A Critical Analysis of Adoption of Information Technology in Fostering Supply Chain Innovation and Entrepreneurship in Devolved Governments in Kenya

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Abstract
Kenya being a developing nation is faced with unemployment challenges, unstructured entrepreneurial activities, and poor performance of devolved governments. These challenges have led to dwindling economic performance and growth. With the adoption of devolved system of governance, there has been a progressive demand for innovative and transformative leadership for entrepreneurial development and performance. To address the challenges of inefficiencies and ensure effective delivery of public services, the national government has incorporated Information Communication Technology in almost all its operations. ICT is a pillar in accessing government's services by the citizens. Integrated Financial Management Information Systems (IFMIS), an ICT system, was conceived in 1998, but was rolled out in 2003for implementation in national government and 2013 in devolved governments. IFMIS was implemented to enhance efficiency of financial management and encourage adoption of modern public expenditure management practices. Since its inception, IFMIS has seen tremendous improvement in government service delivery. Besides the benefits of IFMIS, there have been challenges like inadequate personnel capacity, inappropriate implementation strategies, unclear government policies and inadequate ICT infrastructure. The objective of the study was there to conduct a Critical Analysis on Adoption of Information Technology in Fostering Supply Chain Innovation and Entrepreneurship in Devolved Governments in Kenya. Study was anchored on economic entrepreneur agency, resource-based view theory and adopted multiple case study design. Units of analysis comprised 14 Lake Region Economic Block (LREB) county governments. The study targeted 196 staff including procurement officers, chief officers and procurement committee members. Primary data were used. Pilot results (n=2) revealed 20 item instrument reliability (α=0.9563). Study finding (n=181 (92.3%) results in two retained attitudes (positive and negative) comprising 7 items with a good fit (p<.005). Bivariate ordered probit regression analysis revealed that IMFIS adoption are significantly associated with procurement performance (p<0.05) and supplier adoption of IFMIS are significant (β=2.12; p=0.001). This means that they significantly affect procurement performance. Study concluded that adoption of information technology has a positive and significant effect on supply chain innovation and entrepreneurship. Supply chain management aspect was found to be statistically significant at only good (p=0.036) and very good levels (p=0.033). The result also reveals for a unit increase in supply chain management aspects, would lead to ((β=-0.42; p=0.032)) decrease in performance. Study recommends for supply chain innovation and entrepreneurship development the county governments of Kenya should fast track the information technology hubs development. Study may be important to national and counties in informing policy direction about information technology adoption and development towards improving procurement performance and service delivery.
Keywords: Information Technology, Innovation, Entrepreneurship, Supply Chain and county government
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Introduction
Kenya is faced with unemployment challenges, unstructured entrepreneurial activities, and poor county government performance, leading to dwindling economic performance and growth. After the adoption of devolved system of governance, officials from county government and entrepreneurs in the regions have been demanding on innovative leadership for entrepreneurial development and performance (Musambayi, 2018). Entrepreneurial performance and innovation in devolved units is not satisfactory. Entrepreneurs contribute to the economies of many countries (Abonyi, 2005). Promoting entrepreneurship is part of town and state economic development strategies, this is the trend in countries where entrepreneurship is the path to economic activities (Yasuyuki and Wiens, 2015). Despite much attention being paid to entrepreneurship in Kenya, most entrepreneurs are struggling in county governments. To sum it up county government officials are not providing programs and innovative

leadership to support entrepreneurship development (Gliddon, 2006).

Count governments have come up with policies deemed to enhance development agenda and programs for the promotion of entrepreneurship. Entrepreneurship is perceived to spur economic development create employment, curb rural- urban migration, proper use of local raw materials in county governments (Jibrilla, 2013). Before the introduction of information technology, information flow was slow, error prone and time consuming across supply chain networks (Verma *et al.*2014). Organizations changed way of communication due to globalization and diversification of business process and transactions. To stay competitive and remain on the cutting edge of a complex business world globally, entrepreneurs are incorporating technology into their supply chain management systems. Consumers are becoming demanding on quality and service. At the same time, entrepreneurs and supply chain managers have realized the latest technology help them ensure better accountability and transparency allowing them to maintain control and stay ahead. All link in the supply chain is or can be monitored and automated notification systems are especially valuable for sending a single message to the intended players (Varma *et al.* 2013).

