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INTEGRATED FINANCIAL MANAGEMENT INFORMATION SYSTEM IMPLEMENTATION ON PROCUREMENT PERFORMANCE OF STATE OWNED ENTERPRISES IN KENYA

[1]Too Kiprotich Willy, [2]Dr. Machoka Paul

[1]Scholar, Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya
[2] Lecturer, Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya

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ABSTRACT

The IFMIS technology is a veritable tool for increasing productivity and empowering public sector professionals to control the procurement process. However, despite the administrative and managerial benefits obtainable by the adoption of IFMIS, the challenges and associated risks are rife. The study's purpose was to assess IFMIS implementation on procurement performance of state-owned enterprises in Kenya to make recommendations on the proper use of IFMIS. The following specific objectives guided the study; to establish how online inventory management, electronic vendor evaluation. The following theories conducted the study; the technology acceptance model, partnerships theory. To achieve this, the study reviewed both theoretical and empirical literature and proposed the research methodology that addressed the gaps identified in the literature and answered the stipulated research questions. This study adopted a descriptive research design approach targeting heads of procurement and ICT at the 187 state-owned enterprises. The study preferred this method because it allowed an in-depth analysis of the subject. A structured questionnaire was used to collect data from a sample of one hundred and thirty (130) respondents, selected using simple random sampling, from the four strata. Once collected, data were analyzed using descriptive and inferential statistics. Quantitative data were analyzed using multiple regression analysis. The qualitative data generated were analyzed using Statistical Package of Social Sciences (SPSS) version 22. The response rate of the study was 74%. The study's findings indicated that online inventory management and electronic vendor evaluation have a positive relationship with state-owned enterprises' procurement performance in Kenya. Finally, the study recommended that public institutions embrace IFMIS technology to improve performance. Further research should be carried out in other public institutions to determine if the same results can be obtained.

Key Words: *Inventory Management, Electronic Vendor Evaluation, Procurement Performance*

Background of the Study

Internet technology has provided organizations with vast opportunities to operate beyond their traditional physical boundaries. More specifically, ICT tools such as IFMIS have provided firms with more efficient solutions to drive significant value into their business (Premkumar, 2019). Indeed, in 2001 one of the major advocates of Internet-based business strategies, Michael Porter, professed that if firms were intent on remaining competitive, they would have to adapt their business models to accommodate more effective and efficient Internet-based business approaches (Lavelle & Bardon, 2019).

According to Issa, Flood, and Caglasin (2013), most organizational spending consists of purchasing. To decrease the total costs spent on purchasing process, internet technologies are used, and IFMIS has become popular to implement in the latest era by both governments and enterprises. Although the opportunities for improvement seem to abound, private and public sectors are still cautious regarding electronic technologies' adoption.

The development and implementation of electronic commerce business models, such as an IFMIS portal in organizations, is a challenge beyond mere technological functionality (Davila, Gupta & Palmer, 2013). Top management support, organizational adaptation, and employees' training are examples of critical issues for implementing any Information technology system. However, the practical reality is that despite the strategic necessity and inherent benefits from IFMIS proposed by academic theorists, and in some cases dictated by larger corporations, issues such as level of technical expertise and the extent of competitive pressures may affect the extent of adoption of the internet technologies that facilitate online procurement (Croom & Brandon-Jones, 2014).

According to Eadie, Perera, and Heaney (2011), there is a gap between theory and practice. In IFMIS, many studies have concentrated on the USA and other large economies such as Germany and Japan. Despite the compelling nature of the case for public sector ICT procurement practices made both by formal, governmental-sponsored reviews, and perhaps more importantly through the positive experiences of private sector organizations, there is very little evidence that it has been widely adopted in the UK public sector. A study by Klein, Conn, and Sorra (2010) of government purchasing strategies found that only 73% of orders are sent electronically, 67% of invoices are received and processed electronically, and 86% of tenders are transacted electronically.

The inappropriate introduction of IFMIS carries high market fragmentation risks in Uganda (Kakwezi, (2013). The legal, technical, and organizational barriers that may result from online procurement are among the most significant challenges for policymakers. Despite that, the Public Procurement Act 2004 and ICT Policy of 2003 does not provide an adequate legislative framework for applying and harmonizing online procurement in the Ugandan government. However, the newly enacted Public Procurement Act (2011) has included some provisions mandating state-owned enterprises to initiate online procurement through IFMIS in the country, but they cannot fast-track the process. The various forms of contract available for use within the public sector usually do not indicate the admissibility of electronically exchanged documents in contracts. Hence, the use of ICT remains legally ineffective in current conditions (Saleemi, 2014).

Kenya's trade liberalization has accelerated since the early 1990s, thus stimulating imports and improving access to alternative and superior technologies. With the advent of globalization and the global financial crisis, adopting information and communication technology in Kenyan state-owned enterprises has become increasingly important. For

example, the national gender and equality commission has adopted systems such as IFMIS in its procurement processes (Amayi, 2011).

