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INTEGRATED FINANCIAL MANAGEMENT INFORMATION SYSTEM AND ITS INFLUENCE ON PUBLIC PROCUREMENT PERFORMANCE IN KIAMBU COUNTY GOVERNMENT, KENYA

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Abstract

The Kenyan government has realized the importance of procurement planning in all public procurement, with all procurement activities being within the approved budgets of the procuring entity, through an annual procurement plan, and all procurements undertaken by an entity to be within the threshold set in the regulations. Procurement should also be handled by different offices in respect to initiation of procurement, processing and receipt of goods and services. There have been numerous attempts to reform and regulate Public Procurement, and this has seen the emergence of legislation such as the Public Procurement and Disposal Act of 2005, which was later revised in 2009 to set up the necessary procedures for acquisition as well as the disposal of unserviceable, obsolete and surplus equipment by government institutions. Study findings concluded that IFMIS had a significant relationship with public procurement performance, a significant relationship was also established between IFMIS control systems and public procurement performance, further it was also confirmed that online tendering had a significant relationship with public procurement performance, a conclusion was also reached that automated planning had a significant relationship with public procurement performance, and lastly it was found out that automated supplier engagement had a significant relationship with public procurement performance. The study concluded that IFMIS has influence on public procurement performance in Kiambu county government. Changing either IFMIS control systems, online tendering, automated planning and automated supplier engagement would significantly affect public procurement performance. This study recommends that county governments should put policies flexible enough to handle technological changes. Policies to strengthen the IFMIS platform should be put in place to ensure the systems control mechanisms are safeguarded.

Keywords: Integrated Financial Management, Procurement Planning, Public Procurement Performance

BACKGROUND

According to Mbae (2014), significant developments within public procurement system in Kenya have been seen, from unregulated systems in 1960s, moving to regulated system by Treasury Circulars in 1970s, 1980s and 1990s, to the

introduction of the Public Procurement and Disposal Act (PPDA) of 2005 as well as Public Regulations of 2006, resulting to new standards for Public Procurement in Kenya. Mbae (2014), further points out that public procurement constitutes the largest domestic market in developing countries, and if properly managed, a public procurement

system has the ability to greatly influence economic development in these countries.

In recent years, governments in developing countries significant efforts have gone into computerization of most of their operations, in connection to Public Sector. Integrated Financial Management Information Systems (IFMISs), becoming core components of financial reforms in these countries (Peterson, 2006).

Public Procurement Performance

Public procurement performance is being able to achieve the objectives as well as responsibilities that have been laid down, from the viewpoint of the party looking into such matter. It is the extent to which the results of the procurement process demonstrate improvement in lead time, capacity utilization, cost and labour productivity (Kavua & Ngugi, 2014). Procurement performance is characterized by two elements; purchasing efficiency and effectiveness, and purchasing performance. Purchasing performance focuses on how well public entities are moving towards pre-determined objectives, making decisions on future initiatives aimed at performance improvements. Therefore, the procurement process is a means to efficient, effective control of processes, and not simply an end. (Ouma & Kilonzo, 2014).

According to Oketch (2014), the public sector is surrounded by numerous allegations of fraud, corruption and inefficiencies brought about by weak controls in the procurement process. Procurement and asset disposal in government entities have been riddled by bureaucracies as well as corruption, rendering the process inefficient and resulting to loss of colossal amounts of finances from government coffers (Otieno, 2015).

There have been numerous attempts to reform and regulate Public Procurement, and this has seen the emergence of legislation such as the Public Procurement and Disposal Act of 2005, which was

later revised in 2009 to set up the necessary procedures for acquisition as well as the clearance of unserviceable, inoperable and spare equipment by government institutions (Mbae, 2014). Mbae (2014), further indicates that subsidiary legislation was put up – The Public Procurement and Disposal Regulations (PPDR), which operationalized in 2007. Three independent bodies were established; Public Procurement Oversight Authority (PPOA), Public Procurement Oversight Advisory Board (PPOAB) and Public Procurement Administrative Review Board (PPARB). The composition of these bodies, their functions, powers and jurisdictions are clearly outlined in the act (Otieno, 2015).

A procuring entity is required to prepare specific requirements that are related to the effects, works or services to be bought out, and also gives the correct, complete depiction of items to be bought out, to allow for fair competition among suppliers participating or contractors in the procurement process (PPOA, 2005). Procurement performance function is measured through its efficiency and effectiveness in meeting the objective of procurement. It is now becoming a necessity to align procurement objectives with that of the organization (Muthuri, 2014).

Procurement performance provides the grounds for an organization to evaluate its progress towards its predetermined goals, to highlight its weaknesses and strengths and to determine its future projects with the aim of performance improvements. Poor procurement on the other hand results to inefficiency and increased costs. This also results to a decrease in profitability, thus becoming a major impediment to the achievement of organizational goals, results to setbacks in delivery, substandard goods and services and increased defects. Poor performance in both private and public sectors is as a result of the failure to adopt electronic procurement, and over dependence on traditional procurement activities (Ndiiri, 2016).