Supply chain managers in county government can coordinate processes at every link in the chain, regardless of their physical location through IFMIS. This ensures entrepreneurs, employees and other partners in supply chain play active roles in ensuring efficiency as a result of flexibility and convenience of IFMIS. Sharing of information along the supply chain networks allows the supply chain actors to work together aiming at coordinating and integrating supply chains for effective management. IFMIS plays vital role in integrating entrepreneurs and customers to meet the needs of the customers. With introduction of IFMIS county government can gather resourceful information across the supply chain and react quickly to any changes in the market, thereby gaining competitive advantage by effectively using SCM (Tummala & Schoenherr, 2008).

Developing nations need to prepare for radical technological changes which will affect societies and markets (Technology and Innovation Report, 2021). Appropriate policies in science, innovation and technology will be pursued by all countries regarding their development agenda, economic, environmental, and social conditions. Kenya being a developing nation need to align and strengthen technology and innovation systems to governance and industrial policies and close digital divides. County governments in Kenya should enhance social protection and ease workforce transitions to deal with the potential negative consequences of technologies on the entrepreneurship. County governments need to strengthen international cooperation to build innovation capacities, facilitate technology transfer, increase women's participation in digital sectors, conduct technological assessments and promote an inclusive debate on the impact of technologies on entrepreneurship

Fostering the growth of entrepreneurial ecosystems
The level of government interest in entrepreneurship and small business development as potential solutions to spur economic growth and rising unemployment has increased. The government interest in entrepreneurship was boosted by the successful technology entrepreneurs such as director of Apple Steve Jobs, of Microsoft director Bill Gates and many more technopreneurs (Audretsch *et al*. 2018). The home of high-tech entrepreneurial activity is California's Silicon Valley. It acts as a benchmark for governments seeking to stimulate economic growth like Kenya. County governments in Kenya need to benchmark and replicate Silicon Valley on how to develop and grow entrepreneurship. They need to need to enhance on entrepreneurship policies, regulatory framework, funding and finance, culture mentorship and support systems (Bliemel *et al*. 2019). County governments need to shape the growth of entrepreneurship by supporting entrepreneurs with high growth. By doing so they are giving the opportunity for local entrepreneurs to become role models for others.

With IFMIS in the county government, real time information sharing is real among key partners. Entrepreneurs (suppliers) track activities through the whole supply chain. Such information can help the entrepreneurs in making informed decisions and better forecast of demand. Excess inventory leads to wastage and an extra working capital funds, too low of inventory leads to stoppages of service provision and losses of business through stock outs (Lefebvre *et al*, 2015). Delivery of product and services on time is very important in ensuring client satisfaction. Good client satisfaction levels lead to higher customer retention and repeat sales. IFMIS play a vital role in ensuring speed delivery and keeping the clients informed about the product delivery schedule. It's designed to keep customers informed from order confirmation to order fulfilment, it also provide a platform for the customer to track and trace their orders.

Integrated financial management information system has brought about the necessary transparency in the county government processes. It allows county government to have better control over process and information flow across the supply chain this ensures thee is efficiency (Musambayi, 2018).

2.0 Classical Theory
Classical theory extolled virtues of specialization, free trade, and competition (Smith, 1776). Classical movement addressed the directing role of entrepreneur in context of production and distribution of goods in a competitive marketplace (Say, 1803). Classical theorists addressed three modes of production: land, labour and capital. The

theorists failed to explain the dynamic changes generated by entrepreneurs of the industrial age (Murphy *et al.,* 2006).

Neo-classical Theory
It emerged from the criticisms of classical model and hinted economic phenomena could be relegated to reflect an optimal ratio, pure exchange and transpire in an economic system which was basically shut. The economic system consists of exchange occurrences, exchange participants and impact of results of the exchange on other market players. Importance of exchange coupled with diminishing marginal utility created enough motivation for entrepreneurship in the neoclassical movement Murphy *et al. (*2006). Some criticisms were raised against the neo-classical notion. This notion include; aggregate demand disregard the uniqueness of individual-level entrepreneurial activity, coherent resource allocation doesn't capture complexity of market-based systems, Furthermore, neither use nor exchange value reveal the future value of innovation outcomes.

Austrian Market Process (AMP), these unanswered questions of the neo-classical movement led to a new movement which became known as the Austrian Market process (AMP). The AMP, a model influenced by Schumpeter (1934) concentrated on human action in the context of an economy of knowledge. Schumpeter (1934) described entrepreneurship as a driver of market-based systems. In other words, an important function of an enterprise was to create something new which resulted in processes that served as impulses for the motion of market economy. Murphy, Liao & Welsch (2006) contend that the movement offered a logic dynamic reality. In explaining this, they point to the fact that knowledge is communicated throughout a market system (e.g. via price information), innovation transpires, entrepreneurs satisfy market needs, and system-level change occurs. If an entrepreneur knows how to create new goods or services, or knows a better way to do so, benefits can be reaped through this knowledge. Entrepreneurs effectuate knowledge when they believe it will procure some individually defined benefits. The earlier neoclassical framework did not explain such activity; it assumed perfect competition, carried closed-system assumptions, traced observable fact data, and inferred repeatable observation-based principles. By contrast, AMP denied assumptions that circumstances are repeatable, always leading to the same outcomes in an economic system. Rather, it held entrepreneurs are incentivized to use episodic knowledge (that is, possibly never seen before and never to be seen again), to generate value. Thus, the AMP was based on three main conceptualizations (Kirzner, 1973).