On the other hand, the judicial service commission has an online tendering portal (Maina, 2011). The manual processes are costly, slow, inefficient, and data storage and retrieval inadequate. This project sought to determine online procurement practices in the public sector, find the factors for slow adoption, existing models in use, and then develop a Kenyan public sector model. Different countries have tried several models to implement online procurement practices. These are seller-centric buyer-centric, e-marketplaces, or third-party managed. These models are summarized into three in some countries: public, mixed, and public-private partnerships. According to (Callendar & Mathews 2010), most procurement processes are still manual, with the Internet only being used for e-mails and web browsing.

The factors for slow adoption include limited legislation, poor infrastructure, lack of awareness and top management support, integration with internal systems/solutions, lack of technical standards, lack of cooperation on the part of suppliers, costs associated with adapting web-enabled purchasing systems. Comparing the present government-backed IFMIS supported procurement, traditional procurement was paper-based and conversation-based. Currently, in Kenya, this has changed to some extent, and procurement has become a strategic function: procurement personnel look for suppliers that fit within a company's overall plan and strategy.

According to Mutua (2013), poor records management, long documentation process, and questionable filing systems, plus lack of proper procurement plan and inefficient post-award contract execution, irregularity in making obligatory reporting to a public procurement oversight authority, and lack of utilization of standard requisitions are an unmistakable signal of an unsuccessful process. The procurement entities are not content with what has been accomplished and aspire to utilize more optimization potential.

Statement of the Problem

The procurement area is the largest single category of spend, ranging from 50% to 85%. This topic's interest has emanated from many drivers, including trends such as rampant delay in delivery, low-quality products, dissatisfied customers, and the dwindling triple-bottom-line (Kirungu, 2012). To restructure the government to facilitate the better provision of services and better systems of accountability, the 2010 Constitution seems to have created a fourth arm of the government that of state-owned enterprises that collectively have far-reaching functions and mandates (GoK, 2018).

These institutions in Kenya have been experiencing many problems, including low-quality goods, overpriced procurement contracts, and gross mismanagement (Rotich, 2011). According to statistics from the World Bank (2013), there was a 42.7% drop in profits to Sh629 million from Sh1.64 billion a year earlier at Geothermal Development Company (GDC). The public sector in general recorded a decline in performance. A report by CCG (2010) indicates that in some state corporations such as Kenya Electricity Generating Company (KenGen), the total operating expenditure increased by 2% compared to a similar period in 2011.

According to the National Land Commission (NLC), customer satisfaction survey of 2011, 2012, and 2013, it is notable that the percentage index has been fluctuating that is, 65%, 53%, and 46%, respectively (Kirungu, 2012). NLC faces a significant challenge in controlling the overall operating cost because of the constant increase of sourcing cost; this is evident by

NLC posting an increase in expenses of Ksh 6 Billion compared to Ksh 4 Billion noted in the previous year according to an (NLC) 2013 annual report.

The productivity of public sector institutions is relatively low. At the same time, they continue to absorb an excessive portion of the budget, becoming a principal cause of long-term procurement problems (KIPPRA, 2010). A parliamentary committee reports that out of many reports examined by the Auditor General, only a few state-owned enterprises managed a clean bill of health (CCG, 2017). According to Transparency International (2011), 80% of public sector institutions rely on old records in selecting their suppliers. Only 25% search through the internet catalog in selecting suppliers (Rajkumar, 2010), the reason for the loss, fraud, theft, and gross mismanagement.

However, in Australia, previous research by Knudsen (2012) on the survey of the use of IFMIS and related technologies in procurement shows that their use in the procurement processes improved procurement performance by 81%, while in Kenya, no empirical research has been undertaken to quantify IFMIS implementation on procurement performance. It is against that backdrop that this study was done to assess IFMIS implementation on state-owned enterprises' procurement performance in Kenya.

Objectives of the Study

i. To assess the influence of online inventory management on procurement performance of state-owned enterprises in Kenya.

ii. To establish the influence of electronic vendor evaluation on procurement performance of state-owned enterprises in Kenya.

LITERATURE REVIEW

Theoretical Review

The Technology Acceptance Model (TAM)

This model was developed and validated by Davis (1993); he used the technology acceptance model (TAM) to explain the mechanisms that influence and shape users' acceptance of new information technology such as electronic tendering (Minahan & Degan, 2011). Inventory management system as an information technology application consists of valuable tools for users to save money and increase organizations' effectiveness and efficiency (Davila, Gupta & Palmer, 2013).

Process cost savings, reduced administration costs, decrease in costs through reduced staffing levels, increased quality through increased competition, placing purchase orders, reduction in time through improved internal workflow, and shortened overall procurement cycle times through aspects like automated reorder system, compose some of the benefits that stem of the inventory management system (Kheng & Al-Hawamdeh, 2012).