Integrated Financial Management Information Systems

According to Amemba, Nyaboke, Osoro, and Mburu (2015), the country has suffered problems in public procurement since existing legislations failed to advocate technological usage in procurement processes, and establishment of long term engagements with the buyer, maintaining ethical standards in procurement has also been an uphill task. To have an improved performance in procurement in Kenya, a review of existing legislations must be conducted so as to encourage extensive technological use in the procurement process, which will foster long-term relations between buyers and suppliers, and bring about stakeholder involvement through training (Amemba et al., 2015).

IFMIS can be described as automation of Public Expenditure Management process which entails; formulation of budgets, execution of budgets and accounting with the help of a fully integrated system for financial management for line ministries and other spending agencies. IFMIS helps in public financial management and control, accounting, auditing as well as reporting. A full system also secures integration and communication with other relevant information systems (Diamond & Khemani, 2006). IFMISs are introduced to automate and computerize various aspects of budget executions as well as accounting operations across government institutions (USAID, 2008). The system is supported by a reliable database or a series of interconnected databases, where data expressed in financial form flow to and fro (Njonde & Kimanzi, 2014).

IFMIS has inbuilt control systems designed to assist management in ensuring that there is accountability in the deployment and use of public resources, therefore enhancing effectiveness and efficiency of public expenditure programs. Tracking of financial events through automated financial management

results to improved control over expenditure, accountability and transparency in the budget cycle (Hendriks, 2012).

Following the introduction of county governments by the 2010 constitution, the National Treasury embarked on the implementation of IFMIS to all counties in 2013 (Cherotich & Okibo, 2016).

Integrated Financial Management Information System and Public Procurement Performance

Procurement performance is a major contributor to the improvement of quality of services, while its absence or inappropriate use acts as a hindrance to change resulting to the deterioration of the purchasing function. Performance measurement therefore is important in guaranteeing performance of the organizations. Purchasing performance is as a result of purchasing efficacy, and purchasing productiveness, as this forms the basis for organizations to evaluate, how well they are nearing their pre-determined goals, helps them to focus on core competencies while eliminating their weaknesses, and also making putting in place measures for future initiatives, with the aim being to strengthen improvement in performance (Mburu & Mwangi, 2015).

Poor procurement performance results to increased inefficiency and costs of the procurement function, and also contributes to a decrease in profitability. This limits organizational growth and causes delays in delivery, low quality goods and services and increased defects. Inability to embrace e-procurement is the greatest contributor of poor procurement performance, especially where there is existence of traditional procurement procedures and procurement activities are poorly coordinated (Ndiiri, 2016)

Kinyua (2015), indicates that the quality of goods, services, and infrastructure as well as the effectiveness of public services are dependent on a properly managed public procurement system.

Traditional purchasing procedures have been criticised because of inefficiencies such as numerous clerical activities that lack value, excessive paperwork for new purchases, excessive order processing time, as well as excessive cost of transactional activities (Oketch, 2014).

IFMIS e-procurement adoption in Kenya is seen as the most effective strategy in addressing the effects of public procurement misappropriations that have bedevilled the public sector from the time the country attained self-rule. Integration of financial management systems improves the ability to acquire financial information as well as operational performance, avail information on the financial position of the government, as well as information on the performance of the economy, thus demonstrating accountability to the public as well as donors (Biwott, 2015).

Public Procurement in Kiambu County

County governments are devolved units of government, established by the County Governments Act (2012). This piece of legislation is in line with the provisions of the new constitution, which came into operation in the year 2010. The act stipulates the composition, functions and roles of the independent arms of government. It also specifies decentralized units to the county assembly from the national government (Otieno, 2015).

The County Government of Kiambu has ten key departments that have been entrusted with the delivery of services to the residents of the expansive county. These departments are involved with the purchase of materials and services and also in the disposition of assets. The county government has therefore realized the need for capacity building initiatives so as to support these departments to effectively and efficiently manage their projects. Procurement has as result received a major emphasis, thus prompting the need to build capacity

of those involved in the procurement process (Republic of Kenya, 2016).

Preparation of procurement plans and adherence to the same, carrying out risk based audits, as well as laying out an institutional framework have been prioritised, so as to ensure that there is prudent management of scarce resources so as to realise maximum benefit. This in effect has reduced wastage in the county government, therefore realising a great impact on the intended beneficiaries. Procurement plans have also enabled the departments to prioritise their resources, enabling them to realise their desired outcomes. Kiambu County Government has also adopted e-procurement, and therefore all its procurement functions are performed on the IFMIS platform, raising transparency of the procurement process, and allowing more suppliers to access tenders. Several challenges have been encountered in the health sector, which have been characterised by construction delays resulting from the long process of acquiring bills of quantities, and slow procurement process (Republic of Kenya, 2016).

Kiambu County Government also requires all its suppliers to submit tender documents which indicates the requirements and qualifications for the contract. These documents are obtained directly from the county's website or the treasury's supplier website, where each supplier is required to login before gaining access to the site. The suppliers are then required to submit their enclosed tender documents to the county. To ensure that a conflict of interest does not arise, suppliers are required to indicate whether they have associations with the buying company, and in such cases the supplier is disqualified (Republic of Kenya, 2016).

Significance Of The Study

The study findings will be significant because poor management of public resources with respect to

public procurement has been a topic of discussion following the entry of county governments in 2013.