The first was the arbitraging market in which opportunities emerge for given market actors as others overlook certain opportunities or undertake suboptimal activity. The second was alertness to profit-making opportunities, which entrepreneurs discover and entrepreneurial advantage. The third conceptualization, following Say (1803) and Schumpeter (1934), was that ownership is distinct from entrepreneurship. In other words, entrepreneurship does not require ownership of resources, an idea that adds context to uncertainty and risk (Knight, 1921). These conceptualizations show that every opportunity is unique and therefore previous activity cannot be used to predict outcomes reliably. The AMP model is not without criticisms. The first of the criticisms is that market systems are not purely competitive but can involve antagonist cooperation. The second is that resource monopolies can hinder competition and entrepreneurship. The third is that fraud /deception and taxes/controls also contribute to market system activity. The fourth is that private and state firms are different, but both can be entrepreneurial and fifth, entrepreneurship can occur in non-market social situations without competition.

Empirical studies by Acs and Audretsch (1988) have rejected the Schumpeterian argument that economies of scale are required for innovation. The criticisms of the AMP have given impetus to recent explanations from psychology, sociology, anthropology, and Management. The theory down looks the diverse contexts in which entrepreneurship operates and assumes the nature of entrepreneurial activity. Economic system consists of exchange occurrences, participants, and impact of results of the exchange on other market players. Economic development entrepreneurship is very vital criterion. Even though organizations achievements are credited to the organization, still they find their basis on individual motivation and initiatives therefore the theory is limited to understanding of the role played by individuals in entrepreneurship (Amolo, 2014).

Resource-Based View
Resource-based view offers explanation on importance of resources among business enterprises that drive overall competitiveness and performance (Nyachae *et al.,* 2020). It affirms that firms can achieve and sustain their competitive advantage if they have tangible or intangible resources that are valuable, rare, inimitable, and non-substitutable. Theory stresses the importance of social, financial, and human resources. Therefore, access to resources enhances the individual's business to detect and act upon discovered opportunities (Davidson & Honing, 2003).

Ability of a firm to create competitive advantage depends on its ability to manage efficiently sourcing decisions. This implies need to select suppliers based on ability to support value creation efforts. The core is ability of suppliers to not only meet buyer needs in terms of product and performance, but alignment of goals and objectives of parties across the supply chain. Resources are stocks owned or controlled by an organization while

capabilities are organization capacity to deploy resources effectively. Essentially, it's building of the resources which lead to capabilities. The theory asserts firm's resources are major determinants of it is performance. Resources include knowledge, assets, organizational processes, and information. If these resources are appropriately utilized, the performance of an organization improves. The organization competitiveness is based on resources it masters to develop competencies by increasing the level of integration, information sharing and collaboration. Relationship management and communication among the members of a supply chain is necessary for improving the effectiveness of supply chains.

Empirical review of Information Technology in Fostering Supply Chain Innovation and Entrepreneurship
Sitoula (2015) adopted descriptive research design in his study which focused on prospects and challenges of youth entrepreneurship in Kathmandu, he sampled 100 entrepreneurs who are youth registered in the region. The findings revealed the young entrepreneurs face obstacles in setting up businesses and managing them. Study by Simona (2015) on government subsidies in growth of SMEs in emerging nations. Study revealed a positive correlation between receipt of public subsidies and the innovative activities of SMEs in developing nation.

Eric (2015) studied in Brussels effectiveness of government intervention in SME sector. Study sampled 162 beneficiaries of government financial support in promoting SMEs. He observed government subsidies contributed greatly to SMEs performance. Government loans and equity capital also contribute to SMES performance. Aliyu (2013) in his study in Mubi North local government in Nigeria on the impact of government interventions on Small Scale enterprise. Study observation revealed there is poor perception on government interventions to enhance small enterprises by business operators, also few small business operators were aware and to accessed benefits of government interventions in the operation of small enterprises. Sambo (2016) carried out a study on factors affecting youth entrepreneurship development in Kibera sub county, Kenya. Study result revealed Kenya government has policies and programs in place to facilitate access to credit by youth owned SMEs.