According to TAM, two specific variables are fundamental determinants of users' attitudes toward using information technology and the system's actual use: perceived usefulness and ease of use relative to new information system design features (Eadie, Perera & Heaney, 2011). If users realize that barcoding of items is quick and efficient, their acceptance will be more likely (Bilali & Bwisa, 2015).

Many researchers have conducted empirical studies to examine the TAM's explanatory power, which produced relatively consistent results on IT end users' acceptance behavior (Aboelmaged, 2019). In summary, TAM explained the determinants of technology acceptance that enable the explanation of user behavior across a broad scope of end-user information technologies and user populations (McIntosh & Sloan, 2011). The technology acceptance model is relevant because it explains that state-owned enterprises are increasingly accepting and using new technologies in inventory management and ICT procurement activities, consequently improving procurement performance.

The Partnerships Theory

Partnership's theory was developed by Sir Francis Hill (1966), in which he opined that in the supply chain, the standard model through which theorists study the relationship between supplier and buyer is known as the partnership theory. In its essential nature, the partnership model depicts the buyer and supplier as partners with a common interest: customer satisfaction (Petroni & Braglia, 2010).

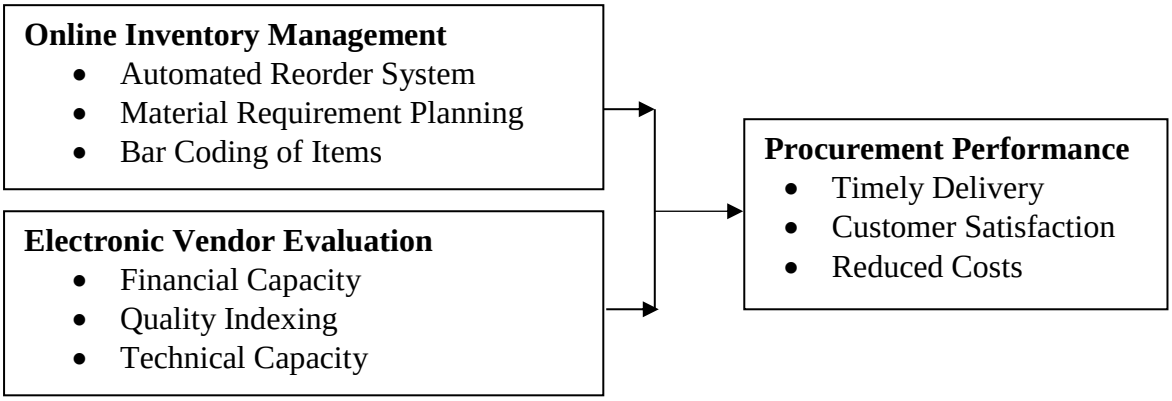
A partnership is a business relationship based on mutual trust, openness, shared risks, and rewards that enable an organization to gain a competitive advantage, leading to the company achieving a far more excellent performance than the firm would have achieved when operating as single entities. This model requires efficient electronic vendor evaluation systems between the buyer and supplier, a critical element of any partnership (Ribeiro & Henriques, 2011).

The theory further states that any partnership is always based on value and present for each other. The solid and long-term relationship implies continuous improvement of the organization's performance. Suppliers must provide better services of high quality than their competition at a reasonable price and still achieve goals to remain in business. According to Segev and Gebauer (2011), the Partnership model increases company efficiency through cooperation; both parties obtain cost reduction, which leads to a price reduction and, therefore, increases the market share profit margin. This leads to a company gaining a competitive edge and efficiency.

The character which forms the perceived attributes of a partnership includes the following; high frequency of mutual improvement of processes, cooperative attitude, trusting relations are built, problem-solving that is win negotiation style, long term business agreement, open sharing of information and there is always vendor certification and defect prevention approach. Motivation factors, the operation environment, strength of operation, and operation duration vary in different partnerships formed. However, there is never an ideal relationship recommended (Salford & Roche, 2010).

There are three types of partnership, which are the most used. Companies recognize each other as partners; all the activities are coordinated and planned in the short term. Only one division within the organization is involved. The second type is a partnership that integrates activities rather than coordinating, as in type 1. There are multiple divisions and entails a long-term horizon. The last type of partnership is the partnership which is not used frequently. Companies share high operational integration such as electronic vendor evaluation, and each views the others as an extension of their firm (Puschmann, 2015).

Conceptual Framework



Online Inventory Management

The attributes of online inventory management considered in this study are automated reorder systems, MRP, and items' barcoding. Lean management of inventory is getting more and more attention in today's highly competitive environment. The electronic inventory system's proponents argue that excess inventory will adversely affect a firm's net cash flows (Moon, 2015).