STATEMENT OF THE PROBLEM

Public Procurement process has been marred with malpractices such as corruption, misallocation of resources, bureaucracy, and disrespect of the rule of law. This has resulted to inefficiency, lack of accountability and transparency in the procurement systems, causing delays, exaggerated prices and poor service delivery (Mutua, 2010). Significant efforts have been made to integrate procurement into a more strategic view of the efforts by the government.

Electronic procurement has emerged as a major factor in the procurement process over the last decade. E-procurement streamlines the three important parts of the procurement process: sourcing, procurement and payment. It is more than just a system for making online purchases. Where the system is properly implemented, it connects companies and their business processes directly with suppliers, and at the same time managing these interactions. E-procurement offers more efficient integration of the supply chains providing better organization and tracking of all transaction records (Kagai, 2013)

Chemoiywo (2014), studied Public Procurement Procedures and Supply Chain Performance in State Corporations in Kenya, and found out that most parastatals comply with procurement procedures. This was indicated by the findings that officers have received training and they have also been sensitized on Public Procurement Act of 2005 and Regulations 2006. Mutui (2014), he found out that IFMIS implementation affects the overall procurement performance in government ministries in Kenya to a great extent, top management support and capacity building to a moderate extent, while employee commitment is also to a moderate extent.

Metoh (2011), in his study on factors affecting implementation of E-procurement System in the public sector, found out that bureaucracy in government contributes to non-implementation of e-procurement in the public sector.

Musau (2015) looked into environmental factors affecting procurement performance in county governments: a case of Uasin Gishu County. His study found out that legal, political, and socioeconomic environments affect procurement performance.

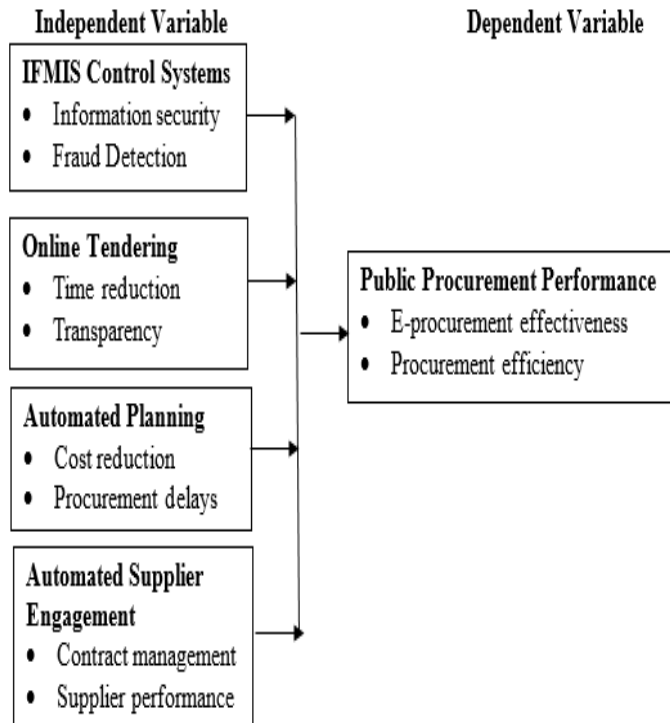
The reviewed researchers have studied Public Procurement Performance in Kenya, but have not addressed Integrated Financial Management Information Systems and its influence on Public Procurement Performance in county governments. It is against this background that this study sought to investigate the influence of IFMIS on Public Procurement Performance in Kiambu County Government.

OBJECTIVE OF THE STUDY

The study's specific objectives were to;

- i. determine the influence of IFMIS control systems on Public Procurement Performance in Kiambu County Government.
- ii. investigate the influence of online tendering on Public Procurement Performance in Kiambu County Government.
- iii. establish the influence of automated planning on Public Procurement Performance in Kiambu County Government.
- iv. determine the influence of automated supplier engagement on Public Procurement performance in Kiambu County Government.

The **Conceptual Framework** developed based on the objectives is as illustrated by figure 1.



LITERATURE REVIEW

This section discusses the theoretical framework. Four major theories built a foundation for the study: Diffusion of innovation theory, Information Systems Success Model, E-Technology Perspective Theory, and Agency Theory.

Diffusion of Innovation Theory - DOI as it is commonly abbreviated was first put across by E.M Rogers in the year 1962, and later revised in 2003. The adoption of a new innovation, even when it is advantageous is often met with a lot of difficulty.

Information Systems Success Model - The concept was adduced by Delone and McLean (1992), basing it from an earlier research on communications by Shannon and Weaver. The earlier model advances six key pillars of Information Systems success i.e. System Quality, Information Quality, Use, User Satisfaction, Individual Impact as well as Organizational Impact.

E-Technology Perspective Theory - E-procurement as stated by Choi and Dooley (2001), is a first generation concept whose main aim is the buyers, and should progressively move into e-sourcing, and eventually e-collaboration. E-collaboration helps suppliers and customers to raise their coordination through the internet by managing inventory, demand as well as planning the production, facilitating a frictionless procurement paradigm (Shale, 2014).

Agency Theory- This concept was promoted by Adolf Augustus Berle and Gardiner Coit Means, who looked into the issues arising out of principal-agent relationships as early as 1932. They investigated this concept and applied it towards the development of large corporations.