Miheso (2013) and Musee (2011) studies on IFMIS and national government determined challenges of IFMIS adoption in Kenya. Studies didn't address performance aspect of national government due to IFMIS adoption. Njonde and Kimanzi (2014) they used descriptive statistics to determine effect of IFMIS on performance of Nairobi County Government bring. The study failed to address the relationship between IFMIS and county governments' performance. Correlation and regression analysis ought to have been used instead of use of percentages only. Hashim (2001) studied core requirements for fiscal management systems he focused on usage of IFMIS but failed to a look at how IFMIS correlates with performance of organization. Chebet (2013) conducted study in Kenya on success factors in implementation of reengineered IFMS in government ministries. Study based on IFMIS adoption and financial performance. Study didn't bring out clearly on how IFMIS affects performance.

Muigai (2012) conducted a study in Kenya government in Kenya to investigate effect of IFMIS on the management of finances. Finding revealed IFMIS has massively contributed financial management in Kenya public sector, but this is not full convincing since it did not reveal to what extent in terms of regression coefficient and percentages this need to be addressed further. Nyabuto (2009) in his study on Implementation of IFMIS as a tool for Sustainable Financial Management identified reasons for reluctant in use of IFMIS and didn't relate to performance of national government therefore further study is recommended to establish relationship of IFMIS and government performance. Most of the studies have been conducted in Kenya national government with devolved government of County having limited studies. It is also clear from above studies, the aspect of performance in County government did not come out clearly because inferential statistics was not employed.

3.0 Research Methodology
The study adopted multiple case studies research design to effectively explain the effect and relationships between information technology in fostering supply chains innovation and entrepreneurship in county government in Kenya. Multiple case studies allow the scholar to explore the phenomena under study through the use of a repetition strategy. Yin (1994) argues the repetition strategy is the similar to carrying out a number of unrelated experiments on related topics. Duplication is carried out in two stages, in which cases are selected to obtain similar results, and a theoretical repetition stage, in which cases are selected to explore and confirm or disprove the patterns identified in the initial cases. According to this model, if all or most of the cases provide identical results, there can be substantial support for the development of a basic theory which describes the phenomena (Eisenhardt, 1989). There are no fast and hard rules in multiple case studies design, about cases needed to fulfil the requirements of the duplication strategy. Yin (1994) suggested that six to ten cases are enough to provide fascinating support for the initial set of hypotheses if the results show up as predicted. Further he argues, typical criteria regarding sample size are irrelevant. Instead, the size of the sample is decided by the number of cases needed to reach capacity. This means, data collection until no substantial new findings are revealed. The candidate's sample is selected careful to incorporate instance in which the phenomena under study are to be found.

Research was conducted in 14 County governments of LREB. Targeted population consisted of 196 employees, comprising of the county procurement committee member, chief officers and procurement officers

comprising of a total of 196 respondents, they were of interest since they hold vital information related to variables of interest. Research used random sampling method in which 3 procurement committee members, 9 chief officers and 2 procurement officers were randomly sampled from each of the 14 LREB counties. Study used primary data; this is information directly collected from respondents (Kombo *et al.* 2006). Researcher disseminated 196 semi-structured questionnaires to the targeted respondents of which 181 questionnaires were filled and collected by the researcher for data management and analysis. Completed questionnaires were then entered into SPSS for data management and storage and then exported to STATA for analysis of data

The Analytical model
Descriptive and inferential statistics were employed during the data analysis. Probit regression and marginal effect model was adopted. Marginal effect of independent variable is the derivative of the prediction function, which by default is the probability of success following probit. Margins evaluates this derivative for each observation by default and reports an average of the marginal effects. The essential thing to remember is a slope of a function can be greater than one, even if the values of the function are all between 0 and 1.

Probit regression Model
It's a binary response model with two possible outcomes donated as 1 and 0. It estimates the probability of observation with particular features fall into one of the categories. It employs a probit link function. Suppose Y represents the outcome (supply chain and entrepreneurship performance) variable with two categories and X is a vector of independent variables (information technology in fostering supply chains innovation and entrepreneurship). The form of the model is:

$Pr(Y=1X)=\Phi(X^T\beta)$, ………………………………..(i)

> Pr denotes probability
> Φ Cumulative Distribution Function.
> Parameters β are estimated by likelihood maximum
> Another way of modelling probit model is to assume there is a latent continuous variable y_i^* such that:

$$Y_i=\begin{cases} 1 & if\ yi*= xi\beta + \epsilon i > 0 \\ 0 & otherwise \end{cases}$$ ……………………………….. (ii)

Specifying $Pr(y^*>0|x) = F(x\beta)$ to be the cumulative distribution for ϵ_i conditional on x yields

$Pr(y^*>0|x) =Pr (\epsilon>-x\beta|x)$ ……………………………….. (iii)

> $= Pr (\epsilon < x\beta|x)$ (if ϵ has a symmetric distribution)
> $=F (x\beta)$

The pseudo R^2 parameter was be used to evaluate the model performance in which pseudo $R^2 >0.5$ was considered fit.

