |                   |

The ANOVA was used to determine whether the model was a good fit for the data. F calculated was 95.981 while the F critical was 2.423. The p value was 0.000. Since the F-calculated was greater than the F-critical and the p value 0.000 was less than 0.05, the model was considered as a good fit for the data. Therefore, the model can be used to predict the influence of e-tendering, e-ordering, e-inventory practices and e-supplier practices on organizational performance of the retail sector in Kenya.

**Table 4. 3: Regression Coefficients**

| Model       | Unstandardized Coefficients B | Standardized Coefficients Beta | t     | Sig.  |
|-------------|-------------------------------|--------------------------------|-------|-------|
| (Constant)  | 0.242                         |                                | 3.903 | 0.001 |
| e-tendering | 0.377                         | 0.379                          | 3.590 | 0.003 |
| e-ordering  | 0.462                         | 0.463                          | 4.277 | 0.000 |

a Dependent Variable: organizational performance

The regression model was as follows:

$$Y = 0.242 + 0.377X_1 + 0.462X_2$$

According to the results, e-tendering has a significant effect on organizational performance of the retail sector in Kenya,  $\beta_1=0.377$ , p value=0.003). The relationship was considered significant since the p value 0.003 was less than the significant level of 0.05. The findings are in line with the findings of Ngeno and Kinoti (2017) who indicated that there is a very strong relationship between e-tendering and organization performance

The results also revealed that e-ordering has significant effect on organizational performance of the retail sector in Kenya,  $\beta_1=0.462$ , p value=0.000). The relationship was considered significant since the p value 0.000 was less than the significant level of 0.05. The findings conform to the findings of Barasa and Namusonge (2017)

that there is a very strong relationship between e-ordering and organization performance.

**Conclusions**

This study paper concludes that e-tendering greatly influences firms. Interested bidders are invited to submit their documents through email. The firms is able to easily shortlist the interested suppliers. E-tendering enables the firms to conducted supplier sourcing effectively. E-tendering enhances record keeping of suppliers and hence able to select the reliable and committed suppliers have their ability to supply goods and products as stipulated in the contract. The bidders are also encouraged to make online payments which may seal loopholes of diverting the bidding fees to personal accounts.

E-ordering has also been established to greatly influence procurement system adoption. This is particularly so because electronic requisitioning reduce delivery time which in turn affects general customer satisfaction. Through online ordering, the retailers are able to keep track of the goods ordered and it also reduces paperwork. E-ordering is also effective in terms of order record keeping.

**Recommendations**

The supermarkets should automate their tendering process. The sponsor media advertisement to invite to interested bidders. The invitation should also clearly state that their application documents should only be sent through electronic systems. This would reduce unethical behaviors while tendering. The supermarkets should also submit the tenders for their procurement through electronic system. This would reduce operational costs and promote ethical procurement behaviors. The supermarkets should have attractive websites and improve on their online presence. They should also make online buying an easier process. They should embrace e-commerce since which is more convenient with shoppers who could be busy and may not have time for physical shopping. This may increase online ordering of various process and increase in sales.

**Suggestions for Further Studies**

This study was limited to examining the effect of automated procurement systems on organizational performance of the retail sector in Kenya. Having been limited to supermarkets in Nairobi City County, Kenya, the study findings cannot be generalized to other sectors in Kenya. The study therefore suggests further studies on the influence

of automated procurement systems on organizational performance of firms in other sectors in Kenya. Further, the study found that the independent variables (e-tendering, e-ordering, e-inventory practices and e-supplier practices) could only explain 86.7% of organizational performance of the retail sector in Kenya. This study therefore suggests further research on other factors affecting the organizational performance of the retail sector in Kenya.

## REFERENCES

- Balcik, B., Bozkir, C. D. C., & Kundakcioglu, O. E. (2016). A Literature Review on Inventory Management. *Journal of Management* 48, 11-23
- Barrow, D. K., & Kourentzes, N. (2016). Distributions of Forecasting Errors of Forecast Combinations: Implications for Inventory Management. *International Journal of Production Economics*, 177, 24-33.
- Belisari, S, Binci D and Appolloni A (2020). E-Procurement Adoption: A Case Study about the Role of Two Italian Advisory Services. *Sustainability* 12, 7476
- Bertsimas, D., Kallus, N., & Hussain, A. (2016). Inventory Management in the Era of Big Data. *Production and Operations Management*, 25(12)
- Bhandari P (2020). An Introduction to Inferential Statistics. *Knowledge Base Statistics*
- Chander NG (2017). Sample Size Estimation. *Indian Prosthodontic SOC*
- Chegugu, N. R. & Yusuf, K. G. (2017). Effect of electronic procurement practices on organizational performance in public hospitals in the county government of Uasin Gishu, Kenya. *International Academic Journal of Procurement and Supply Chain Management*, 2(3), 16-32.
- Chesula, Osman. (2018). Analysing the Course of Turmoil in Kenya's Retail Sector. *Journal of Management* 6. 221-228.
- Christopher, M. (1992). *Logistics and Supply Chain Management*. London: Pitman Publishing.
- Drew, J. (2017). Hackers are holding an Entire County Hostage and Want a Ransom of \$23,000 or '2 Bitcoins'. *Money*. Retrieved June 2, 2021, from <https://money.com/hackers-are-holding-an-entire-county-hostage-and-want-a-ransom-of-23000-or-2-bitcoins/>
- Euromonitor International (2021). *Retailing in Kenya Country Report*
- Farooq, Rayees. (2018). *How to Design and Frame a Questionnaire*.
- Glen S. (2019). *Target Population: Definition, Examples*. From *StatisticsHowTo.com: Elementary Statistics for the rest of us!* <https://www.statisticshowto.com/target-population-definition-examples>
- GPPD (2019). *Global Public Procurement Database*. The World Bank Group
- Gupta N (2017). A Literature Survey on Artificial Intelligence. *International Journal of Engineering Research & Technology (IJERT)*
- Hamed T. (2016). *Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research*. *International Journal of Academic Research in Management (IJARM)*
- Hamed, T. (2016). *Validity and Reliability of the Research Instrument; How to Test the Validation of a Questionnaire/Survey in a Research*. *International Journal of Academic Research in Management (IJARM)*
- Haradhan, M. (2017). *Two Criteria for Good Measurements in Research: Validity and Reliability*.
- Hayes, A. (2020). *Stratified Random Sampling in Financial Analysis*. *Investopedia Corporate Finance & Accounting*
- Hicks, B. J., McWhirter, B. K., McArthur, D., & Williams, B. (2017). U.S. Patent No. 9,747,632. Washington, DC: U.S. Patent and Trademark Office
- IBM. (2017). *Blockchain 101*. IBM Infographic. Retrieved June 2 2021 from <https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?htmlfi=XI912346USEN>
- IFC (2019). *Reinventing Business through Disruptive Technologies, Sector Trends and Investment Opportunities for Firms in Emerging Markets*
- In J. (2017). *Introduction of a Pilot Study*. *Korean Journal of Anaesthesiology*, 70(6), 601–605.
- Jennings, R. J. (2017). *Time is Ripe for Cognitive Procurement*. *Inside Supply Management*, 28(1), 32.
- Kabanda, Salah; Pitso, Nteboheleng; and Kapepo, Meke (2019) "The Role of Institutional Pressures in the Adoption of e-Procurement in Public Institutions in