METHODOLOGY

This study adopted a descriptive research design to acquire information about the current state of the phenomena and to also describe the relationship between the variables. A sample of 80 respondents was selected, representing 80% of the population. Statistical software for social sciences SPSS (version 16) was employed in data analysis. Qualitative data was analysed using content analysis. Quantitative data was analysed through the use of descriptive statistics which include: frequencies, percentages, means, standard deviations as well as multiple linear regression model.

DATA ANALYSIS, FINDINGS AND DISCUSSION

IFMIS Control Systems

The respondents who were users of IFMIS were requested to give a rating on the extent to which they agreed on IFMIS control systems in Kiambu County Government. A scale of 1-5 was provided where 1 represented very low extent, 2 low extent, 3 neutral, 4 moderate extent and 5 great extent. The findings of the study are presented in table 1.

Table 1: IFMIS Control Systems

Table 1: IFMIS Control Systems

IFMIS Control Systems	Percentage Responses (%)					N	Mean	SD
	Very low extent	Low extent	Neutral extent	Moderate extent	Great extent			
Use of IFMIS has resulted to control of expenditure in the use of public resources	1.6	8.1	17.7	33.9	38.7	62	4.00	1.024
IFMIS helps restrict disclosure of sensitive information to unauthorized persons	4.8	9.7	22.6	37.1	25.8	62	3.69	1.110
IFMIS use to monitor procurement process increases risk of detection and also as deterrent to corruption	8.1	11.3	25.8	16.1	38.7	62	3.66	1.318
IFMIS use has helped to expedite reports and data transmission	0.0	12.9	29.0	27.4	30.6	62	3.76	1.035
IFMIS exposes corrupt officials in the procurement process	4.8	11.3	24.2	27.4	32.3	62	3.71	1.179
IFMIS control system have enhanced confidence with the procurement process	0.0	6.5	32.3	37.1	24.2	62	3.79	0.890
Aggregate							3.77	1.093

Source: Research Data (2017)

Mean scores of 3.5 – 5.0 on the Likert scale represented “Moderate extent” and “Great extent”. Scores of 2.5 – 3.4 represented “Neutral extent”, while scores of 1.0 – 2.4 represented “Very low extent” and “low extent”. A mean score for the five variables was computed.

Respondents indicated that the use of IFMIS had resulted to control of expenditure in the use of public resources in public procurement to a moderate extent (mean score = 4.00), IFMIS helps restriction of disclosure of sensitive information to unauthorized persons to a moderate extent (mean score = 3.69), use of IFMIS to monitor the procurement process has increased the risk of detection, therefore acting as a deterrent to corruption, to a moderate extent (mean score =

3.66), IFMIS use has helped to expedite reports and data transmission to a moderate extent (mean score = 3.76), IFMIS exposes corrupt officials in the procurement process to a moderate extent (Mean score = 3.71), and that IFMIS control systems have enhanced confidence in the procurement process to a moderate extent (3.79). The findings of this study indicate that Kiambu County Government should strengthen control systems to ensure that IFMIS is effective in the procurement process.

The aggregate mean indicates that IFMIS controls impacts public procurement performance in Kiambu County Government to a moderate extent ($\mu = 3.77$). The aggregate standard deviation was 1.093. The findings of this study are consistent with (Chado, 2015) as well as (Omokonga, 2014) in that control systems ensures that IFMIS is secure, helping to eliminate vices such as corruption and also resulting to control of expenditure of public resources.

Online Tendering

The respondents were required to rate online tendering in the County Government of Kiambu. A scale of 1-5 was provided, where 1 was very low extent, 2 low extent, 3 neutral, 4 moderate extent, and 5 great extent. Table 2 below summarizes these findings.

Table 2: Online Tendering in Kiambu County Government

Online Tendering	Percentage Responses (%)					N	Mean	SD
	Very Low extent	Low extent	Neutra 1	Moderate extent	Great extent			
Online tendering is faster and more efficient than a traditional purchasing cycle	1.6	8.1	17.7	33.9	38.7	62	4.00	1.024
e-tendering promotes good procurement practices resulting to competitive advantage	4.8	9.7	22.6	33.9	29.0	62	3.73	1.133
Online tender portal acts as a database for tender advertisement and award of contracts improving access to county government tenders	0.0	9.7	22.6	27.4	40.3	62	3.98	1.016
Online tendering increases transparency of the procurement process, while reducing ordering and handling costs and tendering cycle time	1.6	14.5	16.1	37.1	30.6	62	3.81	1.084
Adoption of e-procurement practices promotes supplier engagement, eliminating collusion, cartels and bid rigging	0.0	19.4	25.8	35.5	19.4	62	3.55	1.019
Extent to which online tendering has eliminated irregularities in the award of tenders	0.0	11.3	27.4	38.7	22.6	62	3.73	0.944
Online tendering in <u>Kiambu</u> County	0.0	4.8	30.6	29.0	35.5	62	3.95	0.931
Aggregate							3.82	1.022

Source: Research Data (2017)

Mean scores of 3.5 – 5.0 on the Likert scale represented “Moderate extent” and “Great extent”. Scores of 2.5 – 3.4 represented “Neutral extent”, while scores of 1.0 – 2.4 represented “Very low extent” and “low extent”. A mean score for the five variables was computed.