On the cost side, the most prominent are holding inventory costs, which include the capital costs (interest or opportunity) and the physical cost (storage, insurance, and spoilage). In recent years, several electronic inventory systems have been developed in operations management to deal with excess inventory problems. Management-oriented systems include automated reorder systems, EOQ models, and barcoding of items. These organization-wide practices encompass the entire supply chain (Wong & Sloan, 2014).

The elements of automated reorder systems include shared product design with suppliers and customers, a movement towards single sourcing proximate suppliers, reduced machine set-up times, and total preventive maintenance (Lysons, 2013). An electronic inventory strategy is implemented to improve the return on investment of a business by reducing inventory and its associated carrying costs. To achieve JIT, the process must have signals of what is going on everywhere within the process, leading to dramatic improvements in a public organization's return on investments, quality, and efficiency. It emphasizes that production should create items that arrive when needed, neither earlier nor later (Davila *et al.*, 2013)

Quick communication of old stock consumption, which triggers new stock to be ordered, is key to barcoding and inventory reduction. This saves warehouse space and costs. The automated reorder system's basic philosophy is that inventory is defined as waste (Thomson *et al.*, 2017). This system is based on recognizing that an item's demands may depend on the demand for other inventory items. The emphasis is on the end product into which related parts are incorporated (Croom *et al.*, 2014).

The inventory quantities required are specified based on future demand. The demand for inventory items is precisely determined (EOQ) from the master production schedule for the end products. The operation of a lean inventory system results in relatively low inventory levels. The warehousing costs and material handling costs are significantly reduced. This increases return on assets through decreased conversion costs (Eadie *et al.*, 2011).

Electronic Vendor Evaluation

Electronic vendor evaluation attributes that will be considered in this study are financial capacity, quality indexing, and technical capacity. Vendor evaluation is the evaluation and monitoring of supplier capability to ensure successful delivery of commercial outcomes. It is an essential part of strategic sourcing, vendor management, and securing competitive advantage (Rotich, 2011). It is best considered in two phases, pre-contract and post-contract, often referred to as contract management. The pre-contract involves assessment of potential vendors' capability of controlling quality, delivery, quantity, price, and all other factors embodied in a contract, while the post-contract involves assessing ongoing vendor performance, deciding what to monitor, and the success factors involved (Bradley, 2015).

Premkumar (2019) stated that a given supply item (and aggregate a contract or vendor) is related to its profit impact and supply risk. Profit impact can be volume or value purchased, impacting supply chain value-add, business growth potential, or dependency. Supply risk can be product availability, the number of suppliers, ease or cost of switching vendors, or the availability of substitute products or services (Aboelmaged, 2019).

Croom (2010) proposed that companies support continuous electronic performance appraisals by holding vendors accountable for poor performance and providing outstanding performance incentives. Therefore, they should hold regular vendor reviews to facilitate ongoing vendor performance management and provide a senior management overview of the relationship between the organization and the supplier (Martin, 2018).

An organization benefits greatly when key vendors reduce costs, introduce new services designed to address the organization's needs, and work with the organization to streamline collaborative processes (Kar, 2019). According to Githumbi (2013), vendor performance measurement is the process of measuring, analyzing, and managing vendor performance to reduce costs, mitigate risk, and drive continuous improvement. Lavelle *et al.* (2019) articulate that SPM is a process, not an event. It requires support from stakeholders besides procurement, as vendor performance impacts many functions.

Procurement Performance of State-Owned Enterprises

The attributes of performance of state-owned enterprises that will be considered in this study are timely delivery, customer satisfaction, and reduced costs. Effective management prevents the possibility of poor performance and, when attributed to non-adherence to proper procurement processes and procedures, is an indicator of poor management of the procurement function (Thai, 2017). Bendoly (2015) indicated that performance measurement should eventually lead to performance management, a tool of transforming ideas, vision, and mission of senior managers into actions that can be planned for, measured, modified, and corrected.

According to Angeles (2019), order lead-time is the order cycle sourcing time, also called order to delivery cycle time which refers to the time elapsed between the receipt of customer order until the delivery of finished goods to the customer is made. The reduction in order cycle time leads to a reduction in supply chain response time and, as such, is an important performance measure and source of competitive advantage (Bird, 2019); this can only be enhanced by an integrated supply chain function that has electronic procurement as an element, and it directly interacts with customer service in determining competitiveness (Boer, 2012).

Another way to characterize performance is to distinguish between financial and non-financial performance. The financial performance is often measured using traditional

accounting KPIs such as ROA, ROE, EBIT, or sales growth (Dooley, 2014). The non-financial performance can be measured using operational KPIs. Market share, quality of goods, innovation rate, or customer satisfaction are prominent examples (Hawking, 2014). Evaluating performance in the supply chain context involves measures necessary at the strategic, operational, and tactical levels. Strategic level measures include lead time against whole industry operations, quality level, cost-saving initiatives, and supplier pricing against the market (Ibem, 2015).