Multiple regression model: $y=\beta_0+\beta_1 x_1+\beta_2 x_2+\cdots+\beta_k x_k+e_i$ ……………… (iv)

> y- dependent variable,
> $x_{1,2}…x_k$ - independent variables i.e. purchasing, transport management, order processing, supply chain integration, information sharing and strategic supplier partnership.
> e_i - error,
> $\beta_0, \beta_1,. . , \beta_k$- parameters.

Table 3. 1 Distribution of population per County

County	Category Chief officer	Procurement Committee Members	Procurement Officers	Total
Nyamira	9	3	2	14
Kisii	9	3	2	14
Busia	9	3	2	14
Bungoma	9	3	2	14
Kakamega	9	3	2	14
Vihiga	9	3	2	14
Transzoia	9	3	2	14
Nandi	9	3	2	14
Bomet	9	3	2	14
Kericho	9	3	2	14
Kisumu	9	3	2	14
Siaya	9	3	2	14
Migori	9	3	2	14
Homabay	9	3	2	14
Total	**126**	**42**	**28**	**196**

Source: Survey Data (2019)

3.1 Response Rate

Ninety two percent response rate was recorded from the study. A return rate of 50% is adequate, 60% is good enough, while the return rate of above 70% is very good (Creswell *et al*., 2014). Based on this finding, the current study's questionnaire return rate of 92.3% is considered very well.

Table 3.2 Response Rate

Questionnaires	Number (n)	Percentage (%)
Filled and Collected	181	92.3
Not Filled and Not Used	15	7.7
Total	196	100

Source: Survey Data (2019)

4.0 Results and Discussion

4.1. Demographic characteristics of the respondents of County Government in Kenya

From Table 4.1, considering education level, most (46.41%) of the respondents were college diploma followed by graduate (first degree) (37.02%) and the least number of the respondents had education level of college certificate (2.21%). On years worked in public procurement and supplies management department (PPSM), majority (45.86%) had only worked for less than one year followed by between one to five years (36.46) and the respondents who had worked between five to fifteen years were the small number among the respondents (17.68%). Among the respondents on sections of department in public procurement and supplies management department, most of them were on the procurement section (72.93%) followed by stores and inventory section (16.57%) and the least respondents were on the records management section (10.5). Respondents were also asked to indicate their membership category in procurement professional body (PPB) and the results showed that majority were student member (48.07%) followed by none membership (26.52%) and the least number of respondents belonged to associate member (4.97%).

Table 4. 0: Socio-demographic characteristics of the respondents

Variables	Frequency (N)	Percentage (%)
Education Level		
Doctorate	13	7.18
Masters	13	7.18
Graduate (First degree)	67	37.02
College Diploma	84	46.41
College Certificate	4	2.21
Years Worked in PPSM		
Less than a year	83	45.86
Between 1-5 Years	66	36.46
Between 5-15 years	32	17.68
Sections of Department in PPSM		
Records Management	19	10.5
Procurement	132	72.93
Stores and Inventory	30	16.57
Membership Category in PPB		
None	48	26.52
Student Member	87	48.07
Associate Member	9	4.97
Full Member	37	20.44

Source: Survey Data (2019)

4.2. Bivariate ordered probit analysis on integrated financial management information systems and procurement performance of county government in Kenya.