The findings indicated that, online tendering is faster than traditional purchasing cycle to a moderate extent (mean score = 4), e-tendering promotes good procurement practices resulting to competitive advantage to a moderate extent (mean score = 3.73), online tender portal acts as a database for tender advertisement and award of contracts improving access to county government tenders to a moderate extent (mean score = 3.98), online tendering increases transparency of the

procurement process, reducing ordering and handling costs and tendering cycle times to a moderate extent (mean score = 3.81), adoption of e-procurement practices promotes supplier engagement, eliminating collusion, cartels and bid rigging to a moderate extent (mean score 3.55), extent to which online tendering has eliminated irregularities in the award of tenders to a moderate extent (mean score = 3.73), online tendering in Kiambu County Government to a moderate extent (mean score = 3.95). The county government should strengthen e-procurement practices so as to facilitate supplier engagement and thus supplier confidence in the process. The high performance of an aggregate mean of ($\mu=3.82$), can be attributed to the automation of the procurement process resulting to improved confidence in the process. The results of this study are in line with the findings of (Rotich, Benard, & Waruguru, 2015) as well as (Ndiiri, 2016), in that e-tendering makes the tendering process more efficient and attractive to suppliers.

Automated Planning

This study sought to establish the extent of automated procurement planning in Kiambu County Government. A scale of 1-5 was employed, where 1 indicated strongly disagree and 5 indicated strongly agree. The results are summarized in Table 3 below.

Table 3 Automated planning

Automated planning	Percentage response (%)					N	Mean	SD
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree			
If yes what is the importance	0.0	6.5	9.7	37.1	46.8	62	4.24	0.881
Automated planning helps to reduce haphazard procurement making county governments more attractive to suppliers	0.0	9.7	16.1	40.3	33.9	62	3.98	1.000
Automated plans helps in the identification and appointment of responsive suppliers	3.2	4.8	22.6	40.3	29.0	62	3.87	1.000
Existence of automated planning reduces dependency on suppliers	0.0	6.5	22.6	37.1	33.9	62	3.98	0.914
Automated planning reduces procurement delays	0.0	4.8	41.9	33.9	19.4	62	3.68	0.845
Automated planning reduces costs involved in the procurement process	0.0	8.1	27.4	24.2	40.3	62	3.97	1.008
Automated planning influences procurement by providing focused and efficient utilization of resources	1.6	1.6	19.4	43.5	33.9	62	4.06	0.866
Aggregate							3.97	0.924

Source: Research Data (2017)

A mean score of 3.5 - 5.0 represented “Agree” and “Strongly Agree”, 2.5 – 3.4 “Neutral”, 1.0 – 2.4 “Strongly Disagree” and “Disagree”. The finding indicated that respondents agreed that automated planning was important (mean score = 4.24), Respondents also agreed that automated planning helps to reduce haphazard procurement making county governments more attractive to suppliers (mean score = 3.98), the also agreed that automated plans helps in the identification and appointment of responsive suppliers (mean score 3.87). Respondents also agreed with the statement that existence of automated planning reduces dependency on suppliers (mean score = 3.98). They agreed that automated planning reduces costs

involved in the procurement costs (mean score 3.68), automated planning cost reduces costs involved in the procurement process (mean score = 3.97). The respondents also agreed that automated planning influences procurement by providing focused and efficient utilization of resources (mean score = 4.06). The aggregate mean ($\mu=3.97$) and aggregate standard deviation ($\sigma = 0.924$) indicated that automated planning is highly effective in Kiambu County Government. The findings of this research are in agreement with those of Gathua (2015) as well as Kibet and Njeru (2014).

Automated Supplier Engagement

The study sought to find out the extent of automated supplier engagement in Kiambu County Government. A scale of 1-5 was used where 1 represented very low extent whereas a score of 5 indicated great extent. The results are indicated in Table 4 below.

Table 4 Automated Supplier Engagement

Automated Engagement	Supplier Percentage Response (%)					N	Mean	Std. Deviation
	Very low extent	Low extent	Neutral	Moderate extent	Great extent			
What is the importance of supplier engagement	0.0	3.2	8.1	53.2	35.5	62	4.21	0.727
Automated supplier engagement improves transparency by helping suppliers understand the means through which contracts are evaluated	0.0	1.6	25.8	45.2	27.4	62	3.98	0.779
Automated supplier engagement helps in managing relationships for both long-term and short-term contracts	0.0	1.6	25.8	37.1	35.5	62	4.06	0.827
Automated supplier management facilitates involvement of suppliers in performance review, training and capacity development	0.0	1.6	22.6	38.7	37.1	62	4.11	0.812
Automated supplier engagement helps to create and maintain contacts with suppliers therefore decreasing procurement costs	0.0	1.6	17.7	41.9	38.7	62	4.18	0.779
Automated supplier management makes the process of acquisition of goods and services efficient	0.0	3.2	24.2	32.3	40.3	62	4.10	0.882
Aggregate							4.11	0.801

Source: Research Data (2017)