Performance may vary according to whose viewpoint is taken, the period observed, criteria used, and so on. Different fields of study should use different organizational performance measures because of the difference in their research questions (Kheng, 2012). For measuring a firm's performance, objective and subjective measures have been used. The objective measures include return on assets, market share, sales, export proportion, growth rates in domestic and export sales growth. Similarly, the subjective performance measures include management's perceptions of productivity, profitability

Empirical Review

Kalakota *et al.* (2011) analyzed the warehouse and inventory management system in Shell Petroleum Development Company and demonstrated the utility of ICT through vendor-managed inventory as a veritable value-added tool in electronic inventory management. Croom (2010) also tried to justify using modified EOQ models logistic-based approach to managing inventory of perishable products.

Davila *et al.* (2013) used statistical process monitoring tools with inventory levels and stock-outs as critical metrics in achieving proactive inventory policy intervention in the context of cooperative supply chains. Their results showed the possibility of detecting out-of-control supplier signals beforehand and significantly reducing stock-outs through dynamic adjustments of inventory levels (Chan *et al.*, 2019).

As earlier noted, researchers have also been renewed interest to improve on the awareness of the economic benefits of robust electronic inventory management (Lysons, 2013). These studies suggest the need for modern organizations to do away with qualitative approaches, in favor of quantitative methods, given today's increasingly complex and unpredictable environment. In this regard, Githumbi (2013), applied quantitative demand forecasting methods along with two classic inventory models, namely electronic order quantity, to demonstrate significant (up to 44 percent) inventory cost reduction and improved customer service levels at a company Nairobi.

In the context of the electronic order quantity inventory analytical tool, Kar (2019) attempted to use a modified linear optimization method that improved the discriminating power of inventory items beyond what is obtainable by conventional approaches. Similarly, Callender *et al.* (2010) used financial statement data to establish the nexus between inventory management and US manufacturing firms' firm profitability. The researchers found that a lower ratio of inventory to sales for a firm is associated with a higher profit margin for the firm, but the specific IMTs that helped the enterprises to achieve profitability was not the focus of the study.

In a similar vein, Issa *et al.* (2013) used the inventory management system to highlight the effectiveness (or ineffectiveness) of an entire organization's internal control. In the Nigerian context, Kannan *et al.* (2013) used a combined case study and survey methods to provide valuable insights into how Nigerian manufacturers optimized inventory management in lead-time delivery and reduced stock-outs of goods and materials. Cagliano *et al.* (2013) used a

similar approach to evaluate inventory management's role in fostering entrepreneurship. The results suggest that robust inventory management leads to the economy, efficiency, and cost-reduction, of other benefits in both studies.

According to a study done by Farzin *et al.* (2010), he argues that electronic vendor appraisal process is an essential aspect of both strategic sourcing and procurement performance for an organization to achieve competitive advantage. Boer *et al.* (2012) observed that developing a robust, easy-to-deploy method of evaluating vendors electronically is a critical business competency. Boer noted that the methodology should be sound and the approach practical. Vendor evaluation may take various approaches that all influence the quality of data obtained from the vendors, reflecting the suppliers' accurate picture (Petroni, 2010).

Davila *et al.* (2013) noted that there are many sources which the procuring entity should use to check or verify the dependability and reliability of each supplier. Davila further observed that electronic vendor appraisal is widely used to collect information about the vendor, and electronic vendor appraisal uses published or unpublished information already in existence and is particularly applicable to the product and financial appraisals. Saford (2010) added that electronic vendor research should always precede field research since it will indicate what matters need to be investigated.

According to the study by Egbu *et al.* (2014), third-party appraisals may also be undertaken mainly through various agencies, especially when assessing the compliance to quality systems. Similarly, in the study by Rajkumar (2010), he observed that electronic vendor evaluation enables information to be provided on a template to be verified and answers given by the vendor's staff in the evaluation.

These assessments, however, are mutually beneficial only if both parties are willing to cooperate and provide the necessary inputs (Teo *et al.*, 2019). When seeking to approve vendors, procurement functions must be satisfied that, as a minimum, they are technically sound, managerially competent, adequately resourced, financially stable, and reliable, which consequently leads to timely delivery and supply of quality products (Li, 2018).

RESEARCH METHODOLOGY

The study adopted a descriptive research design. Descriptive research design allows the researcher to study the elements in their natural form without making any alterations (Kothari, 2018). The unit of analysis was the state-owned enterprises, and the unit of observation in this study constituted the heads of procurement and ICT. The equation gives a sample size of 65 state-owned enterprises. Therefore, the study sought to gather information from heads of procurement and heads of ICT in the sampled state-owned enterprises, which brings the respondents number to 130. The selection employed appropriate sampling techniques that consider the distribution of heads of procurement and heads of ICT of state-owned enterprises.