Table 4.1: Bivariate ordered probit analysis on integrated financial management information systems on procurement performance

Procurement Performance	Coefficient	(95% CI)	P-Value
Supply Chain Management Aspects	0.09	(-0.22, 0.4)	0.571
Supplier Adoption of IFMIS	2.02	(1.66, 2.37)	**<0.0001**

Source: Survey Data (2019)

Table 4.1 shows that supply adoption of IFMIS was statistically significant, (p<0.001), and further evidence from the results shows that, for a unit increase in supplier adoption of IFMIS, we would expect 2.02 increase log odds of being in a higher level of procurement performance of county government, given that all of the other variables in the model are held constant (coeff =2.02, 95% CI, 1.66, 2.37; p<0.0001). This finding concur with a

study done by (Chemjor, 2015) which states that procurement performance greatly depends on how effective the supplier evaluation practice is conducted. This concurs with (Biwott, 2015) study on integrated financial management information systems implementation and its effects on public procurement performance at the national government. In this study, ministries' adoption of IFMIS has very positive effects on the procurement performance

4.2.1Marginal Effect from Bivariate Ordered Probit Regression Model

Table 4.2: Marginal Effect from Bivariate Ordered Probit Regression Model

Procurement Performance	Ordered Probit Marginal Effect for Fair Procurement Performance (20-39%)			Ordered Probit Marginal Effect for Good Procurement Performance (40%-59%)			Ordered Probit Marginal Effect for Very Good Procurement Performance (60%-79%)		
	dy/dx	95% CI	P-Value	dy/dx	95% CI	P-Value	dy/dx	95% CI	P-Value
Supply Chain Management Aspects	-0.02	(-0.07, 0.04)	0.571	-0.02	(-0.09, 0.05)	0.574	0.03	(-0.09, 0.16)	0.571
Supplier Adoption of IFMIS	-0.07	(-0.13, -0.01)	0.015	-0.64	(-0.81, -0.48)	<0.001	0.72	(0.58, 0.86)	<0.001

Source: Survey Data (2019)

From bivariate Table 4.3, supply chain management aspects were found to be statistically insignificant at all levels of procurement performance. On supplier adoption of IFMIS at the level of fair procurement performance the results shows that for a unit increase in supplier adoption would lead to a decrease in fair procurement performance by 7%, (dy/dx, -0.07; 95% CI, -0.13, -0.01; p=0.015), also a unit increase in the same supplier adoption of IFMIS would lead to a decrease of good procurement performance by 64%, (dy/dx, -0.64; 95% CI, -0.81, -0.48; p<0.001) and finally at the level of very good procurement performance the results shows that there was an increase of 72% for every unit increase in supplier adoption of IFMIS (dy/dx, 0.72; 95% CI, 0.58, 0.86; p<0.001), this result opposes the ideas in a study done by Cook *et al.*, (2011) that states that supply chain management is important for success in the economy as it was for Roman Empire world dominance. The study states that supply chain management conducted with cross functional integration improves efficiency hence improving the procurement performance of an organization. The two studies are in agreement in that both states that an increase in supply chain leads to an increase in procurement performance.

4.2.2. Multivariate Ordered Probit Regression Model

Table 4.3: Multivate ordered probit marginal effect analysis on integrated financial management information systems and procurement performance.

Procurement Performance	Ordered Probit Marginal Effect for Fair Procurement Performance (20-39%)			Ordered Probit Marginal Effect for Good Procurement Performance (40%-59%)			Ordered Probit Marginal Effect for Very Good Procurement Performance (60%-79%)		
	dy/dx	95% CI	P-Value	dy/dx	95% CI	P-Value	dy/dx	95% CI	P-Value
Supplier Adoption of IFMIS	-0.07	(-0.13, -0.01)	**0.013**	-0.69	(-0.86, -0.51)	**<0.001**	0.76	(0.61, 0.91)	**<0.001**
Supply Chain Management Aspects	0.01	(0.0, 0.03)	0.097	0.13	(0.01, 0.26)	**0.036**	-0.15	(-0.29, -0.01)	**0.033**

From multivariate Table 4.3, both supplier adoption of IFMIS and supply chain management aspects had at least two levels of procurement performance to be statistically significant represented by a p<0.05. The results shows that for every unit increase in supply adoption would lead to 7% decrease of fair procurement performance and 69% decrease in the level of good procurement performance, (dy/dx, -0.07; 95% CI, -0.13, -0.01; p=0.013) and (dy/dx, -0.69; 95% CI, -0.86, -0.51; p<0.001) respectively while at the level of very good procurement performance there was a 76% (dy/dx, 0.76; 95% CI, 0.61, 0.91; p<0.001) increase influenced by every unit increase in supplier adoption of IFMIS.

Supply chain management aspect was found to be statistically significant at only good and very good levels of procurement performance. The result shows that for a unit increase in supply chain management aspect would lead to 13% increase (dy/dx, 0.13; 95% CI, 0.01, 0.26; p=0.036), and 15% decrease (dy/dx, -0.15; 95% CI, -0.29, -0.01; p=0.033), in good and very good levels of procurement performance respectively. A study done by (Harrison & New, 2002) opposes the idea that an unit increase in supply adoption leads to decrease in procurement performance but agrees with the fact that an increase in supply adoption leads to an increase in procurement performance in his study where he states that successful implementation of supply chain practices and information systems integrations provides opportunities to improve procurement performance. Another study done by (Ortas, Moneva, & Álvarez, 2014) also agrees by stating that increase in supply chain practices benefits companies in other ways like improved efficiency, higher product quality and improved public relations.