A mean score of 1 – 2.4 represented “very low extent” and “low extent” 2.5 – 3.4 represented “neutral”, while 3.5 – 5 represented “moderate extent” and “great extent”. The findings from this study indicated that automated supplier engagement was important to a moderate extent (mean score = 4.21), automated supplier engagement improves transparency by helping suppliers understand the means through which contracts are evaluated to a moderate extent (mean score = 3.98), automated supplier engagement helps in managing relationships for both long-term and short-term contracts to a moderate extent (mean

score = 4.06), automated supplier management facilitates involvement of suppliers in performance review, training and capacity development to a moderate extent (mean score = 4.11), automated supplier engagement helps to create and maintain contacts with suppliers therefore decreasing procurement costs to a moderate extent (mean score = 4.18), automated supplier management makes the process of acquisition of goods and services efficient to a moderate extent (mean score = 4.10).

The findings of this study represented by an aggregate mean ($\mu=4.11$) and ($\sigma=0.801$), indicated that automated supplier engagement had great impact in the County Government of Kiambu and guaranteed that the procurement process was transparent. These findings concur with the findings of Sengbeh (2015) and Mandiyambira (2012).

Public Procurement Performance

Public procurement performance was also measured, where a scale of 1 – 5 was used. 1 represented very low extent, while 5 represented very high extent. The study findings are indicated in Table 5 below.

Table 5 Public Procurement Performance

Public Procurement Performance	Percentage Response (%)					N	Mean	Std. Deviation
	Very Low	Low	Moderate	High	Very high			
Transparency of the procurement process	0.0	4.8	17.7	37.1	40.3	62	4.13	0.877
Decreased lead times in delivery of goods	0.0	3.2	22.6	35.5	38.7	62	4.10	0.863
Accountability in the procurement process	1.6	9.7	37.1	24.2	27.4	62	3.66	1.039
Satisfaction of stakeholders in procurement	0.0	4.8	25.8	30.6	38.7	62	4.03	0.923
Compliance with procurement rules	0.0	0.0	25.8	40.3	33.9	62	4.08	0.775
How would you rate public procurement performance in Kiambu county government	0.00	1.6	19.4	37.1	41.9	62	4.19	0.807
Aggregate							4.03	0.881

Source: Research Data (2017)

Mean scores of 1 to 2.4 indicated very low extent, 2.4 to 3.4 indicated moderate extent, and 3.5 to 5.0 indicated high extent and very high extent. The findings indicated that respondents agreed that procurement process was more transparent to a high extent (mean score = 4.13), there was decreased lead time in delivery of goods to a high extent (mean score = 4.10), there was a high extent of accountability in the procurement process (mean score = 3.66), stakeholders in the procurement process had been satisfied to a high extent (mean score = 4.03), compliance with procurement rules was had been done to a high extent (mean score = 4.08), public procurement performance in Kiambu County Government was at high extent (mean score = 4.19). The aggregate mean score ($\mu = 4.03$) and aggregate standard deviation ($\sigma = 0.881$), indicated that public procurement performance in the county government of Kiambu had been significantly

transformed following the introduction of IFMIS in the procurement process. More emphasis should be to ensure that accountability in the procurement process is enhanced as indicated by the mean score of (3.66). The results of this study are in line with the findings of Kibet and Njeru (2014) who found out that procurement planning reduces dependency on suppliers, enabling adherence to procurement portfolio and needs categorization thus impacting procurement performance positively. The study also concurs with the findings of Ndiiri (2016) who found out that there is improved flow of information, shortlisting of tenders is done by the e-procurement system, ordering is done through the county website, all counties make requisitions online, and tenders are advertised online, specifications for procured items are posted to county websites, and that there is competitive bidding and sourcing, thus improving procurement performance.

Diagnostic Tests

To check on normality and multi-collinearity in the data set, and to establish that there was no doubt on the validity on the conclusions reached from the findings, diagnostic tests were employed.

Test for Normality

The study tested for normality by using both Kolmogorov Smirnov and Shapiro Wilk tests. The results are shown in Table 6 below.

Table 6: Test for Normality

	Kolmogorov-Smirnov ^a		Shapiro-Wilk		
	Statistic	df	Sig.	df	Sig.
Public Procurement Performance	.127	62	.013	63	.070
IFMIS Control System	.118	62	.032	62	.217
Online Tendering	.122	62	.022	62	.117
Automated Planning	.157	62	.001	62	.054
Automated Supplier Engagement	.119	62	.030	62	.041

Source: Research Data (2017)

The results in table 6 above indicate that using Shapiro- Wilk test the p-value is above 0.05. Public procurement performance had a p-value 0.70, IFMIS control system was 0.217, online tendering 0.117, automated planning 0.45, automated supplier engagement 0.41. The results indicated that the p-value for the independent variables was above 0.05 and was therefore significant, indicating that the data was normally distributed.

Test for Multicollinearity

Variance inflation factors (VIF) was employed to investigate whether the independent variables were strongly correlated. VIF should not go beyond 10 for the variables as well. The results of Variance Inflation Factors are shown in Table 7 below.