Primary data was obtained using a questionnaire. The questionnaire consisted of both open-ended and closed-ended questions covering issues related to IFMIS implementation on state-owned enterprises' procurement performance in Kenya. The questionnaires were self-administered to the respondents, and two research assistants were recruited and trained so that they were able to get quality results. According to (Orodho, 2019) 10% of the target population should constitute the pilot test which should not be included in the final study. In this study, 10% of the target population was 13 respondents.

Quantitative data was analyzed by employing descriptive statistics and inferential analysis using a statistical package for social science (SPSS) version 22. The Pearson correlation coefficient was used to indicate one on one association between the independent and dependent variables. Multiple regression analysis was used to establish the relationship between the independent and dependent variables.

DATA ANALYSIS AND PRESENTATION

A total of 130 questionnaires were distributed to employees. Out of the population covered, 96 were responsive, representing a response rate of 74%. This was above 50%, which is considered adequate in descriptive statistics according to (Dunn 2010).

Descriptive statistics

Online Inventory Management

The respondents were also asked to comment on online inventory management's influence on state-owned enterprises' procurement performance in Kenya. The responses were rated on a Likert scale, and the results are presented in Table 4.6 below. It was rated on a 5 point Likert scale ranging from; 1 = strongly disagree to 5 = strongly agree. The scores of 'strongly disagree' and 'disagree' have been taken to represent a statement not agreed upon, equivalent to a mean score of 0 to 2.5. The score of 'neutral' has been taken to represent a statement agreed upon, equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' has been taken to represent a statement highly agreed-upon equivalent to a mean score of 3.5 to 5**.**

The respondents were asked to indicate their descriptive responses for online inventory management. The result revealed that most of the respondents with a mean of (4.3) agreed that an automated reorder system significantly reduces delivery time. The measure of dispersion around the mean of the statements was 1 indicating the responses were varied. The result revealed that most of the respondents with a mean of (3.6) agreed that MRP significantly reduces delivery time. The measure of dispersion around the mean of the statements was 1.4, indicating the responses were varied. The result revealed that most of the respondents with a mean of (3.8) agreed that barcoding of items significantly reduces delivery time. The measure of dispersion around the mean of the statements was 1.3, indicating the responses were varied.

The result revealed that the majority of the respondent with a mean of (3.0) agreed with the statement that an automated reorder system greatly influences customer satisfaction. The measure of dispersion around the mean of the statements was 1.4, indicating the responses were varied. The result in table 4.5.1 revealed that most of the respondents with a mean of (4.2) agreed with the statement that MRP greatly influences customer satisfaction. The measure of dispersion around the mean of the statements was 1 indicating the responses were varied. The result revealed that most of the respondents with a mean of (3.7) agreed that barcoding of items greatly influences customer satisfaction. The measure of dispersion around the mean of the statements was 1 indicating the responses were varied.

The result revealed that most of the respondents with a mean of (3.4) agreed that an automated reorder system greatly reduces costs. The measure of dispersion around the mean of the statements was 1.3, indicating the responses were varied. The result revealed that most of the respondents with a mean of (3.8) agreed that MRP greatly reduces costs. The measure of dispersion around the mean of the statements was 1.2, indicating the responses were

varied. The result revealed that most of the respondents with a mean of (3.8) agreed that barcoding of items greatly reduces costs. The measure of dispersion around the mean of the statements was 1.2, indicating the responses were varied. However, the variations in the responses were varied, as shown by an average standard deviation of 1.5 and an average mean of 3.8. The findings agree with Knudsen (2015) that using online inventory management when sourcing is a smart move and can reduce expenses significantly.

Table 1: Online Inventory Management

Statements	N	Mean	Std. Deviation
An automated reorder system greatly reduces delivery time	96	4.3	1.0
MRP greatly reduce delivery time	96	3.6	1.4
Barcoding of items greatly reduces delivery time	96	3.8	1.3
Automated reorder system greatly influences customer satisfaction	96	3.0	1.4
MRP greatly influence customer satisfaction	96	4.2	1.0
Barcoding of items greatly influences customer satisfaction	96	3.7	0.5
An automated reorder system greatly reduces costs	96	3.4	1.3
MRP greatly reduces costs	96	4.1	4.3
Barcoding of items greatly reduces costs	96	3.8	1.2
Average	**96**	**3.8**	**1.5**