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5.0 Conclusions

Integrated Financial Management System has a significant effect on financial reporting in county governments. The adoption of the system in the county governments has led to improved data extraction, reporting and presentation and access to financial information. Therefore information technology helps fulfil the principles of promptness, accuracy, relevance and authenticity of financial reporting.

IFMIS also leads to positive improvements in financial transaction processing in County Governments. This was indicated by reduced irregular expenditure, enabled tracing of all stages of transaction processing, execution of budgets according to rules, reduction in wasteful expenses and streamlined procedures, automated procedures and internal controls, closer monitoring of bills and cash and friendly and convenient interaction with the public.

In order to improve governance and financial control in county governments, the county governments ought to integrate non-financial information or activities into the system so that other functions such as information technology, human resource and other peripheral functions within county governments can benefit from the adoption of IFMIS. IFMIS is part of the financial management reform globally being undertaken by developing countries. It has benefits such as: contributes to the enhancement of accountability and transparency, effective control over public finances, and serves as a deterrent to fraud and corruption.

Recommendations

Based on the study results and the above conclusion, the study recommends that: To achieve the objective of full benefits of integrated end-to-end financial management information system, the county governments should support the adoption of the information technology within the county governments operations. This may require capacity building and advocacy by the county governments to promote policy development that embraces the s information technology at the county level.

County governments should leverage on the effectiveness and efficiency gains of the system to win stakeholder confidence through publicity and awareness of the achievements. For a better performance of supply chain innovation, the county governments of Kenya should in cooperate information technology in all there process. Study recommends for supply chain innovation and entrepreneurship development the county governments of Kenya should fast track the information technology hubs development to foster innovations and entrepreneurship.

References

Abonyi, G. (2005). Policy Reform in Indonesia and the Asian Development Bank's Financial Sector Governance Reforms Program Loan. *ERD Working Paper Series, Economics and Research Department, Asian Development Bank*. Forthcoming.

Acs, Z.J., &Audretsch, D.B. (1988), "Innovation in large and small firms: *An empirical analysis", American Economic Review,* 78,678-690.

Aliyu A. (2013) Impact of Government Interventions on Small Scale Enterprises in Mubi North Local Government Area, Adamawa State, Nigeria. *Journal of Economics and Sustainable Development.*

Audretsch DB, Belitski M (2016) Entrepreneurial ecosystems in cities: establishing the framework conditions. *Journal of Technology Transfer. Available at*: DOI 10.1007/s10961- 016-9473-8.

Biwott, E. (2015*). Integrated financial management information systems implementation and its impact on public procurement Performance at national government of Kenya*. Master's Thesis, University of Nairobi.

Bliemel, M, Flores, R, Klerk, SD, et al. (2019). Accelerators as start-up infrastructure for Entrepreneurial clusters. *Entrepreneurship and Regional Development* 31(1–2): 133–149.

Chemoiywo, P. (2014). *Public Procurement Procedures and Supply Chain Performance in State Corporations in Kenya*. University of Nairobi.

Chemjor, R. K. (2015). *Supplier evaluation criteria and procurement performance in Parastatals in Kenya.* University of Nairobi.

Cherotich, c. (2018). *The effectiveness of procurement practices on performance of county Governments in Kenya: A study of Kericho County Government*.

CIPS. (2013). *Monitoring the Performance of Suppliers-CIPS Positions on Practice*. CIPS.

Danese, D. (2013).*The determinants of supplier selection and evaluation in Pakistan Telecom industry*.

Dobos, I. (2013). *Supplier selection and evaluation decision considering environmental aspects*.1-23.

Donaldson, T., & Preston, L. E. (1995). "*The Stakeholder Theory of the Corporation: Concepts, Evidence, and Implications*. Academy of Management, 65-91.

Eric G (2015) Optimal Effectiveness of Government Intervention in the SME Sector: Evidence from the Brussels Capital Region. *International Centre for Innovation Technology and Education.*

Harrison, A and New, C. (2002) the Role of Coherent Supply Chain Strategy and Performance Management in Achieving Competitive Advantage: An International Survey. *Journal of the Operational Research Society*, 53, 263-271.