Table 7: Test for Multicollinearity

Variables	Tolerance	VIF
IFMIS Control Systems	.742	1.347
Online Tendering	.695	1.439
Automated Planning	.602	1.660
Automated Supplier Engagement	.832	1.202

Source: Research Data (2017)

Test for correlation between the independent variables in this study indicated severe multi-collinearity was not exhibited by the data. The results indicated that none of the independent variables had a VIF of 10, and the tolerance for all the variables were greater than 0.1, therefore this study concluded that there was no multi-collinearity among the variables.

Regression Analysis

To examine the relationship between dependent and independent variables of the study, regression analysis was employed. Multiple linear regression analysis was used to determine the relation between public procurement performance and the four independent variables; IFMIS control systems, online tendering, automated planning and

automated supplier engagement. The results are indicated in table 8 below:

Table 8 Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	0.738 ^a	0.545	0.513	0.21207

Coefficient results					
	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
(Constant)	0.856	0.402		2.128	0.038
IFMIS Control System	0.139	0.062	0.233	2.247	0.029
Online Tendering	0.162	0.079	0.218	2.036	0.046
Automated Planning	0.211	0.098	0.248	2.151	0.036
Automated Supplier Engagement	0.292	0.090	0.319	3.260	0.002

Predictors: (Constant), Automated Supplier engagement, Automated Planning, IFMIS Control Systems, Online Tendering

Dependent Variable: Public Procurement Performance

Source: Research Data (2017)

The coefficient of determination R², was 0.545 explaining the variation in the influence of IFMIS on public procurement performance. This indicates that the independent variables contribute 54.5% to public procurement performance. Other factors that were not included in the study contributed 45.5% to public procurement performance. Further research therefore should be carried out to determine the other factors that influence public procurement performance. The results of this study indicated that IFMIS control systems, online tendering, automated planning, and automated supplier engagement at 95 per cent level of confidence, had a positive relationship with public procurement performance. Independent coefficients were 0.139, 0.162, 0.211, and 0.292 respectively.

IFMIS Control System and Public Procurement Performance

The first objective aimed at determining the relationship between IFMIS control systems and public procurement performance. The model indicated that IFMIS control systems had a positive relationship with public procurement performance with a beta value of ($\beta=0.139$, $p\text{-value}=0.029$). The p -value of 0.029 was significant since this was less than 0.05 ($p < 0.05$), and therefore at 5% significance level ($\alpha = 0.05$), enough evidence exists to conclude that IFMIS control systems have a great influence on public procurement performance.

This is as a result of the IFMIS control systems eliminating the excesses of the procurement process, therefore making the process more efficient and tamper proof. The findings of this study are in agreement with those of Kwena (2012), whose study found out that IFMIS aims to provide a high level of safety to its users, the system also easily reports abusers of the system, and all known abuses are easily reported leading to the identification of culprits. The study also revealed that the system provides security for personal data, and that IFMIS is safe to use providing high levels of data integrity for its users. The county government of Kiambu should strengthen their IFMIS control systems to realize more improvement in public procurement performance.

Online Tendering and Public Procurement Performance

The second objective investigated the relationship between online tendering and public procurement performance. The model indicated that online tendering is significantly related to public procurement performance with a beta value ($\beta = 0.162$, $p\text{-value} = 0.046$). This p -value of 0.046 at a significance level of 5% ($\alpha =0.05$) is statistically significant, indicating a positive relationship

between online tendering and public procurement performance. Therefore, there was sufficient evidence to conclude that online tendering had influence in determining public procurement performance. This is attributable to confidence in the procurement process, owing to the fact that the tendering process is now automated implying that majority of the tenders are awarded to qualified suppliers. The findings were similar to those of Rotich et al., (2015), who found out that online tendering reduced the tender cycle by improving the choice of suppliers and stating in advance the specifications of tender performance, and reducing the costs associated with tendering process.. Kiambu county government should therefore work towards ensuring that online tendering bears more fruit.

Automated Planning and Public Procurement Performance

The third objective aimed at establishing whether there was a relationship between automated planning and public procurement performance. From the model, automated planning is seen to significantly influence public procurement performance with a beta value of ($\beta = 0.211$, $p\text{-value} = 0.036$). The p -value at 5% significance level was less than 0.05, which demonstrated a positive relationship between automated planning and public procurement performance. Therefore, there was sufficient evidence to conclude that automated planning influenced public procurement performance. This can be attributed to improvements in procurement plans, more so through automation and thereby reducing uncoordinated procurement activities. The results of this study concur with the findings of Brahim et al., (2014), who found out that the objective of procurement planning is to help in the avoidance of haphazard procurement, thus making the government's market place more attractive and transparent to the suppliers as well as service

providers. The county government of Kiambu therefore should improve its procurement plans, since this will greatly influence public procurement to desired performance.

Automated Supplier Engagement and Public Procurement Performance

The fourth objective of the study investigated the relationship between automated supplier engagement and public procurement performance. Interpreting the observed correlations, it was observed that public procurement performance is more influenced by automated supplier engagement with a beta value of ($\beta = 0.292$, $p\text{-value} = 0.002$). The p -value was lower than 0.05 at 5% level of significance and was therefore significant, and that there was a positive relationship between automated supplier engagement and public procurement performance. This therefore was reason enough to conclude that automated supplier engagement influenced public procurement performance.