Electronic Vendor Evaluation

The respondents were also asked to comment on statements regarding electronic vendor evaluation influence on state-owned enterprises' procurement performance in Kenya. The respondents were asked to indicate descriptive responses for electronic vendor evaluation. The result revealed that most of the respondents indicated by a mean of (3.8) indicated that they agreed with the statement that establishing the financial capacity greatly reduces delivery time. The responses were varied as measured by a standard deviation of 1.1. The result revealed that most of the respondents indicated by a mean of (3.6) indicated that they agreed with the statement that establishing the supplier quality index greatly reduces delivery time. The responses were varied as measured by standard deviation of 1.1. The result revealed that most of the respondents indicated by a mean of (3.7) indicated that they agreed with the statement that establishing the technical capacity reduces delivery time. The responses were varied as measured by a standard deviation of 1.1

The result revealed that most of the respondents indicated by a mean of (3.6) indicated that they agreed with the statement that establishing the financial capacity greatly influences customer satisfaction. The responses were varied as measured by a standard deviation of 1.2. The result revealed that most of the respondents indicated by a mean of (3.6) indicated that they agreed with the statement that establishing the supplier quality index greatly influences customer satisfaction. The responses were varied as measured by a standard deviation of 1.2. The result revealed that most of the respondents indicated by a mean of (3.5) indicated that they agreed with the statement that establishing the technical capacity greatly influences customer satisfaction. The responses were varied as measured by a standard deviation of 1.4.

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that most of the respondents indicated by a mean of (3.3) indicated that they agreed with the statement that establishing the supplier quality index greatly reduces costs. The responses were varied as measured by standard deviation of 1.5. The result revealed that most of the respondents indicated by a mean of (3.6) indicated that they agreed with the statement that establishing the technical capacity greatly reduces costs. The responses were varied as measured by a standard deviation of 0.5.

However, the variations in the responses were varied, as shown by an average standard deviation of 1.2 and an average mean of 3.6. These findings imply that electronic vendor evaluation was at the heart of the organization. They agree with Lysons (2013) that organizations must look toward their vendor evaluation improvements. The opportunities for cost savings and operational improvements can be enormous as the impact on profitability is considerable.

Table 2: Electronic Vendor Evaluation

Statements	N	Mean	Std. Deviation
Establishing the financial capacity greatly reduces delivery time	96	3.8	1.1
Establishing the supplier quality index greatly reduces delivery time	96	3.6	1.1
Establishing the technical capacity reduces delivery time	96	3.7	1.1
Establishing the financial capacity greatly influences customer satisfaction	96	3.5	1.2
Establishing the supplier quality index greatly influences customer satisfaction	96	3.8	1.2
Establishing the technical capacity greatly influences customer satisfaction	96	3.5	1.4
Establishing the financial capacity greatly reduces costs	96	3.5	1.4
Establishing the supplier quality index greatly reduces costs	96	3.3	1.5
Establishing the technical capacity greatly reduces t costs	96	3.6	0.5
Average	**96**	**3.6**	**1.2**

Correlation Analysis

Table 3: Summary of Pearson's Correlations

		Online Inventory Management	Electronic Vendor Evaluation	Online Payments
Online Inventory Management	Pearson Correlation	1		
	Sig. (2-Tailed)			
Electronic Vendor Evaluation	Pearson Correlation	.372**	1	
	Sig. (2-Tailed)	0		
Online Payments	Pearson Correlation	.353**	.449**	1
	Sig. (2-Tailed)	0	0	

** Correlation is significant at the 0.05 Level (2-Tailed).

The correlation summary shown in Table 3 indicated that the associations between each of the independent variables and the dependent variable were all significant at the 95% confidence level. The correlation analysis to determine the relationship between online inventory management and procurement performance of state-owned enterprises in Kenya, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate a positive relationship (r=0.556) between online inventory management and the procurement performance of state-owned enterprises in Kenya. Besides, the researcher found the relationship to be statistically significant at a 5% level (p=0.000, <0.05).

The correlation analysis to determine the relationship between electronic vendor evaluation and procurement performance of state-owned enterprises in Kenya, Pearson correlation coefficient computed and tested at 5% significance level. The results indicated a positive relationship (r=0.662) between electronic vendor evaluation and the procurement performance of state-owned enterprises in Kenya. Also, the researcher found the relationship to be statistically significant at a 5% level (p=0.000, <0.05).

Regression Analysis

Table 4 presented the regression coefficient of independent variables against the dependent variable. The regression analysis results revealed a significant positive relationship between the dependent variable and the independent variable. The independent variables reported an R-value of 0.846, indicating a perfect relationship between dependent and independent variables. R square value of 0.715 means that 71.5% of the corresponding variation in the procurement performance of state-owned enterprises in Kenya can be explained or predicted by (online inventory management, electronic vendor evaluation, online payments, online contract management), indicating that the model fitted the study data. The regression analysis results revealed a significant positive relationship between the dependent and independent variables ($\beta = 0.715$), p=0.000 <0.05).