Humphreys, P. K. (2004). *The impact of supplier development on buyer–supplier Performance. Omega*, 32 (2004)

131–143.

Gliddon, D. G. (2006). *Forecasting a competency model for innovation leaders using a modified Delphi technique*. Unpublished dissertation, Penn State University.

Gallego, L. (2011). *Review of existing methods, models and tools for supplier evaluation*. Department of Management and Engineering.Linköpings University.Hogan, E. J. (2001).

Hashim, B Allan – 2001 *Information systems for government fiscal management*

Jibrilla, A. A. (2013).Impact of Government Interventions on Small Scale Enterprises in Mubi North Local Government Area, Adamawa State. *Nigeria Business Journal of economics and sustainable development.*

Kirzner, I.M. (1973*). Competition and Entrepreneurship. Chicago, IL*: University of Chicago. Knight, F.H. (1921). *Risk, uncertainty, and profit, Library of Economics and Liberty*. Retrieved from www.econlib.org/library/Knight/knRUP1.html.

Kombo, K.D. and Tromp, L.A.D. (2006) Proposal and Thesis Writing: An Introduction. *Paulines Publishers, Nairobi, Kenya.*

Lefebvre V, Radu LefebvreM, E Simon 2015 study. Entrepreneurship *& Regional Development* 27 (7-8), 500-525

Miheso, S.J. (2013). *Adoption of integrated financial management information system (Ifmis) by the national government in Kenya.*

Mobegi, H. Nyabuto. (2009). *A survey of the extent of implementation of integrated financial management information system (IFMIS) as a tool for sustainable*

financial management in government (Doctoral dissertation, of University of Nairobi.)

Motoyama, Y, Wiens, J (2015) Guidelines for Local and State Governments to Promote Entrepreneurship. *Kansas City, MO: Ewing Marion Kauffman Foundation*.

Moneva JM, Ortas E, Alvarez I 2014. Exploring sustainability in Spanish companies. In Schaltegger S, Windolph SE, Harms D, Hörisch J (eds.). *Corporate Sustainability in International Comparison Eco-Efficiency in Industry and Science* Vol. 31, Springer: Switzerland; 167–182.

Muigai, E. V (2012).*The Effect of Integrated Financial Management Information Systems on the Financial Management of Public Sector in Kenya*: *A Case of the Kenyan Ministries*. Masters Dissertation, University of Nairobi, Kenya.

Murphy, J.P, Liao, J & Welsch, P.H. (2006), "A Conceptual history of entrepreneurial thought" *Journal of Management History*. 12, 9-24.

Musambayi, N.J. (2018). Leadership and firm entrepreneurial performance in county governments in Kenya. *Journal of Global Entrepreneurship Research 8:3.*

Musee, K.J. (2011) *Factors Affecting Effective Implementation of Integrated Financial Management Information Systems in Government Ministries in Kenya*. University of Nairobi.

Mugenda, O.M. & Mugenda, A.G. (2003) *Research methods, quantitative and qualitative approaches.* Nairobi: ACT Press.

Njonde, J. N. &Kimanzi, K. (2014). Effect of integrated financial management information system on performance of public sector: A case of Nairobi County Government. *International Journal of Social Sciences and Entrepreneurship*, 1 (12), 913-936.

Sambo, W. (2016). *Factors affecting youth entrepreneurship development in Kibera District, Kenya*. Problems and Perspectives in Management (open-access)

Say, J.B. (1803). Traité D'économie Politique, ou Simple Exposition de la Manière Dont se Forment, se Distribuent, et se Composent les Richesses, A.A. Renouard, Paris.

Schumpeter, J.A. (1934).The Theory of Economic Development. Cambridge, MA: *Harvard University Press*.

Simona, M. (2015) *Subsidies, financial constraints and firm innovative activities in developing countries*.

Sitoula, T., 2015. Challenges and Prospects of Youth Entrepreneurship in Kathmandu,

Kathmandu: *University of Nordland.*

Smith, A. (1776). An Inquiry into the Nature and Causes of the Wealth of Nations .*London: Methuen Publishers.*

Tummala, R. & Schoenherr, T. (2011). Assessing and managing risks using the supply chain risk management process (SCRMP). *An International Journal, 16*(6), 474 – 483.

Verma C, D. Kumar, S. Dahiya. An Analytical Approach to Investigate State Diversity towards ICT: A Study of Six Universities of Punjab and Haryana.Indian. *Journal of Science and Technology*, 9 (31) (2016), pp. 71-75

Varma, T. N., & Khan, D. A. (2012). Fraud detection in supply chain using benford distribution. *International Journal of Research in Management, 5(2), 90-96*