This implies that the IFMIS provides for better and efficient methods of engaging the suppliers and also helps to foster these relationships, making the county government procurement attractive to the suppliers. The findings are in agreement with the findings of Mandiyambira (2012) who found out that long-term relationships with several suppliers was the most effective strategy of managing supplier relationships for both long-term and short-term contracts and for complex products. The county government of Kiambu therefore ought to improve on automated supplier engagement so as to realize high public procurement performance. Akenroye et al., (2012) found out that there is need to engage suppliers in performance review, training and capacity development programmes necessary to support suppliers.

These study results indicated that at 5% level of significance, all the coefficients were statistically

significant, which was enough evidence to conclude that there was a positive relationship between public procurement performance and all the independent variables; IFMIS control systems, online tendering, automated planning, and automated supplier engagement.

SUMMARY

On determining the influence of IFMIS control systems on public procurement performance, the findings of the study indicated that use of IFMIS has resulted to control of expenditure in the use of public resources had the highest rating, followed IFMIS control systems have enhanced confidence with the procurement process, then followed by IFMIS use has helped to expedite reports and data transmission, IFMIS exposes corrupt officials in the procurement process, IFMIS helps restrict disclosure of sensitive information to unauthorized persons. IFMIS use to monitor procurement process increases the risk of detection and deters corruption had the lowest rating. Majority of IFMIS control system factors were above the aggregate mean. The results of the study also confirmed that there was a strong positive relationship between IFMIS control system factors and public procurement performance. This therefore indicates that IFMIS control systems had a significant effect on public procurement performance.

The study findings on the influence of online tendering on Public Procurement Performance was to a moderate extent as indicated by the factors; that online tendering was faster and more efficient than traditional purchasing cycle, e-tendering promotes good procurement practices resulting to a competitive advantage, online tender portal acts as a database for tender advertisement and contract award, therefore improve access to tenders by county governments, online tendering also raises transparency of the procurement process, and adoption of e-procurement promotes supplier engagement. The results therefore guide the

conclusion that online tendering and public procurement performance had a significant relationship.

The study sought to determine the influence of automated planning on public procurement performance. The results indicated that automated planning had consistent mean above the overall mean of the variables. This was measured through; automated planning helping to reduce haphazard procurement, automated planning helping to identify suppliers, and procurement cost reduction. Automated planning reducing procurement delays received the lowest rating. The study therefore implied that there was a positive relationship between automated planning and public procurement performance.

The study evaluated the influence of automated supplier engagement on public procurement performance. Automated supplier engagement was based on improving transparency, managing relationships for both long-term and short-term contracts, involvement of supplier in training and capacity development, creating and maintaining contacts with suppliers and efficiency of acquisition of goods and services. The findings of the study indicated that supplier engagement, creating and maintaining supplier contracts, involvement of suppliers in training and capacity development, managing supplier relationship, and improving transparency had been achieved moderately. A significant relationship was revealed among the four independent variables and the dependent variable.

Conclusion

The conclusions of the study were that IFMIS control systems positively relates with public procurement performance. Further it was put to bed that online tendering demonstrated a significant relationship with public procurement performance. It was also consummated that automated planning

significantly relates with public procurement performance, and automated supplier engagement also relates with public procurement performance. These study results therefore help to conclude that all the independent variables positively relate with public procurement performance. Thus a change in either IFMIS control systems, online tendering, automated planning and automated supplier engagement would significantly affect public procurement performance.

Contribution of the study to knowledge

This study investigated influence of IFMIS on public procurement performance in the county government of Kiambu in Kenya. Majority of the empirical studies reviewed on the performance of the public sector following the implementation of IFMIS in this sector. There was minimal focus on devolved county governments, following the deployment of IFMIS. It is therefore important that more research is done to investigate the influence of IFMIS in regards to other areas where its application has taken shape. This study therefore adds to the existing body of empirical literature that other researchers will find resourceful in their research work. The study also adds to theoretical literature since it supports the suggestions of both Diffusion of Innovation and Information Systems Success theories in bringing on board computer information systems to improve the procurement process in county governments.

Policy recommendations

Based on the variables of the study; IFMIS control systems, online tendering, automated planning and automated supplier engagement, the findings of this study are beneficial to a number of stakeholders if put to use. This study recommends that county governments should put policies flexible enough to handle technological changes. Policies to strengthen the IFMIS platform should be put in place to ensure the systems control mechanisms are

safeguarded. The county governments should also come up with strong password policies to ensure that access to this system is only granted to authorized personnel. The study also recommends that county have the responsibility of strengthening online platforms, so as to enhance effectiveness and efficiency in all activities of the counties.

Suggestions for Further Research

This study only considered the questionnaire as the main tool of data analysis, other methods such as interviews can be employed in the collection of data so as to facilitate counterchecking of the information provided. The study only focused on Kiambu county government, and should therefore be extended to include other counties, as well as other jurisdictions where there is devolved governance, and use of IFMIS. Future research work should focus on other factors that affect public procurement performance other than the four factors investigated in this study. Future studies should also investigate the negative impact of IFMIS on public procurement performance. Future repetitions to this study should consider county governments' willingness to implement changes and policies that will strengthen IFMIS. This study also recommends further research on public procurement in the private sector in Kenya.

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