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.846[a]	.715	.703	.14869

a) Predictors: (Constant), Online Inventory Management, Electronic Vendor Evaluation, Online Payments, Online Contract Management
b) Dependent Variable: Procurement Performance

Table 5: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.002	4	1.251	56.562	.000[b]
	Residual	1.99	91	0.022		
	Total	6.992	95			

a) Predictors: (Constant), Online Inventory Management, Electronic Vendor Evaluation, Online Payments, Online Contract Management
b) Dependent Variable: Procurement Performance

The significance value is 0.000, which is less than 0.05; thus, the model is statistically significant in predicting how online inventory management, electronic vendor evaluation, online payments, and online contract management influence state-owned enterprises' procurement performance in Kenya. The F critical at a 5% level of significance was 28.61. Since F calculated, which can be noted from the ANOVA table above, is 56.562, which is greater than the F critical (value= 28.61), the overall model was significant.

Therefore, the study establishes that; online inventory management, electronic vendor evaluation, online payments, and online contract management were essential IFMIS tools influencing the procurement performance of state-owned enterprises. These results agree with Odhiambo and Kamau's (2013) results, which indicated a positive and significant influence of IFMIS on state-owned enterprises' procurement performance.

Table 6: Coefficients of Determination

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.07	0.193		10.725	0.000
	Online Inventory Management	0.166	0.041	0.255	4.048	0.000
	Electronic Vendor Evaluation	0.138	0.053	0.235	2.603	0.010

a) Predictors: (Constant), Online Inventory Management, Electronic Vendor Evaluation,
b) Dependent Variable: Procurement Performance

The regression equation was;

$$\mathbf{Y=2.07 + 0.166X_1 + 0.138X_2}$$

The regression equation above has established that taking all factors into account (online inventory management, electronic vendor evaluation) constant at zero, procurement performance of state-owned enterprises in Kenya will be an index of 2.07. The findings presented also show that taking all other independent variables at zero, a unit increase in online inventory management will lead to a 0.166 increase in state-owned enterprises' procurement performance. The P-value was 0.000, which is less than 0.05, and thus the relationship was significant. The study also found that a unit increase in electronic vendors will lead to a 0.138 increase in Kenya's state-owned enterprises' procurement performance. The P-value was 0.010, and thus the relationship was significant.

Conclusion of the Study

Based on the study findings, the study concludes that state-owned enterprises' procurement performance can be improved by online inventory management, electronic vendor evaluation, online payments, and online contract management.

First, regarding online inventory management, the study's regression coefficients show that it has a significant influence of 0.166 on state-owned enterprises' procurement performance. This implies that increasing online inventory management levels by a unit would increase the levels of procurement performance of state-owned enterprises by 0.166. This shows that online inventory management has a positive influence on the procurement performance of state-owned enterprises.

Second, regarding electronic vendor evaluation, the study's regression coefficients show that it has a significant influence of 0.138 on state-owned enterprises' procurement performance. This implies that increasing levels of electronic vendor evaluation by a unit would increase the procurement performance levels of state-owned enterprises by 0.138. This shows that electronic vendor evaluation has a positive influence on the procurement performance of state-owned enterprises.

Drawing on this research, lack of online inventory management, electronic vendor evaluation, online payments, and online contract management in state-owned enterprises leads to poor procurement performance. Though the state-owned enterprises are striving hard to improve their procurement performance, there are still issues of poor quality products, long lead time, and high cost of products. It was articulated that the current phenomenon of poor procurement performance in the public sector can be reversed if the government and other stakeholders ensure online inventory management, electronic vendor evaluation, online payments, and online contract management are embraced in the procurement function. Thus, it is evident that all the independent variables identified in this study were essential IFMIS tools that influenced state-owned enterprises' procurement performance.

Recommendations of the Study

To ensure that state-owned enterprises have better procurement performance, they should focus more on using their online inventory management to ascertain vendors' supplies. When it's needed, ensure that there is a consistency of quality in goods supplied. In the same regard, they should involve suppliers early enough to enable them to meet demand appropriately.
Regarding the second objective, it would be constructive for state-owned enterprises to invest more in electronic vendor evaluation to reduce procurement costs through unnecessary reworks and ensure professional suppliers get it right the first time. This should be done consistently with financial capacity ascertainment and supplier quality indexing.

Areas for Further Research

The study is a milestone for further research in the procurement performance of state-owned enterprises in Africa and Kenya. The findings demonstrated the essential IFMIS tools to state-owned enterprises' procurement performance: online inventory management, electronic vendor evaluation, online payments, and online contract management. The current study obtained an R^2 of 71.5%. Therefore, it should be expanded further to include other IFMIS tools that may have a positive significance to the procurement performance of state-owned enterprises. Existing literature indicates that as a future avenue of research, there is a need to undertake similar research in other institutions and public sector organizations in Kenya and other countries to establish whether the explored IFMIS tools herein can be generalized to affect procurement performance in other public institutions.

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