- Developing Countries: The Case of Lesotho," *The African Journal of Information Systems*: Vol. 11: Iss. 3, Article 5.
- Kabir, Syed Muhammad. (2016). Preparing Questionnaires. ResearchGate
- KPMG. (2017). Delivering the Value in Procurement with Robotic Process Automation. KPMG Whitepaper
- Kumar, A., Mangla, S.K., Luthra, S. & Ishizaka, A. (2019). Evaluating the Human Resource Related Soft Dimensions in Green Supply Chain Management Implementation. *Prod. Plan. Control* 30, 699–715.
- Lusweti, N & Odoyo, A. (2020). E-Inventory Management Systems and the Performance of Supermarkets in Nairobi County, Kenya.
- Madzimure, J., Mafii, C., & Dhurup, M. (2020). E-procurement, supplier integrating and supply chain performance in small and medium enterprises in South Africa. *South African Journal of Business Management*
- Mali, D. Mogaveera, D., Kitawat, P, Jawwad, M. (2020). Blockchain-Based e-Tendering System. In *Proceedings of the 2020 4th International Conference on Intelligent Computing and Control Systems (ICICCS)*, Madurai, India, pp. 357–362.
- Malmqvist J, Hellberg K & Mollas G, (2019). Conducting the Pilot Study: A Neglected Part of the Research Process? Methodological Findings Supporting the Importance of Piloting in Qualitative Research Studies. *Int J Qual Methods*.
- Malott, Richard & Kohler, Kelly. (2021). Research Methods in Principles of Behavior Management and Organizational Studies. 5. 10.5430
- Masudin,I., Aprilia, G.D., Nugraha, A., & Restuputri, D.P. (2021). Impact of E-Procurement Adoption on Company Performance: Evidence from Indonesian Manufacturing Industry. *Logistics* 2021, 5, 16
- Mulandi, C. M. & Ismail, N. (2019). Effect of inventory management practices on performance of commercial state corporations in Kenya. *International Academic Journal of Procurement and Supply Chain Management*, 3(1), 1 80-1 97
- Nafula, B.J. & Namusonge, G. (2017). Effect of e-procurement practices on efficiency frontier of Kakamega county government, *International journal of social sciences and technology*, 2147- 2157.
- Naivas Limited (2016). Naivas Limited: Company History: Naivas Limited. Retrieved June 2 2021
- Nandankar, S. and Sachan, A. (2020). Electronic Procurement Adoption, Usage and Performance: A Literature Review", *Journal of Science and Technology Policy Management*, Vol. 11 No. 4, pp. 515-535
- Ngeno, K., & Kinoti, J. (2017). Effect of e-procurement on effective supply chain management process in energy sector in Kenya. *International Journal of Supply Chain Management*, 2(3), 18-37.
- Nielsen (2018). Africa's Prospects. Macro, Business, Consumer and Retail Indicators, 7th Edition
- Schoenherr T. (2019). The Evolution of Electronic Procurement. In *Transforming Business as Usual*. Palgrave Pivot, Cham
- Schoenherr, T. (2018a). Leadership and Transformation in Supply Management. Tempe, AZ: Institute for Supply Management
- Schoenherr, T. (2018b). System Capability and Technology. In *CPSM Study Guide (Vol. 3, 3rd edition.)*. Tempe, AZ: Institute for Supply Management.
- Transparency International (2018). Corruption Perception Index 2018
- Trent, R. J. (2017). Supply Chain Trends Happening Now. *Supply Chain Management Review*, 21(2), 18–24.
- Victor Imbanga Tsuma & Mark Kanda (2017). Factors Affecting the Adoption of e-Procurement Systems among International Non-Governmental Organisations in Kenya, *International Journal of Academic Research in Accounting, Finance and Management Sciences* vol. 7(2), pages 164-176,
- Wasuna, B. (2021). Kenya: In Tusks Collapse, a Mirror Image of Nakumatt's Troubles, *Daily Nation*. Retrieved 2nd June 2021